

**HEALTH:**

The protection of the bodies and minds of people from illness resulting from the materials, processes or procedures used in the workplace.

**SAFETY:**

The protection of people from physical injury. The borderline health & safety is ill-defined and the two words are normally used together to indicate concern for the physical and mental well being of the individual at the place of work.

**WELFARE:**

The provision of facilities to maintain the health and well-being of the individuals at the workplace. Welfare facilities includes washing and sanitation arrangements, the provision of drinking water, heating, lighting, accommodation for clothing, seating (when required by the work activity) eating and rest rooms. First aid arrangements are also considered as welfare facilities.

**OCCUPATIONAL OR WORK RELATED ILL-HEALTH:**

Illness or physical and mental disorders that are either caused or triggered by workplace activities.

**ENVIRONMENTAL PROTECTION:**

Arrangements to cover those activities in the work place which affect the environment ( in the form of flora, fauna, water, air and soil) and possibly, the health and safety of the employees and others. Such activities include waste and effluent disposal and atmospheric pollution.

**ACCIDENT:**

Any unplanned events that results in injury or ill health of people, or damage or loss to property, plant, materials or the environment or a loss of business opportunity'.

**NEAR MISS:**

Any incident that could have resulted in an accident.

**DANGEROUS OCCURRENCE:**

A near miss which could have led to serious injury or loss of life.

**HAZARD AND RISK:**

A hazard is the potential of a substance, activity or process to cause harm. ( Hazards take many forms including, for example, chemicals, electricity and working from a ladder. ( Anything that has potential to cause harm).

A risk is the likelihood of a substance, activity or a process to cause harm. The level risk remains when controls have been adopted is known as the residual risk. (Consequences of events are termed as Risk).

**ACCIDENTS:****1) Accident incident rate : Meaning - Explain**

Number of accidents / incidents per thousand employees.

$$= \frac{\text{Total incident / Accident}}{\text{Total employees}} * 1000$$

**2) Record should be maintained - Why ? Explain**

- 1) Legal requirements (RIDDOR & BI 510)
- 2) Identifying the trends.
- 3) Insurance

**3) Cause of accident & cause of an injury -Difference Explain**

Immediate & root causes of undesired events.

**4) Above difference is importance to investigate the accident - Why**

(Accident causation theory & need to develop & need to develop investigation procedures to identify root causes).

## **5) Reference to RIDDOR 1995**

### **A) List four types of major injury**

- 1) Fractures
- 2) Amputations
- 3) Particular eye injuries requiring immediate medical treatment
- 4) Loss of consciousness due to electric shock or exposure to a substance
- 5) Injury requiring hospital admission for more than 24 hours.

### **B) Outline procedure of Reporting to Enforcement Authority**

Notified to enforcement authority by the quickest possible means (normally telephone fax) & then on Form 2508 within 10 days of the accident.

## **6) Major injury (notifiable injury): Explain 2 examples (What is meant by?)**

(Knowledge of RIDDOR 1985)

## **7) Outline the Legal requirements for reporting a major injury (notifiable injury).**

### **8) Reasons for reporting accidents at work.**

- i) Monitoring of accident data analysis & Identification of trends. (H & S Performance).
- ii) Legal requirement under RIDDOR 1985
- iii) The provision of information based to accident investigation & to help in civil claims
- iv) It provides essential information for reviewing risk assessment and achieving better control over accidents.
- v) Benefits to individual organization and on a national scale.
- vi) Preventing a recurrence & reducing losses.

### **9) Accident Investigation - 4 objectives**

- i) To establish all the causes of an accident (immediate & underlying) to take preventive action.
- ii) To determine economic losses to establish true cost to the organization.
- iii) To determine the compliance with the law.
- iv) To improve staff relation by demonstration commitment of H & S, thus increasing staff moral.

## **10) Outline the factors that should be considered before undertaking an investigation of an accident.**

- 1) Planning and preparation stages:
  - Determine who should be involved to give the team the necessary skill and expertise.
  - Ensure that accident scene is left unaltered (as long as it is safe to do so) etc.
  - Identifying the persons (witness, supervisors) to be interviewed during the investigation.
  - Checking the legal reporting requirements have been met.
  - Ascertaining the equipment that will be needed (e.g measuring tape, plans, camera).
  - The reports style formal / informal who is going to receive it. The depth of the investigation required usually determined by a number of factor e.g the seriousness of the accident, number of people involved etc.

## **11) Outline the reason for reporting accidents at work.**

- i) To implement initial controls.
- ii) As a trigger for investigation.
- iii) To prevent a recurrence and further injuries and losses.
- iv) To comply with a legal requirements.
- v) To provide information for Civil action.
- vi) To highlight the need for and to assist in reviews of risk assessment.
- vii) To provide data for used in the monitoring of safety performance.

**12) Permit to Work: Explain the practical measures that should be taken to ensure maintenance work is undertaken safely in an underground storage vessel.**

- i) Essential elements of permit to work system ( briefly)
- ii) Pre cleaning.
- iii) Purging.
- iv) Testing
- v) Emergency procedures/ precautions.
- vi) Lighting
- vii) Access & Training.

**13) Explain the meaning of term,**

- a) Safe system of work:
  - Integration of people equipment, material and environment to produce an acceptable level of Safety.
- b) Describe the enforcement action that could be taken when safe system of work has not been implemented.
  - Improvement notices.
  - Prohibition notices.
  - Prosecution.

**14) Describe the practical measures that must be taken to ensure maintenance work is undertaken safely in an underground storage vessel.**

- 1) Permit to work procedure.
- 2) Pre cleaning / purging
- 3) Atmospheric testing
- 4) Competent personnel
- 5) Suitable tools.
- 6) Adequate lighting
- 7) Appropriate PPE
- 8) Communication system
- 9) Emergency arrangement for safe evacuation of staff.

**15) Define the term Permit to Work**

“A formal documented control system applied to a high risk activity to ensure that all safety procedures are carried out”.

**16) Outline three practical situations that may require a permit.**

- 1) Confined space work
- 2) Work on high voltage electrical systems
- 3) Maintenance on dangerous plant and hot work

**17) Signs and signals: Describe with the aid of sketches, 4 different kinds of safety signs that may be displayed in the work place.**

- 1) Prohibition signs
- 2) Warning signs
- 3) Mandatory signs
- 4) Emergency exit OR First aid

**18) Risk Management:**

a) Explain the meaning of term “Safe System of Work”.  
“Integration of people, equipment, materials & environment to produce an acceptable level of safety”.

b) What factors should be considered when designing a safe system of work?  
Hazards, who, when, where, how, prevention, documentation & risk assessment , JSA.

## **19) Explain the meaning of term,**

a) 'Hazard'.

"Something with the potential to cause harm".

b) Outline techniques for identifying hazards in the workplace.

- 1) Inspections/ tours
- 2) Audits
- 3) Accident analysis
- 4) Hazop
- 5) JSA

## **20) a) Outline the duties placed on employees under the Manual Handling Operations Regulations 1992.**

- 1) Avoiding manual handling operations wherever possible. (R-4).
- 2) Conducting suitable & sufficient assessment of the tasks.
- 3) Taking steps to reduce the risk of injury to the lowest level reasonably practicable.
- 4) Providing information to employees on the weight & weight distribution of the load.
- 5) Reviewing assessments as necessary.

## **b) Describe the four factors that should be considered when making assessment of manual handling operations.**

- 1) The task.
- 2) The load.
- 3) The environment.
- 4) The individual.

Task:- the distance of the load from the trunk, body movements & posture required.

E.g. twisting, stooping, stretching, excessive carrying, excessive pulling, pushing & the work rate imposed by the process.

Load:- Its weight, bulkiness, stability, sharpness, temperature and the ease with which it can be grasped.

Environment:- Ambient temperature, floor conditions, space & lighting.

Individual:- Suitable & sufficient assessment of individual by looking at physical capabilities, health (e.g. fitness, pregnancies) & the requirement for social information & training.

## **21) Law**

### **A) Explain the meaning of term 'negligence'.**

"Breach of the duty to take reasonable care and loss arising from this". E.g. provide safe system of work, competent person".

### **B) Outline the defenses available to employees in case of alleged negligence.**

- a) No duty of care.
- b) No breach.
- c) No loss of contributory negligence.
- d) Volant non fit injuria.

## **22) Explain the meaning of the term 'so far as reasonably practicable'.**

" So far as reasonably practicable means that the degree of risk in a particular activity or environment can be balanced against cost, time, trouble & physical difficulty of taking measures to avoid the risk".

## **23) Outline the types of H & S issues that are dealt with by industrial tribunals.**

- a) Appeal against improvement and prohibition notices.
- b) Dispute about paid time off for training for safety representatives.
- c) Unfair dismissal relatively to H & S.

## **24 A) Outline the duties of employees under the H & S at work etc. Act 1974.**

- a) To take personal care of themselves & other.
- b) To cooperate with employees & others.
- c) Not to interfere with, or misuse anything provided for their health & safety.

**B) State the maximum penalties available for breaches of the H & S at work etc. Act 1974 by employees.**

Different maximum penalties in a magistrate court compared with a crown court.

**25 A) Explain under what circumstances an employer must form a H & S committee.**

Safety representatives & safety committee Regulations 1977.

Where requested in writing by two or more trade union appointed safety representatives.

**B) Explain why a health & safety committee could be ineffective.**

- a) Lack of management commitment & motivation.
- b) No formal agenda
- c) No input to the decision making process
- d) Unsuitable topics and no valuable expertise being cited as reason for ineffectiveness.
- e) Poor chairman ship.
- f) Lack of communication between staff and workers member of the committee.
- g) Minutes of meetings are not prepared.
- h) Follow up action on previous recommendation suggested.

**26) Explain using examples, the difference between Civil & Criminal law.**

**Civil law:-**

- a) Largely judge made
- b) Based on precedent
- c) E.g. Tort of negligence

**Criminal Law:-**

- a) Laid down by parliament.
- b) Breach of statutory duty is a criminal offence as well as a possible tort were rewarded.
- c) E.g. Health, Safety & Work Act.

**27 A) Outline the specific duties placed on an employees under the H & S at Work etc. Act 1974 to ensure the H & S of non. Employees. ( sec. 3 & 4) HSWA 1974.**

- a) Not exposing person to risk.
- b) Providing safe access & egress.
- c) Place of work.
- d) Plant & substances.
- e) Providing information.

**B) State the action an enforcement officer could take where an employer fails to carryout these duties.**

- a) Form verbal or written advice/instruction.
- b) Thorough formal improvement or prohibition notices.
- c) Prosecution.
- d) Seizure of articles or substances.

**28) Explain using examples, the differences between Regulations & Approved code of practices.**

**H & S Regulations:-**

- 1) Generally made under the H & SWA- 1974 by Secretary of state.
- 2) Contain statutory requirements which if not the imposition of a fine or the issues of an enforcement notice by the appropriated met by the person on whom they are maid.
- 3) M lead to prosecution in the courts enforcement authority.

**Approved Code of Practices:-**

- a) Approved by the HSC (health Safety Commission) with the consent of Secretary of state.

- b) They provide practical interpretation of legal requirements in specific areas.
- c) They do not themselves impose any legal requirement, they may be produced in the court as a supportive evidence.

**29) Describe the general hierarchy of measures for the safeguarding of dangerous parts of machinery as required by the Provision and Use of Work Equipment Regulations 1992.**

- a) Machine guarding.
- b) Starting with fixed guards & ending with information.
- c) Instruction & training ( R- 11.2).

**30) Explain using examples, the meaning of the term, ' so far as is reasonably practicable'.**

- Balancing risk against cost (in terms of time, cost, trouble).
- " So far as reasonably practicable means that the degree of risk in a particular activity or environment can be balanced against cost, time, trouble & physical difficulty of taking measures to avoid the risk".

**31a) Outline the H & S issues that can be heard by an industrial tribunal.**

- Appeals against enforcement notices.
- Issues relating to the Safety Representatives.
- Safety Committee Regulations 1977.
- Claims of Unfair dismissal.

**b) Outline the remedies available to Industrial Tribunals.**

- Powers to uphold or overturn notices.
- To award compensation.
- To order the reinstatement of employees who have been unfairly dismissed.

**32) Explain using one example in each case, four requirements at the PUWER -1992.**

- 1) Suitability:- Design of equipment (e.g. Excavation)
- 2) Maintenance:- Mechanical failure (e.g. high speed & high risk machineries).
- 3) 'IT IS' – safe work system, reduce residual risk, peoples, manufacturers.
- 4) Protection against danger: reg 11- point of action/operation.
- 5) Controls:- Switch, access, pressure-PSV.
- 6) Isolation:- Noise.
- 7) Stability.

**33) Explain the difference between Civil & Criminal Law.**

**Civil Law:-**

- 1) Protects the rights of the individual.
- 2) Civil law normally involves one party suing another for damages.
- 3) Civil law it is usually in the form of compensation awarded to the aggrieved party.
- 4) In civil law proof required is on a balance of probability.

**Criminal Law:-**

- 1) To protect the rights of the society.
- 2) Criminal law is enforced by the state (by prosecution).
- 3) The remedy in criminal law is punishment (i.e. fine, imprisonment).
- 4) The Burdon of proof required in criminal cases is to find beyond reasonable doubt.

**34 A) Explain using an example in each case the circumstances under which a Health & safety may serve.**

- i) An improvement Notice:-

Improvement Notice can only be served when an inspector is of the opinion that there is a breach in H & S law or that there is a breach which is likely to continue or be repeated.

ii) A prohibition notice is issued when an inspector believes that there is or likely to an imminent risk of serious personal injury.

**B) Outline the effect on the notice of appealing against each type of enforcement notice.**

An appeal against an improvement notice will suspend the notice until heard by the tribunal.

An appeal against a prohibition notice will not affect the notice; it will stay in force during the appeal period. (Unless the tribunal directs otherwise, do not forget to provide an example of each).

**35 A) Define the term 'negligence'.**

"A tort involving a breach of common law duty to take reasonable care".

**B) Outline the Three standards that must be met for an employee to prove a case of alleged negligence against an employer.**

1. A duty of care is owed.
2. A breach of duty occurred in that the employee failed to take reasonable care.
3. The breach led directly to the loss or damage or injury, (use an example).

**36 A) outline the legal requirements under which an employee must prepare a written H & S policy.**

- Where there are 5 or more employees, HASAWA 74 section 2(3).

**B) Outline THREE circumstances that may give rise to a need for a H & S Policy to be revised.**

- Change in organizational arrangements, responsibilities, processes, legislation, work pattern or risk assessments or when considered necessary following an accident investigation, enforcement action, policy review or professional advice.

**38) State eight requirements of the MHSWR 1992.**

1. Risk Assessment.
2. H & S Arrangements.
3. H & S assistance.
4. Procedure for serious & imminent danger.
5. IT IS
6. Cooperation & coordination.
7. Capabilities & Training.
8. Employee's duties to work in accordance with training & instruction and to report defects.

**39) Outline the powers given to H & S inspectors under the H & S at work etc Act 1974.**

1. Enter premises.
2. Investigate accident & dangerous occurrences.
3. Instruct accident area to be left undisturbed.
4. Examine & search premises.
5. Investigate records, plant, and machinery.
6. Take photographs.
7. Measurements & test.
8. Article & substances can be seized & destroyed where the inspector considers there to be imminent danger of serious personal injury.

**40) List titles of four sets of H & S regulations that contain specific legal duty to provide adequate lighting at work.**

1. The workplace (H, S & W) Regulations 1992.
2. The PUWER Regulation's 1992, 1998.
3. The H & S (DSE) Regulation's 1992
4. The electricity at work Regulation's 1989.
5. The fire precautions (workplace) Regulation's 1997.
6. The confined space Regulation's 1997.

**41) Describe the possible effects on H & S of inadequate lighting in a workplace.**

- Eyestrain.
- Headaches
- The effect of adopting a poor posture.
- The physical risks caused by poor lighting e.g.
  - i) Tripping over unseen objects.
  - ii) The increased likelihood of human error.

**43) Outline the factors to consider when assessing the adequacy of lighting with an open plan office.**

1. The task undertaken.
2. The equipment used.
3. The size and layout of the office (e.g. proximity of workstation, windows, the use of partition etc).
4. The availability of natural light at different times of the day and year.
5. Suitability of the type, number, intensity, Lux of artificial lights.
6. Glare on computer screen.
7. Areas in shadow.
8. Need for an availability of localized lighting.
9. Maintenance of lighting (e.g. non-functioning, flickering, damage or dirty).
10. The provision and adequacy of emergency lighting.

**44) State the circumstances in which an employer may be held vicariously liable for the negligence of an employee.**

1. The employee was acting in the course of its employment.
2. The employee caused damage or injury by not fulfilling a common law duty of care. If both this conditions are met then.

**45) Outline the legal duties placed on employers to held to ensure that employees behave in a safe manner.**

1. 'IT IS' under sec. 2 of HASAW 74.
2. Employers take into account their employees capabilities before allocating task to them.
3. Training should be provided Reg-11.
4. Training CDM Regulation.

**46) Explain the differences between ACOP & HSE guidance notes, giving an example of each.**

**ACOP:**

- 1) Approved by HSC with the consent of the secretary of the state.
- 2) Failure to comply is not itself an offence, but may be used as evidence unless some other equally effective means of compliance can be demonstrated.
- 3) The six pack gives two ACOP's,
  - i) Management's regulations.
  - ii) The workplace (HS & W) Regulation's.

**Guidance notes:**

- 1) Have no legal standing but are intended to offer practical advice on how compliance might be achieved.
- 2) Are generally more descriptive than ACOP's.
- 3) Four guidance notes out of six pack.

**47) Outline the three conditions that must be met for an employee to prove a case of allege negligence against an employee.**

- 1) The employer owed a duty of care to the employee.
- 2) There was a breach of that duty of care by failing to provide reasonable care.
- 3) The breach laid directly to foreseeable harm to the employee (injury, disease or other loss).

**48) Explain the meaning of the term 'vicarious liability'.**

Employer will be liable for the negligent acts of his employees whilst acting in the course their employment.

**49) Explain using an example in each case the circumstances under which H & S inspector may serve.**

- 1) An improvement notice.
- 2) A Prohibition notice.

An Improvement Notice: When an inspector is of the opinion that there is a breach in H & S law or that there has been a breach is likely to continued or be repeated.



A prohibition notice is issued when an inspector believes that there is or likely to an imminent risk of serious personal injury.

**50) Outline the effect on the notice of appealing against each type of enforcement notice.**

An appeal against an improvement notice will suspend the notice until heard by the tribunal. An appeal against a prohibition notice will not affect the notice it will stay in force during the appeal period (unless the tribunal directs otherwise, do not forget to provide an example of each).

**51) Outline the requirement of the management of H & S at work regulation 1992.**

- 1) Risk assessment.
- 2) H & S arrangements.
- 3) H & S Assistance.
- 4) Procedure for serious and imminent danger.
- 5) Information for employees.
- 6) Cooperation and coordination.
- 7) Capabilities & Training.
- 8) Employee's duties.

**52) Outline the factors that should be considered when carrying out risk assessment as required by the MHSWR-1992.**

- 1) Hazard Identification.
- 2) Nature of hazard.
- 3) The size & characteristics of the exposed population.
- 4) The frequency of exposure.
- 5) Potential severity of harm.
- 6) Available information relating to risk.
- 7) Effectiveness of existing control.
- 8) Monitoring & emergency procedures. ( try to give/ include relevant examples).

**53) Outline four requirements of the provision and Use of Equipment Regulations 1992.**

- 1) Suitability of work equipment.
- 2) Need for maintenance.
- 3) "IT IS".
- 4) Conformity with EU requirements.
- 5) Protection against dangerous parts of Machinery.
- 6) Controls of control system.
- 7) Emergency control system.
- 8) Isolations from sources of energy.
- 9) Stability.
- 10) Lighting.
- 11) Safety of maintenance operations.
- 12) Marking & warning Signs. ( Do not forget to give brief examples).

**54) Outline the legal requirements under which an employer must prepare a written H& S Policy.**

- Where there are 5 or more employees [HASAWA- 74, section 2(3)]

**55) Outline 3 circumstances that may give rise to a need for H & S policy to be revised.**

- Changes in organizational arrangements/responsibilities, process, materials, premises, legislation, work pattern or risk assessment, when considered necessary after accident investigation, enforcement action, policy review or professional advice.

**56) Outline the general duties placed on employees by section 7& 8 of health and Safety at work etc Act 1974.**

• **Section 7:**

- 1) Taking care at work i.e. to take reasonable care of themselves and others who might be affected by their acts & omissions.

- 2) To cooperate with employees and others to enable them to fulfill their statutory duties.

**A) Section 8:**

- 1) Not to intentionally recklessly interfering with or misusing anything provided in the interests of H, S & Welfare.

**57) Outline a specific duties placed on employers by the managements of H & S at work Regulations 1992.**

Section 12: a new duty on employees.

- B) To use all machinery, equipment, dangerous substances, means of production, transport equipment and safety devices in accordance with any relevant training and instructions, and to inform their employer or specified fellow employees of dangerous situations and shortcoming in the employees H & S arrangements.

**58) Explain the difference between Civil & Criminal Law.**

**Civil Law:**

- 1) Protects the rights of the individuals.
- 2) Normally involves one party suing another for damages.
- 3) It is usually in the form of compensation awarded the aggrieved party.
- 4) It is a balance of probability.

**Criminal Law:**

- 1) To protects the rights of society.
- 2) Enforced by the State ( by prosecution).
- 3) The remedy in criminal law is punishment, e.g. fines, prison.
- 4) The Burdon of the proof required in criminal cases is to find beyond reasonable doubt.

**59) Define the term 'negligence'.**

- i) A tort involving a breach of common law duty to take reasonable care.

**60) Outline the THREE standards that must be met for an employee to prove a case of alleged negligence against an employer.**

- 1) A duty of care is owed.
- 2) A breach of the duty occurred in that the employer failed to take reasonable care.
- 3) The breach led directly to the loss or damage or injury, use an appropriate example for this purpose.

**61) Explain the difference between 'consulting' and 'informing'. [With reference to the H & S Consultation with Employees Regulations 1996.**

Under the H & S at work etc act 1974, employers have a duty to inform employees ( i.e. provide information on hazards, risks and control measures) in order to help to ensure their H & S. this general duty is echoed in a number of regulations made under the act. The health and safety (consultation with employees) regulations 1996, however, require that employees consult their employees on H & S matters (i.e. listen to, and take account of their views) before a decision is taken.

**62) Outline H & S matters on which employees must consult their employees.**

The introduction of any measures at the workplace that may substantially affect employees H & S, the arrangements for appointing and / or nominating competent persons; the planning and organizations of H & S implications of introducing new technology; and the information that the employee is required to provide under regulations such as that relating to risk assessments, preventing measures and emergency procedures. Hence employees are obliged not only to provide information but they must also consult their employees on the appropriateness of the information before it is given.

**63) Define the term 'Negligence'.**

A tort involving a breach of the common law duty to take reasonable care.

**64) Outline the Three standard conditions that must be met for an employee to prove a case of alleged negligence against an employer.**

- 1) A duty of care is owed.

- 2) A breach of duty occurred in that the employer failed to take reasonable care.
- 3) The breach directly to the loss, damage or injury.

**65) List four categories of personal, other than his own employees, to whom an employer owes a duty to take reasonable care.**

HASAWA sect.3:

- 1) Visitors: A members of public.
- 2) Contractors.
- 3) Uninvited persons (trespassers).

**66) Outline the procedure that an organization might adopt in order to ensure the safety of visitors to its premises.**

- 1) Identify visitors. (E.g. signing in and badges etc).
- 2) The provision of information regarding the risk presents and site rules and procedures to be followed particularly in emergency situations.
- 3) Need to supervise visitors. (E.g. a provision of escorts).
- 4) Restriction of access to certain areas.

**67) Describe, with an example in each case, six ways in which an employer may fail to fulfill the duties to his employees under sec.2 of the H, S at Work etc Act 1974.**

- 1) Safe plant and safe system of work.
- 2) Safe handling, storage, maintenance and transport of (work) articles and substances (HSMT).
- 3) Necessary 'IT IS'.
- 4) A safe place of work, with safe access and egress.
- 5) A safe working environment with adequate welfare facilities.

**68) Outline the Three standard conditions that must be met for an employee to prove a case of alleged negligence against an employer.**

- 1) A duty of care is owed.
- 2) A breach of duty of care is occurred in that an employer to take reasonable care.
- 3) The breach led directly injured, loss and damage.

**69) Explain the meaning of term 'vicarious' liability.**

The employer will be liable for the negligence of his employees whilst acting in the course of their employment.

**HUMAN FACTORS:**

**70) Explain the meaning of term 'Human Factor'.**

- i) GSG 48 'Human factor' in industrial safety.
- ii) Individual, the organization and the job.

**71) Explain How an understanding of human factors can contribute towards accident prevention.**

How the job, individual and organization interact with each other, and how an understanding of each factor will assist in identifying and implementing accident prevention/reduction measures.

**72) Describe the steps that should be taken to protect experienced workers from accidents in the work place.**

- 1) Training requirements.
- 2) Close supervision.
- 3) Job restrictions.
- 4) Safe system of work.

**73) Explain the meaning of term 'perception'.**

'The way people see situations' based on an affected by knowledge, experiences, attitudes, background and sensory/mental -processing abilities.

**74) Outline measures that could be taken to increase H & S awareness at the work place.**

- 1) Training.
- 2) Competitions.
- 3) Posters.
- 4) Tool Box Talks.
- 5) Management by example.

**75) Explain using an example, the meaning of each of the following terms.**

- 1) Motivation: 'A desire to achieve a particular goal'. The driving force behind the way a person acts.
- 2) Perception: the way people see situations, based on their knowledge, experience, attitude, background and sensory/mental processing abilities.
- 3) Attitude:
- 4) Human error: In industrial safety human errors means the job, organization, individuals.

**76) Outline the various measures that may be taken to reduce human error in the work place.**

- 1) The use of skilled, trained and competent staff (including prescreening issues).
- 2) Motivations of the work force.
- 3) Task variety to prevent monotony.
- 4) Provision of frequent breaks to avoid over load.
- 5) Addressing work place, environmental issues such as noise, light, heat.
- 6) Mechanization and atomization.
- 7) Ensuring that controls on machinery are clearly marked.
- 8) Implementation of drug and alcohol policy.
- 9) Providing competent supervision of employees.

**77) Explain the meaning of the term 'ergonomics'.**

'The study of the interaction between workers and the work environment' or 'making the job or task fit to the person'.

**78) Outline the main factors to be considered in an ergonomic assessment.**

- 1) Process Design.
- 2) Individual characteristics.
- 3) Machine controls.
- 4) Display marking. Environmental- factor
- 5) Visibility. Environmental -factor
- 6) Work organization e.g. shift work, breaks and supervision.

**79) outline how health and safety training needs can be identified.**

- 1) Legislative requirement.
- 2) Risk assessment.
- 3) Accident analysis/investigation.
- 4) Job / equipment / organizational changes.
- 5) Audit recommendations.
- 6) JSA.

**80) Explain the meaning of term 'Motivation'.**

'Desire to achieve a particular goal'. The driving force behind the way a person acts.

**81) Outline four ways in which employers could motivate their workforce.**

- 1) Incentives.
- 2) Recognition.
- 3) Increased job satisfaction through empowerment.
- 4) Involvement in decision making.
- 5) A personal sense of achievement 'team spirit'.
- 6) Negative consequences e.g. fear of not acting in a particular way i.e. fear of disciplinary consequences these are normally less effective.

**82) Explain the meaning of term 'ergonomics'.**

- i) 'The study of interaction between workers and work environment.
- ii) OR 'Making a job fit to the person.
- iii) OR 'Designing a task to suit the individual in terms of physical/mental capabilities and the individuals expectations.

**83) Outline the main factor to be considered in an ergonomic assessment of a work station to be used by an operator of a visual display unit (VDU).**

- 1) Equipment design: e.g. (height and position of keyboard and screen, sitting posture, design of chair, screen definition and colour, adjustability of equipment, etc).
- 2) Environmental factors: e.g. glare, temperature, humidity, workplace, noise etc.
- 3) Intermediate breaks.

**84) Define the term ergonomics.**

The study of interaction between workers and work environment. OR making job fit to the person. OR designing a task to the suit the individuals in terms of physical/ mental capabilities and individual expectations.

**85) Outline the possible effects on health that may be caused by the Poor ergonomic design of (VDU) workstations.**

- 1) Work related upper limb disorders.
- 2) Eye strain.

**86) Outline the main factors to be considered in an ergonomic assessment of a work station to be used by a VDU operator.**

- 1) The task and the individual and their interrelationship..
- 2) The equipment and their interrelationship.
- 3) The environment and their interrelationship.

**CONTROLLING WORKPLACE HAZARD.**

**87) In relation to cutting timber using a bench mounted circular saw.**

**A) Outline the mechanical hazards to which an operator may be exposed.**

- 1) Cutting hazards associated with the rotating with the blade but candidate might...
- 2) Also have referred to entanglement with the rotating parts (such as the spindle or parts of the transmission machinery).
- 3) Hazard created by flying particles.
- 4) Ejection of the wood being processed.

**B) Identify the guards and protective devices designed to prevent with the saw blade, and in each case, explain how he /operator is protected.**

- 1) An adjustable or self adjusting guards for the top of the saw, exposing as little of the blade as possible.
- 2) Fixed guards over the parts of the blade below the bench and around the motor and drive mechanism.
- 3) Protection at the rear of the blade in the form of a riving knife.
- 4) Use of a push stick to keep operator hand away from the blade at the end of the cut.

**C) Outline four non-mechanized hazards presented by the operation, identifying the possible health & Safety effects in each case.**

- 1) Wood dust: Lung disorder, Nasal cancer.
- 2) Electricity: shock or burn.
- 3) Noise: noise induced hearing loss.
- 4) Hot surfaces: burn.

**88) Outline the practical measures that might be taken to reduce the risk of violence to reduce the risk of violence to employees who deal with members of the public as part of their work.**

With many occupations exposed to the risk of violence from members of the public, particularly in the service industries, there was a wide range of practical measures that could have been outlined. Better answer looked at measures that encompassed the broad aspect of the environment, job factors, individual protection and general security. Only by addressing a wide range of issues, rather than concentrating on just physical security measures for instance, could high marks be obtained.

The design of the public areas, in terms of décor, seating, the means of providing information (i.e. on waiting times) and the absence of obvious barriers, can help to reduce the build-up of confrontation and violent episodes. A balance must be drawn, however, between presenting a calm and 'open' environment and protecting staff from any violent incidents that could arise. Hence, there will often be need for wide counters, coded locks on doors, CCTV systems, panic buttons and alarm systems, whether these are made discrete or obvious will depend on the particularly those involving money may mean that the risk is too great to avoid the use of some sort of physical means of separation, such as security screens, between employees and the public.

Many occupations, such as estate consultant/agents and social workers, involve interaction with the public outside work premises. In these cases, measures such as the avoidance of carrying large amount of cash, implementing appointment systems, Client risk assessment and accurate records, keeping may need to be considered. The risk of lone workers should give particular attention, with the need in certain circumstances to avoid lone working altogether and/or to implement regular checks-in procedures and to issue personal panic alarms.

In addition to designing the work place and the task to minimize the risk of violence assault, staff will need to be trained in the procedures and possibly in how they might recognize the early signs of aggressive behavior and avoid, defense or otherwise deal with a violent situations, in certain circumstances, the employment of security staff and the provision of PPE (e.g. bullet or stab proof vests, helmet etc).may be required.

In general, answers tended to be limited, sometimes because candidates seemed to have only one situation in mind, such that faced by health service workers. Others refereed in vague terms to measures such as the need for stringent security but without giving any details or examples of what this might mean.

**89) Outline the precautions to be taken when employees are working at ground level in a workshop where loads are lifted and transported by means of an overhead gantry crane.**

- 1) The use, training and competence of key personnel (operator, signaler, slinger) are of utmost importance to general crane safety, as are the requirements for maintenance and statutory examinations of the crane and lifting tackles.
- 2) Warning of a lift taking place (audible and/or visual).
- 3) Exclusion zones.
- 4) Ensuring that the load is secure, does not exceed that safe working load, is lifted to the correct height and is moved at an appropriate speed.
- 5) Ensuring that all those working in the area have been properly trained and are adequately supervised.

**90) Outline control measures needed to ensure safety during excavation work on a construction site.**

**Hazards:**

- 1) Collapse of sides.
- 2) Fall of a persons.
- 3) Material or vehicles into the excavation.
- 4) Weakening of adjacent structures.
- 5) Contact with buried services or contaminated soil.
- 6) Build of fumes.
- 7) Ingress of water and contact with mechanical plant.

**Control measures:**

- 1) Shoring, benching etc (support of sides).
- 2) Detection of services (e.g. from plans, use of cable /pipe detectors etc).
- 3) Storage of materials, equipments and spoil away from edge.
- 4) Means of preventing vehicles falling into the excavation or causing collapse (i.e. stop, blocks).
- 5) Means of preventing peoples falling in (guard rails, barriers, crossing points and covers).
- 6) Means of preventing collapse of adjacent structures.
- 7) Safe means of access & egress.
- 8) Testing for, and ventilation of, noxious fumes.
- 9) Pumping out water facility.
- 10) Procedures for working with mechanical plant.
- 11) General issues such as 'IT IS' & use of PPE protection against contaminants).

**91) In relation to occupational dermatitis,****A) Identify TWO causative agents**

- 1) Acids
- 2) Alkalies
- 3) Detergents
- 4) Mineral Oil
- 5) Organic Solvent
- 6) Metal salts
- 7) Latex
- 8) Wet Cement.

**B) Describe the typical symptoms of the condition.**

- 1) Reddening of the skin.
- 2) Soreness.
- 3) Itchiness
- 4) Flaking
- 5) Cracking & bleeding with possible infection & ulceration.

**C) Outline specific measures designed to prevent the occurrence of occupational dermatitis.**

- 1) Change of process or a substitution of the material or substance being used.
- 2) A reduction in exposure.
- 3) Provision of the PPE (gloves, apron etc).
- 4) Use of barrier and after work creams.
- 5) Provision of adequate washing facilities.
- 6) 'IT IS' on the causes & prevention of dermatitis.

**92) Describe the physical features of traffic routes within a workplace designed to ensure the safe movement of vehicles.**

- 1) Adequate width of a traffic routes with avoidance of blind corners.
- 2) Separation of vehicles & pedestrian with the provision of barriers & refuges.
- 3) One way system with turning circle to reduce the need for reversing.
- 4) Firm, even and well maintained round surface.
- 5) Roadways unobstructed and signed to indicate speed limits, rights of way & no entry.
- 6) Visibility aids such as mirrors, transparent screens across doorways & lighting.
- 7) Traffic calming measures such as road humps.
- 8) Marked pedestrian crossing points on vehicle routes.

**93) In relation to a work place fire risk assessment, outline the issues that should be taken into account when assessing the means of escape.**

- 1) Widths, travel distances.
- 2) Protection against smoke, fire, lighting.
- 3) Signage and
- 4) Specifications for doors (closers, direction of opening, glazing, etc).
- 5) Assessment should consider the provision and siting of fire fighting equipment and the adequacy of assembly points.

**94) Outline the precautions to be taken when repair work is to be carried out on the sloping roof of a building.**



- 1) Assessment should be made to gauge the condition of the roof and to check for the presence of fragile materials and / or asbestos.
- 2) Means of access (e.g. scaffolding), the use of roof ladders, crawling boards and full arrest equipment, and edge protection to prevent the falls of persons and materials.
- 3) Provision for transporting tools and materials to the roof and for the removal of waste, barriers at ground level.
- 4) The use of appropriate PPE such as hard hats & footwear.
- 5) Employment of trained & competent personnel.

**95 A) Identify TWO types of injury that may be caused by the incorrect manual handling.**

- 1) Prolapsed or slipped discs.
- 2) Torn ligaments.
- 3) Muscular strains.
- 4) Hernias.
- 5) Cuts & abrasions.

**B) Outline a good handling technique that could be adopted by a person required to lift a load from ground.**

- 1) Placing the feet slightly apart & close to the load.
- 2) Bending at the knees.
- 3) Keeping the back straight ( or maintaining a natural curvature).
- 4) Maintaining a good grip.
- 5) Keeping the load close to the body without twisting and lifting smoothly using leg muscles.
- 6) Initial assessment of the load and lift prior to undertaking the task.

**96) Outline the precautions to be taken to minimize the risks to the persons working in cold stores operating at sub-zero temperature.**

- 1) Precautions against being locked in the cold store (e.g. doors capable of being opened from the inside and the installation of alarms).
- 2) Measures to protect the employees against the escape of refrigerant gas.
- 3) The need for pre-employment examinations & continuing health surveillance.
- 4) 'IT IS' on the hazards associated with this type of work & precautions to be taken.
- 5) Provision of thermal clothing.
- 6) Restricting the time spent in the cold store with regular breaks.
- 7) Availability of warm drinks.

**97) List the items that should be included on a checklist for the routine visual inspection of portable electrical appliances.**

- 1) Need to check that the appliance is of a suitable type for the operations to be carried out.
- 2) Connecting plugs are in sound condition and sockets not overloaded.
- 3) Fuses fitted are of the correct rating.
- 4) The appliance is operated at reduced voltage (where appropriate) and / or protected by a residual current device.
- 5) Cables are undamaged & routed safely.
- 6) Casing of the appliance is in good condition.
- 7) Need to check that a portable appliance test (PAT) has been carried out and is current, and that the relevant information is recorded.
- 8) Inventory of the types of electrical appliance that should be checked without listing the particular items that should be subject to a visual inspection.

## MANAGEMENT OF HEALTH & SAFETY

**98) Following a significant increase in accidents, a health and safety campaign is to be launched within an organization to encourage safe working by employees.**

**A) Outline how the organization might ensure that the nature of the campaign is effectively communicated to, and understood by employees.**

- i) A variety of means (posters, emails, toolbox talks, training sessions etc). could be used to communicate and reinforce the message with account taken of the language used in order to facilitate understanding (avoidance of jargon, use of plain English etc).
- ii) Toolbox Talks, suggestion boxes, surveys and informal means of consultation can be used to involve employees and to provide a feedback loop to check that employees understand what the campaign is about and to assess the level of support.
- iii) Provide feedback to employees on how the campaign is progressing so that focus on the campaign's objective is maintained.
- iv) Ensure that everybody within an organization knows the part that they are to play within a health & safety campaign.

**B) Other than poor communication, describe the organizational factors that could limit the effectiveness of the campaign.**

- i) Lack of senior management commitment.
- ii) Production or other pressures taking priority over health & Safety.
  - iii) Insufficient resources allocated to the campaign.
  - iv) Poor safety culture in general.
  - v) It should also have been recognized that poor working conditions are likely to induce cynicism towards the campaign amongst employees.
  - vi) In addition, poor industrial relations or a lack of confidence in management's ability could mean that the campaign is not given the support of influential members of staff.
  - vii) Work patterns (e.g. shift work) could also mean that some sections of the workforce are not fully considered or supported, possibly due to the non-availability of the staff.

**99) Outline the duties placed on employees by,**

**A) The Health & Safety at work etc Act 1974 (Section 7 & \* - H SWA 1974)**

**Section 7** of the act requires employees to take reasonable care for themselves and others, who might be affected by their acts or omissions, and to cooperate with their employer or enable them to comply with their own statutory duties and requirements.

**Section 8** requires that no one (including employees) shall intentionally or recklessly interfere with or misuse anything provided in the interests of health, safety or welfare.

**B) (Reg 14 -MHSWR-1999) :**

- i) Requires employees to use all work items in accordance with the training and instructions that they have been given.
- ii) Requires employees to inform their employers (or a specified employee with health & safety responsibilities) of work situations that could present a serious and immediate danger, as well as any shortcomings that they might reasonably recognize in the existing arrangements for H & S.

**100) Most occupational accidents can be attributed in part to human error. Outline ways of reducing the likelihood of human error in the workplace.**

- i) The use of skilled, competent and properly trained employees.
- ii) Ensuring that they are well motivated.
- iii) Avoiding monotonous work process and arranging breaks to counter fatigue.
- iv) Designating clear roles & lines of responsibilities.
- v) Ensuring adequate level of supervision.
- vi) Establishing good lines of communication with the workforce.
- vii) Ensuring the clarity of instructions and information passed on to them.
- viii) Addressing workplace environmental issues such as noise, light and heat.
- ix) Designating the workplace & work equipment to reduce the opportunity for error ( e.g. automation, unambiguous and clearly marked controls, monitoring & confirmation of actions & feed back loops.
- x) Implementing policies an alcohol & drugs.

**101) Outline the main features of,**

**A) A health & Safety inspections of a workplace,**

Safety Inspection: Involves the straight forward observation of a workplace and/or the activities or equipment within it. Generally safety inspection, usually carried out by a manager or employees representative and often aided by the use of the checklist, may be carried out routinely and has the aim of identifying hazards and assessing the use and effectiveness of control measures ( Area to be covered -4p's -Plant, people, procedures, plant & equipment).

**B) A Health & Safety Audit:**

Audit is a thorough, critical examination of an organization's safety management systems & procedures. Audit is normally a lengthy process carried out by a trained auditor, often someone from outside the organization. It is a structured way of assessing the health & safety performance of a organization by supplying answers to a serious preset questions, and often involves a scoring system such that improvements can be measured.

**102) An employer is claiming compensation for injuries received during an accident involving a forklift trucks.**

Identifying the documented information that the employer might draw together when preparing a possible defense against the claim.

- i) Accident book record.
- ii) RIDDOR form (if applicable).
- iii) Accident investigation report, including statements made by witness or supervisors in terms of demonstrating compliance with statutory & common law duties.
- iv) Relevant documents might include:
  - a) The organization's H&S Policy.
  - b) Risk Assessment.
  - c) Written safe systems of work relating to the activity.
  - d) Training records.
  - e) Statutory examination records ( as required by LOLER).
  - f) Maintenance records (PUWER & LOLER).
  - g) Inspection reports.
  - h) Health & safety Committee Minutes.
  - i) Documents relating to previous accidents & corrective actions taken.
  - j) Information relating to the claimant (e.g. involvement in previous accidents disciplinary records etc.

**103) With reference to the (health & safety consultation with employees) Regulations 1996:**

**A) Identify the particular health & safety matters on which employees must consult their employees.**

- 1) The introduction of measures affecting the health & safety of employees.
- 2) The arrangements for the appointing or nominating competent persons under regulations 7 & 8 of the MHSWR- 1999.
- 3) Health & Safety information required by law to be provided to employees.
- 4) The planning and organizing of any health & Safety training that has to be provided.
- 5) Consequences of the introduction of new technology.

**B) Outline the entitlements of representatives of employees safety who have been elected under the regulations.**

- i) Provision of reasonable facilities and assistance.
- ii) Provision of training (with coverage of associated costs).
- iii) Being given time off with pay during working hours to undertake training and to carryout the stated functions.
- iv) Provision of information necessary to carryout the functions ( including specifically access to records kept under the requirements of the Reporting of Injuries, Diseases & Dangerous Occurrences Regulations 1995).

**104) Outline reasons for maintaining good standards of health & safety within an organization.**

- i) Moral: Need to provide a reasonable standard of care and to reduce the injuries, pain and suffering caused to employees by accidents & ill health.
- ii) Legal: concerned with the desire to avoid enforcement action and civil claims.
- iii) Economic: Economic benefits include, a more motivated workforce resulting in increased production rates. The avoidance of direct costs associated with accidents (e.g. down time, administrative, investigation and first aid costs, repair of plants & equipment, employing & training replacement staff, etc.) possibly cheaper insurance premiums. The avoidance of costs associated with legal action and maintaining the image and reputation of the organization with its various stock holders.

**105) A) The meaning of the term 'Permit to Work'.**

'A formal documented procedure to control hazards in high risk activities'.

**B) Outline the specific details that should be included in a permit to work for entry into a confined space.**

- 1) A description of the plant involved with reference to the task to be completed and forcible hazards and risks.
- 2) The precautions to be taken (e.g. isolating services, atmosphere purging & the removal of contaminants, pre-entry and ongoing atmospheric testing, means of communication, use of respiratory and PPE etc.).
- 3) Emergency arrangements & equipment to be provided (e.g. safety lines, supporting staff, resuscitation and other first aid equipment, welfare facilities etc).
- 4) Duration of the permit & signatures for authorization and receipt and for hand back & cancellation.

**106) A controller has been engaged to undertake building maintenance work in a busy warehouse. Outline the issues that should be covered in an induction program for the contractor's employees.**

- i) The particular risks in the working area ( e.g movement of forklift trucks, falling materials, conveyers & the possible presence of asbestos).
- ii) General site safety rules regarding smoking, clothing & PPE.
- iii) Use of electrical equipment and so on.
- iv) Requirements for permit to work and other control.
- v) Exclusion zones & traffic routes.
- vi) Arrangements for the storage of materials.
- vii) Accident reporting & other emerging procedures (e.g. action required in case of fire).
- viii) The location & use of welfare facilities including first-aid.

**107) A) Outline Three work activities that may present a particular risk to pregnant women.**

- i) Manual handling or physically strenuous work.
- ii) Task involving long periods of standing or sitting.
- iii) Work involving exposure to the biological agents or chemical substances that might affect unborn child.
- iv) Work in hyperbaric environment (e.g. those above normal atmospheric pressure).
- v) Tasks involving exposure to ionizing radiation.
- vi) Unusually stressful work including exposure to high levels of noise and hot environment.
- vii) Jobs that expose peoples to an increased risks of injury ( e.g. due to slipping or violent assault). Have particular implications for pregnant women.
- viii) Activity of radiographers exposed to X rays (standing). (swelling of feet-edema, varicose veins, dizziness & fainting).
- ix) Sitting for long time - thrombosis, embolism).

**B) Outline the actions that an employer may take when a risk to a new or expectant mother cannot be avoided.**

**(Reg -16 of MHSWR-1999).**

- i) Changing the employees working conditions (e.g. finding other suitable work or introducing additional breaks) or
- ii) Changing the hours of work, if not,

- iii) The employer would need to consider suspending the employee from work on full pay for as long as is necessary.

**108) List the powers given to H & S enforcement officers appointed under the HSWA-1974.**

**Powers of Inspector's , Section 20 - HSWA -1974 with Section 21, 22, 25, 39.**

- i) The right to enter premises, if necessary by enlisting the assistance of a police officers.
- ii) Carryout examinations & investigations.
- iii) The direct that premises or equipment be left undisturbed for the purpose of investigations.
- iv) To take measurements & photographs.
- v) To inspect and / or take copies of documents and records.
- vi) To take samples.
- vii) To require a person to answer questions and signs a declaration to the truth of his/her answers.
- viii) To take possessions of articles and substances (and to seize and render them harmless in situations of imminent danger).
- ix) To issue enforcement notices.

**109) Human Error- Workplace (Reducing ways)**

- 1) Use of skilled, trained & competent staff including pre-employment screening issues.
- 2) Motivation of workforce.
- 3) Task variety to prevent monotony.
- 4) Frequent breaks.
- 5) Addressing environment issues-heat, light & noise.
- 6) Mechanization & automation.
- 7) Ensuring controls on machinery are clearly marked.
- 8) Implementation of drugs & alcohol policy.
- 9) Providing competent supervision of employees.

**110) Hazard underestimation - reasons**

- 1) Overfamiliarity & complacency.
- 2) Lack of instructions.
- 3) Information of training.
- 4) Lack of experience.
- 5) Some hazards may be invisible.
- 6) Sensory impairment.
- 7) Involvement in routine.
- 8) Repetitive task that may lead to lack of attention.

**111) Motivation - Ways Outline**

- 1) The Overt recognition of good health & safety performance. ( Praise / offering financial incentives).
- 2) Disciplining employees.
- 3) Involvement of employees: a) Risk assessment b) safe system of work.
- 4) Improving companies H & S culture & demonstrating a high level of management commitment.
- 5) Ensuring a good working environment.
- 6) Providing training.
- 7) Ensuring good communication.

**112) Pregnant employees (Factors affecting -Outline).**

- 1) Exposure to chemical e.g. pesticides, lead that causes intra cellular changes (mutagens) or affect the embryo (teratogens).
- 2) Biological exposures e.g. Hepatitis.
- 3) Physical agents exposures e.g. Ionizing radiations, extra temperature issues.
- 4) Ergonomic issues – manual handling, prolonged standing, adoption of awkward body, movements –stress.
- 5) PPE issues.

**113) Smoking policy - Benefits -Explain.**

- 1) Reduction in the risk of fire.
- 2) Improvement in general cleanliness.
- 3) Reduction in smoking exposure to non-smoking staff (irritant effect) long term health damage.
- 4) Promotion of health.
- 5) Avoidance of conflict between smokers & non-smokers.

**114) No smoking policy - Ways outline**

- 1) Policy should be clear in its intents & communicated to all staff ( notice boards, leaflets & forms of propaganda)
- 2) Consultation with employees to encourage ownership.
- 3) Setting an example by management people.
- 4) Providing help to employees in the form of counseling.
- 5) Provision of designated smoking area.
- 6) Use of disciplinary procedure.
- 7) Providing smoke free environment.

**115) Monitoring & reviews of safety performance by Management - Why reasons Outline.**

- i) To identify substandard health & safety practical & conditions (workplace inspection).
- ii) To identify trends in relation to different types of incidents (analysis of incident data).
- iii) Benchmark- by comparing data with similar industries, to identify measures are in use & to assess their effectiveness.
- iv) To be able to make decisions on appropriate remedial measures for any deficiencies identified.
- v) To set priorities & establish realistic timescale.
- vi) To assess compliance with legal requirements MHSWR-1999.
- vii) To provide information to board of director & safety committee.

**116) Reporting of fatality to enforce authority, state legal requirements.**

Notify the enforcement authority by the quickest practicable means then to report the death within 10 days by an approved means - F 2508.

**117) Work related injuries- reportable outline**

- i) Major injury
  - A) Fracture of bone.
  - B) Amputation.
  - C) 24 hrs. Hospitalization.
- ii) Injured person away from work. ( > 3 day consecutive).
- iii) Injury to non-employees taken to hospital for treatment.

**118) First aid arrangements - factors outline.**

- 1) No. of trained first aid personnel.
- 2) First aid facilities - size of organization.
- 3) Distribution & composition of workforce.
- 4) The types of hazard & level of risk present.
- 5) The proximity to emergency services.
- 6) The special need of traveling.
- 7) Remote or lone workers.
- 8) Arrangement for other shifts, sickness leave & other absence.

**119) Civil Law & Criminal law , Difference outline.**

- 1) One to provide a remedy & other to punish.
- 2) A burden of proof required. ( a balance of probabilities as opposed to beyond all reasonable doubts.
- 3) The practices generally involved ( two individual rather than state & individual).
- 4) Different court structure.

**120) Risk - Explain (example)**

'Probability / Likelihood of an occurrence & the severity of its consequences.

**121) General Risk Assessment - Key Stages -Outline**

- 1) Define the task & identify both the hazards associated with the task & the clauses of persons at risk of harm.
- 2) Evaluate the risk arising from the hazards ( to assess the effectiveness of existing precautions and to decide whether additional measures are required to eliminate or control the risks.
- 3) Records of the findings.
- 4) Time scale- set for their review & revision.

**122) Induction Training (new employees) Main H & S issues -Outline.**

- 1) Health & Safety Policy of organization.
- 2) Emergency procedures.
- 3) Hazards specific to work place,
- 4) Need to comply with H & S requirements, H & S responsibilities & line of communication.
- 5) Accidents & first aid arrangements.
- 6) Welfare provision.
- 7) Health & surveillance.
- 8) Consultation procedure.

**123) Safe system of work -Explain**

'Integration of people, equipment, material & the environment to produce an acceptable level of safety. (Procedure, hazards, control, equipment, PPE & Training).

**124) Developing safe system of work. Sources- outline.**

- 1) Legislation.
- 2) Approved code of practices.
- 3) Manufacturer's information.
- 4) Standards- British, European, international & Industry.
- 5) Contacts- enforcement agencies & professional bodies.
- 6) In house standards.
- 7) Result of risk assessment & JSA.
- 8) Accident, Health surveillance data.

**125) Contractors - Assessment of H & S competence -list factors.**

- 1) Previous experience.
- 2) Reputation.
- 3) HSE Policy.
- 4) HRA.
- 5) Training.
- 6) H & S Responsibility.
- 7) Accident enforcement & history.
- 8) Membership with accreditation body & ISO Certification.
- 9) Statutory examination of equipment.
- 10) Methods of statements - Procedure.

**126) Forklift driver - Injured****A) Behavior.**

- 1) Cornering too fast.
- 2) Hitting obstructions.
- 3) Driving on uneven ground / across slope.
- 4) Moving with the load elevated, unstable or excessive.
- 5) Colliding with another vehicle.

**B) Condition of work equipment & workplace.**

- 1) Potholes.
- 2) Ineffective brakes.
- 3) Tire in poor condition, inflated & mechanical failure.
- 4) Human factor issues.

**C) Underlying factors - Describe.**

- 1) A poor or complete lack of risk assessment.
- 2) Poor selection of vehicle.
- 3) Inadequate driver training.
- 4) A failure to develop safe system of work.
- 5) Poor employee selection procedure.
- 6) A lack of supervision.
- 7) A poor maintenance procedure.
- 8) Failure to introduce a system for reporting defects.
- 9) General lack of commitment to H & S on the part of management.

**127) Propaganda Posters - Advantage Outline**

**Vehicles for passing on H & S message to workforce.**

- 1) Relatively low cost.
- 2) Flexibility.
- 3) Brevity.
- 4) Use in reinforcing verbal instructions or information.
- 5) Potential to involve employees in their selection or design. (Employee involvement).
- 6) Humor can sometimes be used effectively to convey a serious message.

**Disadvantage:**

- 1) Need to change posters on regular basis if they are to be noticed.
- 2) They may become soiled.
- 3) Defaced and out of date.
- 4) They might trivialize serious matters or present language barriers.
- 5) Over reliance on posters to convey H & S information.
- 6) They may be perceived by unscrupulous employees as an easy, if not particularly effective; way of discharge their H & S duties 7 of shifting the responsibility into the workforce for any accidents that may occur.

**128) H & S Inspector. May serve -Explain.**

**i) An Improvement Notice:**

There is a breach of relevant statutory provisions, or that there has been a breach that is likely to be continued or repeated.

e.g. Floor that has been poorly maintained in contravention of the requirements of the workplace (HSWR-1992).

**ii) A Prohibition Notice:**

An inspector must be of the opinion that there is, or is likely to be, a risk of serious personal injury.

E.g. Scaffold that has been poorly constructed and is therefore in an unsafe condition.

**iii) Enforcement Notice, Effect : State**

Improvement Notice: to suspend the notice until the appeal is held.

Prohibition Notice: Continuous in force until the appeal is heard.

**129) Young persons at a greater risk of accidents at work. (factors that may place - Identify.**

- 1) Lack of knowledge, experience or training.
- 2) Individual's physical development.
- 3) Tendency of young persons to take risks and to respond to peer group pressure.

**130) Minimize the risks to young persons. Measures -Outline.**

- 1) Competition of risk assessments with young persons specifically in mind.
- 2) The provision of Induction program's.
- 3) Careful supervision or monitoring by an experienced & responsible fellow worker.
- 4) Specific health surveillance.
- 5) Clear line of communication.
- 6) Restrictions on the type of work & the number of hours worked.



**131) Civil law & Criminal law - Difference -Outline.**

- 1) One to provide a remedy and the other to punish.
- 2) Courts involved Civil magistrates courts civil the county courts etc.
- 3) The burden of the proof required ( a balance of probabilities as opposed to beyond all reasonable doubts).
- 4) The parties generally involved the state and an individual and the different court structures involved.
- 5) Difference in the sources of law, with criminal law generally written down in, statutes and with civil liabilities largely defined in common law by judicial precedent.

**132) H & S Committee - Establish by employer. (Circumstances - State)**

**A) An employer must establish a H & S committee when requested to do so in writing by two or more trade union appointed safety representative within 3 months.**

**B) H & S Committee -Ineffective (6 -reasons)- Give**

- 1) Lack of management commitment.
- 2) No agenda or remit and / or no minutes or notes of the meetings being produced.
- 3) An uneven balance between management & employee representative.
- 4) Poor chairmanship.
- 5) No access to the decision making process.
- 6) Infrequent meetings.
- 7) In appropriate topics.
- 8) No access to H & S expertise.

**133) Reference to RIDDOR**

**A) State the legal requirement.**

- 1) Notify the enforcing authority by the quickest practicable means.
- 2) Written report regarding death formally within 10 days by an approved means
- 3) The responsible person under the regulations has the duty to submit the report and that delayed deaths, up to 1 year after the original accident have to be reported whether or not they have been previously reported under another category.

**B) Work related injuries (other than fatal injuries) - 3 categories - Reportable.**

- 1) Injured person being away from the work; or unable to do normal work for > 3 consecutive days.
- 2) Injuries to non-employees who are taken to hospital for treatment etc.

**134) H & S Regulations & ACOP (Outline with example).**

**H & S Regulations:**

- 1) Generally made under the H & SWA -1974 by secretary of state.
- 2) Contain statutory requirements which, if not the imposition of a fine or to the issue of an enforcement notice by the appropriated met by the person on whom they are laid.
- 3) May lead to prosecution in the courts & enforcement authority.

**ACOP:**

- 1) Approved by the H & S Commission with the consent of the secretary of state.
- 2) They provide a practical interpretation of legal requirements in specific areas.
- 3) They do not themselves impose any legal requirements they may be produced in the court as supportive evidence.

**135) A) Ergonomics - Define**

'The study of the interaction between workers & the work environment' OR 'Making the job or task fit to the person".

**B) Inspection of a machine operation which is not ergonomically designed (Observation List).**

- 1) The need for excessive force or repetitive movements by the operator.
- 2) The need for the operator to stretch or stoop.
- 3) Machine control sited in awkward positions.
- 4) Controls and displays unmarked or poorly marked and their function not obvious.
- 5) Lack of visibility of the task by the operator.
- 6) The work piece difficult to position because of its size/ weight / type of protection provided.
- 7) Difficulty experience in changing, adjusting or cleaning the machine tools.

**136) State shape & colours with example.**

- 1) Prohibition Signs: White background within a red circle and with a diagonal red line. E.g. "No Smoking".
- 2) Warning Sign: Yellow background within a black triangle. E.g. Flammable material, radiation & electricity.
- 3) Mandatory sign: Round signs with blue background used to designate compulsory use. E.g. Hearing / head protection / fire door close.
- 4) Emergency exit or first aid: Rectangular or square with a green background. E.g. Emergency escape sign (Running Man).

**137) Monitoring of H & S performance (\* measures - Identify.)**

- 1) Rates of incidents, injuries & work related ill-health.
- 2) Action taken by enforcement authorities.
- 3) The number of Civil claims.
- 4) The result of inspections & environmental monitoring.
- 5) Safety audits outcomes.
- 6) The degree of compliance with procedures ( PPE usage).
- 7) No. of staff trained in H & S.
- 8) Result of medical and / or health surveillance.

**CONTROLLING WORKPLACE HAZARD****138) A) with reference to methods of heat transfer explain how fire in workplace may spread.**

- 1) Conduction: Heat can be transferred through metal beam or other parts of a structure by conduction.
- 2) Convection: Heat can be carried by rising air currents (convection) to cause a build-up of hot gases under ceiling.
- 3) Radiation: Heat can be transferred through the air by radiation causing heating of a material at a distance from fire.
- 4) Direct burning: Combustible material in direct contact with flames can itself catch fire.

**B) Outline the measures that should be taken to minimize the risk of fire from electrical equipment.**

- 1) Ensuring suitability of the chosen equipment for the task. (Std CE Marking, Intrinsic flameproof equipment).
- 2) Circuit overloads prevention. (Avoid multi way adopter in single socket).
- 3) The use of correctly rated fuses & thermal cut-outs.
- 4) Isolating equipment when not in use.
- 5) Ensuring that vents remain uncovered.
- 6) Uncoiling cables & extension leads.
- 7) Pre-use inspection of equipment for visible damage plugs, connectors to cables.
- 8) Program of 'IT IS' by competent person.

**C) Explain why water should not be used on fires involving electrical equipment & identify two suitable extinguishing agents that could be used in such circumstances.**

Water is a good conductor of electricity, it leads to electric shock.

- 1) Dry chemical powder fire extinguisher.
- 2) Carbon dioxide fire extinguisher.

**139) Outline the issues to consider when considering Manual handling assessment of task that involves lifting bucket of water out of a sink.****Main elements: Task, Individual, Load, & Environment.**

- 1) Frequency of activity.
- 2) Vertical & horizontal distances to be lifted / transported.
- 3) Distance of the load from the body.
- 4) Awkward body movements & soon.
- 5) Environmental factors- wet floor, space constraints & ambient temperature.
- 6) Load- weight, the type / size of the bucket & water temperature.

- 7) Individual – should be considered in terms of age, gender, stature & physical capability.

**140) A) Outline the possible causes of a dumper truck overturn on a construction site.**

- 1) Overloading or uneven loading of the bucket.
- 2) Cornering at excessive speed.
- 3) Hitting obstructions.
- 4) Driving too close to the edge of embankments or excavations.
- 5) Mechanical defects.
- 6) Inappropriate tire pressures and driving across slopes.

**B) Identify the design features of a dumper truck intended to minimize the risk of / or severity of injury from an overturn.**

- 1) Use of seat belt.
- 2) Roll over protection.
- 3) Wide wheel base.
- 4) Trucks low centre of gravity.

**141) A company produces a range of solid and liquid wastes, both hazardous & non-hazardous. Outline the arrangements that should be in place to ensure the safe storage of wastes prior to their collection and disposal.**

- 1) The completion of risk assessments that address the nature, properties and quantities of the waste likely to be stored.
- 2) Minimizing the quantities stored by organizing regular collections.
- 3) Ensuring separation of incompatible wastes.
- 4) Providing appropriate means for containing the wastes in secure storage facilities (e.g. protected against unauthorized persons, weather, vehicles etc.).
- 5) Installing & maintaining fire protection and fire fighting systems in case of flammable or combustible wastes.
- 6) Installing bunds and drawing up procedures to deal with spillages that might present environmental risks.
- 7) Providing safe means of transport and access to the storage site.
- 8) Ensuring that wastes are accurately identified and that warning signs are in place where appropriate.
- 9) Training employees in the precaution to be taken.
- 10) Ensuring that they are provided with appropriate gloves, overall, eye protection, PPE.

**142) A) In relation to the noise at work regulations 1989, State in dB(A), the first & second action levels.**

1<sup>st</sup> action level:- For noise as 85 dB(A).

2<sup>nd</sup> action level:- For noise as 90 dB(A).

**B) Outline the requirement placed on an employer when employees are likely to be exposed to the second action level or above.**

- 1) The completion of a noise assessment by a competent person.
- 2) Keeping a record of assessment & reviewing it if it is no longer valid or after significant changes have taken place.
- 3) Reducing exposure to noise by means other than hearing protection (e.g. by the installation of sound proofing enclosures and silencers).
- 4) The provision and maintenance of hearing protection to reduce exposure to below the second action level in case where engineering control is not reasonably practicable.
- 5) Setting up and marking ear protection zones and enforcing the wearing of hearing protection there in.
- 6) Providing information & training to employees 'IT IS'.

**143) Outline the measures that may be needed to reduce the risk of slip & trip accidents in a large supermarket.**

- 1) Workplace design and layout issues (such as displays and warehouse storage arrangements).
- 2) The provision of non-slip flooring.
- 3) A procedure for the identification & repair of floor defects such as holes & bumps.
- 4) The provision of an adequate standard of lighting in all areas.
- 5) Highlighting changes of level.
- 6) Provision of handrails on stairs.
- 7) The use procedures for re-stocking to minimize the need to block aisles, cable and flexible hose management.
- 8) The wearing of suitable footwear by employees.

**144) A) Describe the possible effects of electricity on the body.**

- 1) The cardio-respiratory effects, in particular the risk of fatal injury due to disruption to heart rhythm.
- 2) Muscular contraction following contact with AC current resulting in an involuntary grip on the live conductor, thus prolonging current flow through the body.
- 3) Tissue burns with the main sites of damage being the entry & exit points but with the additional possibility of damage to internal organs.

**B) Outline the emergency action to take if a person suffers a severe electric shock.**

- 1) Isolation of the victim from the supply.
- 2) Summoning help.
- 3) Administering first aid such as cardiovascular resuscitation.
- 4) Treatment of burn & other injuries.
- 5) Remaining with the casualty until medical help arrives.

**145) A computer user has complained of neck and back pain; Outline the features associated with the workstation that might have contributed towards this condition.**

- 1) Poor workstation layout (such as the screen at an incorrect height or poorly positioned causing repeated head movements).
- 2) The chair at an incorrect height or the seat back incorrectly adjusted.
- 3) Lack of or poorly positioned document holder.
- 4) Glare or reflections on the screen that force the computer user to adopt an awkward posture to avoid them.
- 5) Exposure to draughts.
- 6) Poor general or local lighting.
- 7) Inappropriate storage of materials and the poor sitting of ancillary equipment (e.g. printer) also existed.

**146) Outline the control measures that could be used to minimize the health risks from the use of organic solvents in the workplace.**

- 1) Isolating or enclosing the process where the solvents are used.
- 2) Reducing the exposure time of employees.
- 3) Using suitable anti spill and labeled containers and means of transference; (e.g. pumping rather than pouring).
- 4) The use of barrier creams and after work skincare products.
- 5) Providing and maintaining PPE i.e. eye protection, gloves & respiratory protection equipment).
- 6) Prohibiting food, drink and smoking where contamination might exist.
- 7) Ensure that employees are given appropriate information & training.
- 8) Ensuring high level of personal hygiene.
- 9) Provision of local exhaust ventilation.

**147) A) In relation to machine safety, outline the principles of operation of,**

- 1) Interlock guards: one that is linked to the machine controls by mechanical, electrical, hydraulic or pneumatic means so that the machine will not operate until the guard is closed, and when the machine is in a dangerous condition, the guard is either prevented from opening or, if it is opened, the dangerous parts of the machine are made safe.
- 2) Trip Devices: Trip devices operates when a person approaches a danger area. (e.g. trip bars or probes, pressure mats or photoelectric system (light curtains). Once the device is triggered it trips the machine, which either stop or otherwise become safe).

**B) Other than contact with dangerous parts, Identify FOUR types of danger against which fixed guards on machine may provide protection.**

- 1) Noise emission.
- 2) By containing hazardous substances such as oil mist or dust, by providing shielding against heat or electricity.
- 3) Preventing ejection of material (e.g. particles or broken mechanical parts) from the machine.

**148) Outline the particular hazards that may be present during the demolition of a building.**

- 1) Falls from the height.
- 2) Falling debris and premature collapse.
- 3) Use of debris.
- 4) Contact with the noise from the equipment & heavy plant.
- 5) Dust (possibly asbestos).
- 6) Hot work from metal cutting operation.
- 7) The presence of hazardous materials from previous uses of the building.
- 8) The presence cellars or vaults affecting the stability of adjoining premises.
- 9) The possible presence of services such as electricity, gas & water.

## **MANAGEMENT OF SAFETY & HEALTH**

**149) A) Explain the meaning of the term 'dangerous occurrence' and give two specific examples of dangerous occurrences that require notification under the reporting of injuries, disease and Dangerous Occurrence Regulations (RIDDOR) 1995.**

Dangerous Occurrence:- is a specified event that has not resulted in a reportable injury but had the potential to do so. e.g. schedule 2 to RIDDOR -1995

- 1) Collapse of the scaffolding.
- 2) Collapse, overturning or failure of a load bearing part of equipment such as lift, hoist, crane, cradle or forklift truck.
- 3) Escape of significant quantity of flammable gas.

**B) Identify the reasons why employees may fail to report accidents at work.**

- 1) The employee being unaware of the reporting procedure or no procedure in place.
- 2) An unwillingness to give up time or a lack of perception of the importance of accident reporting (perhaps due to lack of training).
- 3) The possibility of retribution and the fear of being disciplined.
- 4) An actual or perceived lack of management response when accidents are reported.
- 5) To preserve the individual's, the department or the organizations safety record (particularly if this part of a bonus or incentive scheme).
- 6) An aversion to first aid or medical treatment.
- 7) A dislike of or inability to fill in forms.
- 8) Peer pressure from fellow employees, possibly as part of a general safety culture problem.

**C) Outline the key points that should be covered in a training session for employees on the reporting of accidents & incidents.**

- 1) The classification of accidents (e.g. major, minor, first aid, near miss etc).
- 2) The reason for reporting (e.g. to meet legal obligations, to enable an investigation to be carried out that might help to prevent the occurrence of similar incidents. To meet insurance requirements, to review risk assessments. And to compile statistics in order to identify trends).
- 3) Internal Procedure: e.g. the accidents & incidents that need to be reported, the method of reporting, including such issues as the person to report to, examples of report forms, location of the incident books etc. How to complete report form, and the name of the person responsible for notifying the enforcing authority.
- 4) Follow up action: e.g. the use that the organization might make of the reports. Stressing a no blame culture, and possibly of an external investigation by an enforcement agency or an insurance company.

**150) Outline the factors that might cause the safety culture within an organization to decline.**

- 1) Lack of effective communication.
- 2) Perception of growing blame culture.
- 3) Lack of leadership & commitment at senior staff.
- 4) Lack of monitoring or a failure to implement remedial action.
- 5) Lack of consultation & employee involvement.
- 6) Generally poor working environment.
- 7) A high staff turnover leading to lack of continuity and loss of momentum in making safety improvements.
- 8) External influences such as a down turn in the economy.
- 9) Leading to job security with the possibility of H & S being seen as less of a priority.

**151) With reference to Management of Health & Safety at Work Regulation 1999,**

**A) Outline the information that an employer must provide to his employees.**

**MHSWR-1999 Reg 10**

- 1) The risk identified by risk assessment ( and those notified to him by other employees sharing the same workplace).
- 2) The preventive & protective measures that are in place.
- 3) The organizations emergency arrangements.
- 4) The identity of competent persons nominated to implement the emergency procedures.

**B) Identify four classes of persons, other than his own employees, to whom an employer must provide health & Safety information.**

- 1) Other employer's employees, & self employed workers working on the premises.
- 2) Employer of those other employees and any employer sharing the same workplace.
- 3) Temporary staff.
- 4) Parents of staff child employees or those on work experience.
- 5) Any employment business supplying the employer with temporary staff or contract labour.

**152) Explain the meaning, status roles of,**

- 1) Health & safety Regulations:- Regulations contain requirements that lay down minimum legal standards. "Breaches of regulations constitute criminal offences that can lead to enforcement action, with the possibility of prosecution and the imposition of fines".

Health and safety regulations are made under the H & S at work Act by the secretary of state after consultation with HSC and that they often implement EC Directives that are aimed at protecting employees & others.

- 2) HSC Approved Code of Practice:- ACOP's are approved by the HSC with the consent of the secretary of state and that their purpose is to provide practical implementation of legal requirements in specific areas.

- 3) HSC Guidance:- HSC audience has no formal legal standing, HSC Guidance is generally more informative and practical than an ACOP, and is intended to give advice on good practice.

**153) Outline the factors that will determine the level of supervision that a new employee should receive during their initial period of employment within an organization.**

- 1) The age of employee.
- 2) His experience of work in general.
- 3) Task to be performed in particular.
- 4) The nature & complexity of task & its inherent risks.
- 5) The person's skills and qualifications for the work.
- 6) His attitude & aptitude.
- 7) The system of work and any specific safety requirements applying to the task.
- 8) Employee's communication skills and any special needs he may have.

**154) A) Identify two main functions of first aid treatment.**

- 1) The preservation of life and / or the minimization of the consequences of serious injury until medical arrive.
- 2) The treatment of minor injuries that do not need medical attention.

**B) Outline the factors to consider when making an assessment of first aid provision in a workplace.**

- 1) Size of the organization.
- 2) The number of employees.
- 3) The layout of the workplace.
- 4) The identified hazard & risks.
- 5) The history of minor & other incidents (and typical need of first aid treatment).
- 6) The distance from the workplace to the nearest emergency medical services.
- 7) The working patterns and practices such as shift working and persons working away from the workplace.
- 8) Trained first aider in special procedure.

**155) Outline the reasons why an organization should monitor and review its health and Safety Performance.**

- 1) To identify substandard health & safety practices and conditions. (Workplace inspection).
- 2) To identify trends in relation to different types of incident. (Incident Analysis data).
- 3) To compare actual performance with previously set targets. (Bench marking).
- 4) To identify whether control measures are in use and to assess their effectiveness.
- 5) To be able to make decisions on appropriate remedial measures for any deficiencies identified.
- 6) To set priorities and establish realistic timescales.
- 7) To assess compliance with legal requirements.
- 8) To provide the information to board of directors and safety committee.
- 9) Legal requirement under MHSWR-1999.

**156) A) Explain using an example, the meaning of the term 'risk'.**

RISK – "Probability / or likelihood of occurrence & severity of its consequences".  
e.g. Electricity – shock, Noise- noise induced hearing loss.

**B) Outline the key stages of a general risk assessment.**

- 1) Define the task.
- 2) Identify the hazards associated with the task & clauses of persons at the risk of harm.
- 3) Evaluate the risks arising from the hazards.
- 4) Assess the effectiveness of existing controls to decide whether additional measures are required to eliminate or control the risks.
- 5) Findings of the assessment need to be recorded & communicated.
- 6) Set the timescale for its review & revision.

**157) The number of absences due to upper limb disorders in an organization appears to be increasing. Outline the possible sources of information that could be consulted when investigating this problem.**

- 1) Risk assessment.
- 2) Results of task analysis & the identification of repetitive actions.
- 3) The organization's employees and safety representatives.
- 4) Ill health reports and the analysis of absence records.
- 5) The observations of supervisors and the complaints that may have been made to them by members of their teams.
- 6) Manufacturers information.
- 7) HSC Guidance.
- 8) Ergonomist & occupational health practitioner.
- 9) Social activities co-coordinator & tennis, squash etc.

**158) A) State the legal requirements where by employees must prepare a written statement of their health and safety policy.**

**HSWA- 1974 section-2 to**

Prepare a health & safety policy and also to the exemption from the requirement for the policy to be in writing for those employing more than five employees.

**B) Outline the various methods of communicating the contents of a health & safety policy to workplace.**

- 1) Giving employees their own personal copy of the policy or a summary of it.
- 2) Displaying the policy on notice boards.
- 3) Explaining the contents of the policy at a team briefings or tool box talks and during induction or refresher training courses.
- 4) Referring the policy in internal newsletters booklets, emails & internal communications.
- 5) Making the policy an agenda items at meetings of the health & safety committee.

**159) Outline the benefits of undertaking regular fire drills in the workplace.**

- 1) Satisfying a legal requirement or one specified in a fire certificate.
- 2) To provide instruction to employees on the actions to be taken in emergency situations.
- 3) Checking that the alarm can be heard in all parts of the premises.
- 4) Testing the effectiveness of the evacuations procedures, both generally and in relation to specific requirements (such as the need to ensure the safety disabled employees and visitors).
- 5) Familiarizing employees (particularly those new to the undertaking) with the alarms, evacuation procedures, escape routes & assembly points so that, in the case of a real emergency, they would know the actions to take.
- 6) Providing an opportunity for fire wardens and others with specific functions to practice their designate roles.

## **MANAGEMENT OF HEALTH & SAFETY AT WORK**

**160) A) With reference to electricity at work regulation 1989, explain the meaning of the term 'Competent Person'.**

"Competent Person means, the person having thorough knowledge, experience and skill of the subject".

**B) Draw up a checklist for the safe use of hand held portable electrical tools.**

- 1) Environmental considerations i.e. wet, flammable.
- 2) Training.
- 3) PPE.
- 4) Reduced voltage.
- 5) Isolation & protection methods such as earthing & residual current devices.
- 6) Identifying the testing.
- 7) Examination & maintenance.



**161) In relation to the use of 240 volt hand held electrical tools,**

- 1) Outline the possible dangers
  - a. Electrical shock & burns.
  - b. Fire, explosion.
  - c. Arching
  - d. Trips & falls.
- 2) Describe suitable precautions which should be taken to control such dangers,
  - i) Reduced voltage operation.
  - ii) Fuses & residual current devices (RCD's).
  - iii) Earthing.
  - iv) Double insulation & inspections.

**162) A) Describe the function & limitations of a fuse as an electrical protection device.**

- 1) AMP rating.
- 2) Equipment protection.
- 3) Basic operation of a fuse in an over current situation.

**LIMITATIONS:**

The ease of using an incorrectly sized fuse and the slow response time of fuses.

**B) Explain one advantage, which a residual current device (RCD) has over a fuse.**

The advantages of an RCD include the fact that an RCD's rapid response time affords some protection against shock (unlike a fuse), and that an RCD is simple and safe for non-electrical personnel to test.

**163) Outline the hazards & the precautions to be taken when changing batteries.**

**Hazards:-**

- i. Evolution of flammable gas.
- ii. Contact with acid.
- iii. Manual handling.

**Precautions:-**

- i. PPE suitable for gas shall be used i.e. organic vapour mask or air line respirator).
- ii. To avoid acid burn hand gloves shall be used while handling batteries.
- iii. While manual handling, suitable body posture is required to work related upper limb disorder. Also protection from electrical shock shall be taken.

**164) A) Outline the effects on human body from severe electric shock.**

Possible physical effects of electric shock on the body.

- 1) Muscular spasm that can cause interference with cardiac and respiratory functions.
- 2) Electrical burns.
- 3) Damage to the internal organs.
- 4) Secondary effects- falls from the height.

**B) Describe how earthing can reduce the risk of receiving an electric shock.**

All metal work with which a person may come into contact should be connected to earth in order to provide lower resistance, pathway than through the human body, and at the same time producing a sufficient current increase to 'blow' a fuse or to 'trip' a circuit breaker.

**165) A) Outline the effect on the human body of a severe electric shock.**

- 1) The main effects of electric shock as being interference with heart rhythm and breathing.
- 2) Severe burn.
- 3) Damage to the internal burn.
- 4) Secondary effects - Falls.

**Emergency action to take if a person suffers a severe electric shock.**

- 1) Raising the alarm.
- 2) Isolating the supply.
- 3) Administering the first aid as a appropriate.
- 4) Remaining with causality.

**B) Outline practical measures to reduce the risk of electric shock when using portable electrical appliances.**

- 1) Correct selection of equipment.
- 2) Regular maintenance & testing.
- 3) Training.
- 4) Use of insulating PPE.
- 5) Earthing.
- 6) Reduced voltage system.
- 7) Correct use of protection devices (RCD's, fuses etc.)

**166) Describe the principles of operation of the following types of electrical protection:**

**i) Earthing:-**

Resistance of the earth circuit being very low such that the current flows to earth by the path of least resistance and that all metal work should be bonded to an earth connection.

**ii) Reduced Voltage:-**

Reduction of mains voltage by a transformer to a lower safer voltage typically 110 or 55 volts. Diagram - centre trapped transformer.

**167) Describe the functions & limitations of a fuse as an electrical protective device.**

**Fuse:-** A 'weak link' in the live supply that melts when heated by excess current flowing under fault conditions, thus protecting the equipment & its wiring.

**Limitations:-**

- 1) Its action being usually too slow to prevent electric shock.
- 2) ease of replacing it inappropriately with a fuse of higher rating or other object.

**B) Identify TWO advantages that a residual current device (RCD) has over a fuse.**

The advantages of an RCD over a fuse.

- 1) Rapid & sensitive electrical response.
- 2) The ease of safety of testing & resetting and / or the fact that it is not easily defeated.

**168) In relation to electrical safety, explain the meaning of the following terms:**

**1) Isolation:-**

Refers to shutting off the electrical supply to an item of equipment or part of an electrical system by a safe means in order, for instance, to carry out maintenance work.

**2) Earthing:-**

Is a means whereby electrical equipment and conductive items are connected to earth by a cable or pipe work such that the route to earth provides the path of least resistance to a current flowing under fault condition.

**3) Reduced Voltage Operation:-**

Commonly used on construction sites, involves the reduction of mains voltage by a transformer to a lower safer voltage typically 110 or 55 volts.

**4) Over current protection:-**

Is a method of preventing the flow of excess current by cutting the supply under fault conditions by means of a fuse or circuit breaker.

**169) Describe options for reducing the risk of electric shock when using a portable electric drill on a construction site.**

- a) Correct selection and maintenance / testing through training.
- b) Use of insulating PPE, to specific measure such as,
  - i) Earthing.
  - ii) Reduced voltage system.
  - iii) Correct use of protection devices (RCD's, fuses etc).

**170) A) Outline the effects on the human body from a severe electric shock.**

- 1) Violent muscular contraction caused by contact with high voltage supplies can through causalities some way from the original point of contact.
- 2) In case of electric shock breathing & heart beat can stop together, accounting pallid for the pallid blue tinge to the skin sometimes seen.
- 3) There may also be burns visible which can indicate contact with electricity.

**B) Describe earthing can reduce the risk of receiving an electric shock.**

Earthing:- provides a suitable connection to earth through the metal enclosures, conduit, frame etc. this gives electricity a clear path to earth and thus protect body from becoming the earth path, it used regular inspections and tests of the earth should be carried out by a competent person.

**171) List the items that should be included in an inspection checklist designed to ensure the safety of portable electrical appliances.**

- 1) Equipment appropriate for task & environment.
- 2) Equipment tested:- equipment, plugs, connectors & cable free from damage, correct wiring & sound connection, fuses & other means of prevailing excess current in place and correct rating.
- 3) Accessible appropriate means of isolation.
- 4) System not overloaded.

## **MACHINERY & GUARDING (PUWER)**

**172) Provides sketches to show clearly the nature of the following mechanical hazards from moving parts of machinery.**

- 1) Entanglement:-
- 2) Crushing:-
- 3) Drawing:-
- 4) Shear:-

**173) Describe four types of machinery guarding & give an example of where each might be used.**

- 1) Fixed Guard:- Fixed guards on a conveyor.
- 2) Interlock Guard:- On a power press.
- 3) Automatic trip guard.
- 4) Adjustable Guard.

**174) Outline four hazards & corresponding precautions to be taken when using conveyor system for moving materials within a work place.**

- 1) Traps, drawing in:- Precautions:- Nips guard & trip devices.
- 2) Entanglement:- Fixed guard, avoid loose clothing.
- 3) Impact against overhead systems:- bump caps, barriers etc.
- 4) Manual handling Hazards:- Appropriate height of conveyor, mechanical aids etc.
- 5) Noise:- various attenuation methods, hearing protection.
- 6) Contact hazards:- Belt edge protection, restriction access, elimination of sharp edges.

**175) Identify four mechanical hazards presented by pedestal drills & outline in each case how injury may occur.**

- 1) Entanglement:- with belt or chuck.
- 2) Ejection:- Ejection of a broken bit or work piece.
- 3) Stabbing or puncture:- from unsecured revolving work piece.
- 4) Impact:- from unsecured revolving work piece.
- 5) Drawing in:- by itself.

**176) Outline practical precautions that should be taken prior to the maintenance of machinery.**

1. Operation of the PTW system.
2. Isolation / locking of source of energy.
3. Dissipation of stored energy (pressure release, prevention of gravity falls, cooling hot surfaces etc.
4. Segregation. (barriers, warning signs)
5. Means of escape.
6. Provision of PPE.
7. Use of skilled personnel.
8. Provision of a safe working environment (ventilation, lighting).

**177) With reference to an accident involving an operator who has come into contact with a dangerous part of a machine Describe,**

**1) Possible immediate causes:-**

- i) Inadequate or non-existence safety devices.
- ii) Poor Housekeeping.
- iii) Loose clothing.
- iv) Machine malfunction.
- v) Operator error.

**2) The possible route (underlying causes).**

- i) Inadequate training, 'IT IS'.
- ii) Poor maintenance.
- iii) Inadequate risk assessment.
- iv) Personal factors such as, stress, fatigue.
- v) The influence of drugs & alcohol.
- vi) Purchasing of equipment policy & selection of personnel.

**178) A) Identify:-**

**1) Two mechanical hazards associated with moving parts of machinery.**

- i) From moving parts of machinery.
- ii) Impact, entanglement, shearing, ejection, cutting, abrasion.

**2) Two non-mechanical hazards to which a machine operator may be exposed.**

- i) Noise.
- ii) Vibration.
- iii) Electricity.
- iv) Hazardous substances.
- v) Radiation.
- vi) Extreme of temperature.
- vii) Ergonomic issues.

**B) List a hierarchy of control measures that may be used to reduce the risk of injury from dangerous parts of machinery.**

- 1) 'FIAT' or other types of devices.
- 2) Safety aids such as holders, push stick, jigs & 'IT IS'.

**179) A) In relation to machine safety, outline the principles of the following types of machine guards.**

**i) A fixed guard:-**

Physical barriers, not connected to machine controls, no moving parts, requires a special tools to remove.

**ii) An interlocked guard:-**

Linked to machine controls, no moving parts, requires a special tools to remove.

**B) List TWO advantages and TWO disadvantages of a fixed machine guard.**

**ADVANTAGES:-**

- i) It is easy to inspect (simplicity) & maintain.
- ii) no moving parts, leads to increase reliability.

**DISADVANTAGES:-**

- i) Not being linked to a control means that access when required is afforded should it be removed.
- ii) it is fixed and requires a special tools to remove means that access when required is more difficult, a physical barrier may also hamper inspection of the machine or work particularly if it is solid.

## **MAINTENANCE & CONFINED SPACES.**

### **180) Explain the practical measures that should be taken to ensure maintenance work is undertaken safely in an underground storage vessels.**

Essential elements of PTW such as pre-cleaning, purging, testing, emergency provision, lighting, access & training.

#### **PTW PROCEDURE:-**

- i) Pre-cleaning.
- ii) Atmospheric testing.
- iii) Competent Personnel.
- iv) Suitable tools.
- v) Adequate lighting.
- vi) Appropriate PPE.
- vii) Good communication system.
- viii) Emergency arrangement for safe evacuation of staff should the need arise.

### **181) A) Explain the meaning of term 'Safe System of Work'.**

"System involving integration of people, equipment, material & environment to produce an acceptable level of safety".

### **B) Describe the enforcement action that could be taken when a safe system of work has not been implemented.**

- i) Improvement Notice.
- ii) Prohibition Notice.
- iii) Prosecution as the enforcement action.

### **182) A) Define the term 'Permit to Work'.**

"A formal documented control system applied to a high risk activity to ensure that all safely procedures are carried out".

### **B) Outline 'Three' practical situations that may require a permit to work.**

- i) Confined space work.
- ii) Working on high voltage electrical systems.
- iii) 'Hot Work'.
- iv) Working at height.
- v) Maintenance on dangerous plant.

## **NOISE**

### **183) A) Outline & give examples of two technique to reduce exposure to noise.**

- i) Isolation:- for structure borne noise.
  - ii) Absorption:- using acoustic screen or buffers.
  - iii) Damping:- of vibrating panels by increased rigidity/ mass.
  - iv) Silencing:- at source by using pneumatic mufflers.
- (Give examples & sketches).

### **B) Explain the term 'daily personal noise exposure' (Lep,d).**

"Person exposed to the noise level while working daily i.e. for 8 hours.

### **184) A) Outline the control measures which should be taken under the noise at work regulations 1989 at the second action level.**

- i) Personal hearing protection & marked zones.
- ii) Engineering controls.
- iii) Assessment.

(Noise at work regulations 1989).

B) Explain the meaning of the term dB(A) in relation to noise level which in relation to noise measurement.

"Measuring unit of noise level which in relation to human ear on A-weighting scale".

**185) Explain the meaning of following terms in relation to noise control.**

- 1) Silencing:- Refers to the suppression of noise generated by the flow of air, gas or steam in ducts and pipes, or when exhausted to the atmosphere, and is achieved by the inclusion of either absorptive material or baffles.
- 2) Absorption:- used to reduce the amount of reflected noise by using materials such as foam or mineral wool.
- 3) Damping:- used primarily to reduce the amount of noise radiating from large panels and is achieved by increasing the stiffness of the panels.
- 4) Isolation:- refers to the physical separation of people from the noise source (e.g. acoustic booth or havens) or to the reduction in structure borne noise by vibration isolation (i.e. flexible pipes or anti-vibration machine mounts).

**186) A) Explain the meaning of following terms in relation to noise.**

- 1) Frequency:- (pitch)- the number of wave fronts passing a given point in one second. It is expressed in terms of cycle per second, or Hertz, from the stand point of hearing, "The number of wave fronts hitting the ear drum in one second".
- 2) Intensity:- (Sound Pressure Level)- Defined as 'A' measurement of the degree of compression of the wave fronts. It is measured in pounds per square inch, dynes per square centimeter, or the more familiar term decibels.  
"How hard the wave front hits the eardrum".

**B) Outline the two acute and two chronic health effects from exposure to noise.**

- 1) Acute acoustic trauma:- from gunfire explosions, usually reversible, affects eardrum icicles.
- 2) Temporary threshold shift:- from short exposures, affecting the cochlea.
- 3) Tinnitus:- (ringing in the ears) results from intense stimulation of the auditory nerves, usually wears off within 24 hours.
- 4) Permanent threshold shift:- from long duration exposure, affects the cochlea and is irreversible.
- 5) Noise induced hearing loss:- from (typically) long duration exposure affects ability to hear human speech, irreversible, compensable. It involves reduced hearing capability at the frequency of the noise that has caused the losses.
- 6) Presbycusis:- is the term for hearing losses in older people. These have been thought to be due to aging in the middle ear muscles which causes a reduction in their ability.

**C) Silencing:-** refers to the suppression of noise generated by the flow of air, gas or steam in ducts or pipes, or when exhausted to the atmosphere, and is achieved by the inclusion of either absorptive material or baffles. Absorption is used to reduce the amount of reflected noise by using materials such as foam or mineral wool. Damping is used primarily to reduce the amount of noise radiating from large panels and is achieved by increasing the stiffness of the panels. And enclosure by surrounding the machine or other noise source with sound absorbing material, but the effect is limited unless total enclosure is achieved. Isolation refers to the physical separation of people from noise source (e.g. acoustic booths or havens), or to the reduction in structure borne noise by vibration machine mounts).

**MANUAL HANDLING**

**187) a) With reference to the manual handling operations regulations 1992 (TILE), Explain the factors to be considered when assessing the risks associated with manual handling.**

- 1) Task.
- 2) Individual.
- 3) Load.
- 4) Environment.

**B) Outline the main features of a safe lifting technique.**

- 1) Assessment of load.
- 2) Ensure smooth balanced actions at each stage without twisting or stretching movements.
- 3) Firm grip.
- 4) Load close to the body.

**C) List the types of injury a safe lifting technique will help to avoid.**

- 1) Slipped discs.
- 2) Hernias.
- 3) Torn ligaments.
- 4) Pulled muscles.
- 5) Crushed limbs.

**D) Outline the factors that should be considered in an assessment of manual handling activities.**

- 1) Task.
- 2) Individual.
- 3) Load.
- 4) Environment

**188) A) List two types of injury that could be caused by incorrect manual handling of loads.**

- i) Spinal disc compression.
- ii) Torn Ligaments.
- iii) Dislocation.
- iv) Hernia.
- v) Crushing injury.

**B) Outline a good handling technique that could be adopted by a person required to lift a load from the ground.**

- i) Assessment of load.
- ii) Ensure smooth, balanced actions at each stage without twisting or stretching movements.

**189) Outline the factors associated with the physical working environment that may affect the risk of injury when undertaking manual handling activities.**

- 1) Space constraints.
- 2) Floor conditions (Slippery, uneven, or varying in height).
- 3) Extreme in temperature / humidity.
- 4) Air movements.
- 5) Lighting.
- 6) Excessive lifting or lowering distances.

**DISPLAY SCREEN EQUIPMENT.**

**190) A) Outline possible effects on health associated with the use of display screen equipments.**

- 1) Upper limb disorder.
- 2) Fatigue.
- 3) Stress.
- 4) Eye strain.
- 5) Epilepsy.
- 6) Facial Dermatitis.
- 7) Radiation effect.

**B) Explain the measures to eliminate or reduce the effects in (A) Control measures.**

- 1) Ergonomic aspects of workstation. (layout: chair, monitor, keyboard position).
- 2) Impact of environment: e.g. lighting & noise.
- 3) Work routine:- Breaks & change in work pattern.
- 4) 'IT IS'.

**191) Outline the factors that should be considered when designing a new workstations for a VDU operator.**

- 1) Ergonomic approach:-
  - i) Selection of furniture.
  - ii) Hardware & software.
  - iii) Adjustability to suit individuals needs.

**2) Environmental factors:-**

- i) Lighting.
- ii) Glare.
- iii) Humidity.

**3) Office Hazards:-**

- i) Trailing leads.
- ii) Workstation layout.
- iii) legal requirement.

**192) A) Explain the meaning of term 'ergonomic'.**

"Making a job fit to the person".

"Designing a task suit the individual in terms of physical / mental capabilities & the individuals expectations".

**B) Outline the main factors to be considered in an ergonomic assessment of work station to be used by an operator of a visual display unit (VDU).**

**1) Equipment Design:-**

Height & position of keyboard & screen, seating posture, design of chair, screen definition & colour, adjustability of equipment etc.

**2) Environmental factors:-**

Glare, temperature, humidity, work space, noise.

**PERSONAL PROTECTIVE EQUIPMENT**

**193) A) Outline the factors to be considered when selecting respiratory protective equipment for use at work.**

- 1) Concentration & physical form of contaminants.
- 2) Extent of exposure.
- 3) Degree of protection in relation to nominal protection factor.
- 4) Approved type CE marking.
- 5) Ergonomic considerations & wear comfort.
- 6) Wears trials & compatibility.

**B) Outline the factors to be considered in the selection of eyeprotection for use at work.**

- 1) Quality.
- 2) Ergonomic.
- 3) Compatibility.
- 4) Maintenance.
- 5) Training.
- 6) Initial assessment in determining the appropriate type of eye protection.

**194)A) Outline the requirements of PPE at work regulation 1992.**

- 1) Provision.
- 2) Compatibility.
- 3) Assessment (risk determination).
- 4) Maintenance & replacement.
- 5) Storage.
- 6) "IT IS".
- 7) Ensuring proper use.
- 8) Employees 'duties' to use PPE provided and to report loss or defect.

**B) Outline the factor which should be considered when selecting PPE.**

- 1) Suitability of task.
- 2) Type of hazard: Chemical, impact, hot molten nature.
- 3) Exposure type: Dust, mist or vapour.

**HEALTH SAFETY & MANAGEMENT.**

**195) Outline the topics that should be included in the 'arrangements' section of H & S policy documents.**

- 1) Accident reporting procedures.
- 2) First aid arrangements.
- 3) Risk Assessment.
- 4) -
- 5) -
- 6) -
- 7) -
- 8) -

**196) Outline the factors that should be considered when auditing the effectiveness of compliance with an organizations H & S policy.**

- 1) The quality, availability and understanding of the policy.



- 2) Use of site tours/inspections.
- 3) The relevance of performance indicators (e.g. accident/incident rates and audit score).
- 4) The use of training & maintenance records.
- 5) Cross check of health & safety arrangements against practical implementation.

**197) Outline the topics that should be included in H & S Audit.**

- 1) H & S Policy.
- 2) Training.
- 3) System for assessing risk.
- 4) Safety monitoring systems.
- 5) Emergency procedure.
- 6) Reporting procedures.

**198) Outline the main topic areas that could be included in a H & S inspection of a work place.**

- 1) Housekeeping.
- 2) Environmental conditions (temperature, light, noise).
- 3) Condition of traffic routes (including access & egress).
- 4) Machinery.
- 5) Internal transport.
- 6) Provision of safety signs.
- 7) Emergency equipment (first aid & fire extinguishers, etc.).
- 8) Welfare facilities (toilets & washrooms, canteens, smoker facility).

**199) Outline ways in which an organization can monitor its H & S performance.**

**1) Reactive Measures:-**

- a) Analysis of accident & ill health records.
- b) Civil claims.
- c) Enforcement actions.

**2) Proactive Measure:-**

- a) Result of safety inspections.
- b) Audits.
- c) Health Surveillance.
- d) Environmental monitoring records.
- e) Assessment of H & S training.
- f) Extent that risk assessments have been completed.
- g) Benchmarking against other companies using formal audits.

**200) Outline the items that may be included in the 'arrangements' section of a H & S policy document.**

- 1) Arrangement for assessing risk.
- 2) Controlling exposure to specific hazards. (e.g. noise, radiation, hazardous substances manual handling etc.).
- 3) Monitoring the use of PPE.
- 4) Reporting accidents, unsafe conditions.
- 5) Controlling contractors, visitors, including authorized people.
- 6) Maintenance procedures.
- 7) Provision of welfare facilities.
- 8) Dealing with emergencies (e.g. fire, excavation).
- 9) Training.
- 10) Consultation with employees.
- 11) Dealing with waste etc.
- 12) Emergency evacuation.

**201) Explain the main features of:**

**1) A Safety Inspection:-**

A safety inspection involves the straight forward observation of the workplace & activities or equipment within it.

Usually carried out routinely by a manager safety representative, aided by the use of checklist, with the aim of identifying hazards and assessing the use & effectiveness of control measures.

**2) A Safety Audit:-**

A safety audit is thorough critical examination of the safety management and procedures.

A lengthy procedure carried out by a trained auditor. (often from outside the organization).

It is a structured way of assessing H & S performance by supplying answers to a series of preset questions & usually involves a scoring system so that improvements can be measured.

**202) Outline TWO reactive & TWO proactive measures that can be used in monitoring an organizations H & S performance.**

**1) Reactive Measures:-**

- i) Accidents & ill health records.
- ii) Civil claims.
- iii) Enforcement actions. Etc.

**2) Proactive Measures:-**

- i) Result of safety inspection.
- ii) Health surveillance & environmental monitoring records.
- iii) Assessment of H & S training.
- iv) Extent that risk assessment have been completed.

**203) Outline the duties placed on employees under the Manual Handling operation Regulations.**

**Section-4**

- 1) Avoiding manual handling operations wherever possible.
- 2) Conducting suitable & sufficient assessments of the tasks.
- 3) Taking steps to reduce the risk of injury to the lowest level reasonably practicable.
- 4) Providing information to employees on the weight & weight distribution of the load & reviewing assessments as necessary.

**MANAGEMENT OF CONTRACTORS**

**204) Outline EIGHT health & safety precaution that should be taken when undertaking demolition work.**

- 1) Barriers, fences, conveyors, restricted access etc. to protect the public and others from falling debris.
- 2) Means of preventing falls from height.
- 3) The identification & isolation of services.
- 4) Wearing signs.
- 5) The use of elephant trunks for safe removal of debris from upper levels.
- 6) The provision of suitable PPE (e.g. hard hats, ear defenders, footwear's etc.).
- 7) Ensuring that personnel's (drivers, explosives teams etc) are competent.
- 8) Means of supporting dust i.e. dampening down..
- 9) Identification of correct removal of hazardous substances such as asbestos, lead.
- 10) Prevention of premature collapse or collapse of adjoining buildings. (e.g. temporary shoring).
- 11) The use properly maintained plant and equipment.
- 12) Responsibilities are understood.
- 13) Method statement is followed.

**205) Outline the checks that could be made in assessing the H & S competence of a contractor.**

- 1) H & S Policy.
- 2) System in place for implementing policy i.e. Risk Assessment, monitoring, training of staff, consultation procedure, access to H & S advice.
- 3) Previous performance of contractor.
- 4) Experience with the particular type of work.
- 5) Reputation.
- 6) Accreditation with professional/trade organization etc.

**206) Under CDM Regulations 1994 OUTLINE the type of information that should be included in a H & S plan before work commences on building project.**

- 1) The nature of the work and risk involved.
- 2) Method statements.
- 3) Emergency arrangements.
- 4) Coordination of and liaison between relevant parties.
- 5) Use of plant and equipment.
- 6) Site rules.
- 7) Welfare arrangements.
- 8) Accident reporting.
- 9) "IT IS".
- 10) Provision and use of PPE.
- 11) Monitoring and review arrangements.

**207) Outline four duties of each of the following persons under the CDM Regulations 1994.**

**1) The planning supervisor:-**

- i) The planning supervisor is required to ensure HSE is notified of the project.
- ii) Ensure cooperation between designers.
- iii) Ensure designers comply with their duties.
- iv) Ensure cooperation with designers.
- v) Ensure a PRE tender stage H & S plan is prepared.
- vi) Advise the client when requested to do so.
- vii) Ensure H & S file is prepared.

**2) The principle contractor:**

CDM Regulation 16:- The principle contractor is required to develop the H & S plan before work starts on site and keep it up to date throughout the construction phase. These are firstly to take reasonable steps to ensure cooperation between contractors, the principle contractor must ensure so far is reasonably practicable that every contractor and every employee complies with any rules in H & S plan. The principle contractor can make any reasonable return rules and include them in the plan and reasonable directions to any contractor. The principle contractor must take reasonable steps to ensure that any authorize persons are allowed where construction work is being carried out.

The principle contractor must ensure that required particulars are displayed in any notice covered by regulation 7, and are displayed in a readable condition where they can be read by any person at work on the project.

Finally he must provide the planning supervisor promptly with any information he possesses or could reasonably find out from a contractor which the planning supervisor does not already possesses and which could reasonably be believed necessary to include in the H & S site.

**CONTROLLING WORK PLACE HAZARDS**

**208) An employee is to use a petrol driven chain saw to fell a tree from ground level,**

Outline the hazards faced by the employee in carrying out this task:

- 1) Contact with the moving part of the chain saw (chain in particular).
- 2) Exposure to fumes and dust.
- 3) Manual handling hazards.
- 4) Noise and vibration.
- 5) Ejected particles and fragments.
- 6) Falling objects (tree itself).
- 7) Fire & explosion hazards from the fuel.
- 8) Hot parts of the chain saw.
- 9) Uneven and/or weight ground.
- 10) The use of lubricating oils and exposure to sunlight.

**209) List FIVE items of PPE that should be provided to, and used by the employee.**

Ear defenders, gloves, helmets, face visor, forestry boots, Cavelor protective clothing designed to choke the chain if contact is made.

**210) Outline the control measures other than PPE that could be necessary to ensure H & S of the chain saw operator and other persons involved in the operator.**

- a) Proper planning of the job.
- b) Placing barriers and warning signs to restrict access to the felling area.
- c) Ensuring chain saw is suitable for the task. (e.g. guard is always in place and that equipment is properly maintained).
- d) Using only certified operators.
- e) Providing "IT IS" for the job in hand.
- f) Ensuring adequate supervision to check that procedures (relating to safe felling methods, refueling, exclusion zones, etc). are followed.
- g) Introducing a system of health surveillance (e.g. look for signs of hearing loss and / or hand arm vibration syndrome).

**211) Outline the means by which the risk of accident from reversing vehicles within a work place can be reduced.**

- 1) Avoiding the need for vehicles to reverse (one way and 'drive through' systems, turning circles).
- 2) Separation of vehicles & pedestrians (barriers, signs etc).
- 3) Aspect of vehicle,
  - Audible alarms.
  - Mirrors on vehicles & at
  - blind corners.
- 4) Workplace design.
  - Refuges.
  - lighting etc.
- 5) Procedural measures,
  - Use of bank man.
  - Site Rules.
  - Drivers training etc.

**212) A) Identify:**

**1) Two mechanical hazards associated with moving parts of machinery,**  
Moving parts of the machinery and / or the material being worked) include impact, entanglement, crushing, shearing, ejection, cutting & abrasion.

**2) Two non-mechanical hazards,**

Noise, vibration, electricity, hazardous substances, radiation, extreme of temperature & ergonomic issues.

**B) Outline a hierarchy of control measures that may be used to reduce the risk of injury from dangerous part of machinery.**

PUWER-1998 Reg 11,

- 1) FIAT - Guards.
- 2) Safety aids such as jigs, holders, push sticks.
- 3) "IT IS".

**213) In relation to the electrical safety explain the meaning of following terms.**

- 1) Isolation:- shutting off the electrical supply to an item of equipment or an electrical system and preventing inadvertent reconnection in order, for instance, to carryout maintenance work.
- 2) Earthing:- Means whereby electrical equipment and conductive items are connected to earth by a cable or metal pipe work such that the route to earth provides the path of least resistance to a current flowing under fault condition.
- 3) Reduced low voltage:- reduction of mains voltage by a transformer to a lower, safer voltage (typically 110 or 55 volt (used mainly on construction site).
- 4) Over current protection:- is a method of preventing the flow of excess current by cutting the supply under fault condition by means of a circuit breaker.

**214) Outline the precautions to ensure the H & S of persons engaged in painting spraying in a motor vehicle repair workshop.**

- 1) Segregation on the activity, typically by means of a spray booth fitted with local exhaust ventilation and protected electrical equipment.
- 2) Suitable storage and fire precautions for flammable paints & solvents.
- 3) The provision & use of PPE (clothing, respiratory protection etc).
- 4) Monitoring employee's exposures to airborne substances.
- 5) Providing appropriate training to employees.
- 6) Maintaining welfare & hygiene facilities.

**215) An employee is engaged in general cleaning activities in a large veterinary practice,**

**A) Identify FOUR possible hazards the cleaner could encounter when undertaking this activity.**

- 1) Cleaning fluids.
- 2) Manual handling.
- 3) Slips/trips / falls.
- 4) Sharp object.
- 5) Environment :-a) biological hazards, b) contact with animals, c) those arising from specialized equipment.

**B) Outline the precautions that could be taken to minimize the risk of harm from these hazards.**

- 1) Provision and use of PPE (overall & gloves).
- 2) The use of suitably maintained and tested equipment.
- 3) Procedure for the handling & disposal of sharps.
- 4) The need for animals to be kept in secure enclosures & need for immunization against diseases known to be transmitted by animals.
- 5) Training to the employees.

**216) A) State the primary effect on the body of the following types of hazardous substances.**

- 1) **Irritant:-** Irritants cause inflammation on contact with the skin, eyes or mucous membranes.
- 2) **Corrosive:-** substance cause the destruction of living tissue at the point of contact, e.g. skin, respiratory tract or digestive tract.
- 3) **Toxic:-** substances have poisonous effect on body organs or systems, affecting normal metabolic function.
- 4) **Carcinogens:-** substances have the ability to alter the genetic material in living cells and to cause cancer.

**B) Describe the difference between acute & chronic effects.**

**Acute:-** Acute health effects appear after a single or short term exposure, usually with a rapid or immediate response.

**Chronic:-** Chronic effects are normally produced following prolonged or repeated exposures to an agent, appear gradually may go unrecognized for long periods of time & may be progressive even without further exposure.

**217) Outline the precautions to be taken when using mobile elevating work platform (MWE) to reach a high point such as street light.**

- 1) The need to inspect the equipment before use and to ensure it is in a good state of repair.
- 2) Using only competent workers.
- 3) Using outriggers & brakes.
- 4) Erecting warning signs & barriers to avoid collisions.
- 5) Ensuring the platform is not overloaded.
- 6) Voiding overhead obstruction.
- 7) Wearing a harness.
- 8) Protection of those at ground levels.

**218) In order to work related upper limb disorder (WRULDS).**

**A) Identify the typical symptoms that might be experienced by affected individuals.**

- 1) Pains to back, neck, shoulders and /or arms.
- 2) Swollen joints.
- 3) Reduced mobility.
- 4) Stiffness cramps.
- 5) Muscle fatigue.
- 6) Affect sleep & normal functioning.

**B) Outline the factors that would increase the risk of developing WRULDS.**

- 1) Space constraints resulting in poor working posture.
- 2) Excessive force or awkward hand movement needed to carry out an operation.
- 3) The frequency with which tasks need to be repeated.
- 4) Use of vibrating tools & equipment.
- 5) The involvement of vulnerable workers such as those with pre-existing medical conditions & pregnant.

**219) Explain the following terms in relation to noise exposure at work.**

**A) noise induced hearing loss:-**

- (i) Noise induced hearing loss is normally caused by prolonged exposure to high noise level causing damage to the hair cell of the inner ear and leading to a permanent threshold shift at particular frequencies, which worsen with continued exposure both in terms of the extent of the threshold shift and of the frequencies affected.
- (ii) Tinnitus:- on the other hand is typified by a ringing or similar sound in the ears caused by over stimulation of the hair cells. It can be acute or chronic, permanent or intermittent.

**B) Identify FOUR limitations of personal hearing protection as a means of protecting against the effect of noise.**

(i) Poor fit, resistant to use, comfort factor incompatibility with protective equipment, costly in terms of replacement & maintenance, interference with communication, hygiene problems & the need for constant supervision & attention.

**220) List EIGHT ways of reducing the risk of fire starting in a workplace.**

- 1) Control of smoking and smoking materials.
- 2) Regular lubrication of machinery.
- 3) Ensuring that electrical systems are not overloaded.
- 4) Regular inspection of electrical equipment for damage.
- 5) Ensuring ventilation outlets on equipment are not obstructed.
- 6) Controlling hot work.
- 7) Provision of proper storage facility for flammable liquids.
- 8) The segregation of incompatible chemicals and implementing security measures to reduce the risk of arson.

## **CONSTRUCTION**

**221) Explain the precautions to be taken when using a mobile tower scaffold.**

- 1) Pre instruction by competent persons.
- 2) Braked when in position.
- 3) Not moved with person on.
- 4) Ladder access.
- 5) Toe boards.
- 6) Solid level ground.

**222) A) Outline the possible dangerous which may be encountered during demolition work on a multi storied building.**

- 1) Premature collapse and falls.
- 2) Biological.
- 3) Fire.
- 4) Electrical.
- 5) Noise.
- 6) Manual handling hazards.

- B) **Outline the specific safety precautions to be taken during excavation work at depths greater than 1.2 meters**
- 1) Edge protection.
  - 2) Support of adjacent buildings.
  - 3) Detection of underground services.
  - 4) Safe means of access & egress.
  - 5) Gas testing.
  - 6) Frequent inspection.

**223) Outline the main precautions to be taken when carrying out excavation work.**

The dangers of excavation work include:-

- 1) Collapse of sides.
- 2) Falls of persons.
- 3) Materials & vehicles into excavation.
- 4) Contact with buried services.
- 5) Buildup of fumes.
- 6) Ingress of water and contact with mechanical parts.
- 7) Contact with mechanical parts.

**Precautions:-**

- 1) Detection of services ( e.g. from plans, use of cable / pipe detectors, etc).
- 2) Support of sides.
- 3) Storage of materials and spoils away from edge.
- 4) Means of vehicles falling into excavation (e.g. stop blocks).
- 5) Guard rails & barriers.
- 6) Means of prevailing collapse of adjacent structures.
- 7) Safe means of access & egress.
- 8) Testing for and ventilation of noxious fumes.
- 9) Means of pumping out water.
- 10) Procedure for working with mechanical plant general issues such as inspection 'IT IS'.
- 11) "IT IS".

**FIRE**

**224) A) State FOUR classes of fire.**

- 1) Class A: Solid (e.g. wood)
- 2) Class B: Chemicals
- 3) Class C: Electrical (e.g. short circuit)
- 4) Class D: Metal (e.g. Na, P)

**C) Explain the significance of the various forms of heat transfer in the spread of fire.**

- 1) Convection:-
- 2) Radiation:-
- 3) Direct burning:-

**225) A) List TWO types of fire extinguisher which may be used on electrical fires.**

- 1) Carbon Dioxide
- 2) Dry Chemical Powder.

**B) Outline the precautions, which should be taken to minimize the risk of an electrical fire.**

- 1) Good housekeeping.
- 2) "IT IS".
- 3) Insulation & residual current devices (RCD protection).
- 4) SRD - CE marked material.
- 5) Regular inspection & maintenance.

**226) A) Explain the methods of heat transfer which cause the spread of fire.**

- 1) Conduction:-
- 2) Convection:-
- 3) Radiation:-
- 4) Direct Burning:-

**B) Outline the main requirements of a safe means of escape from a building.**

- 1) Fire resistance.
- 2) Exit provision.
- 3) Marking.
- 4) Housekeeping.
- 5) assembly Point.
- 6) Fire drill procedure and / or training.

**227) State the requirements of the fire precautions (workplace) Regulation-1997 relating to emergency routes & exits.**

- 1) Emergency routes and exits should be kept clear at all times.
- 2) Lead to a place of safety.
- 3) Adequately signed.
- 4) The number distribution & dimensions of emergency routes exit shall be adequate having regard to the use.
- 5) Equipment & dimensions of the workplace & the maximum number of persons present at any time.
- 6) Emergency doors shall open in the direction of the escape routes.
- 7) Emergency doors shall not be locked or fastened so that they can be easily & immediately opened by a person in an emergency.
- 8) Routes requiring illumination shall be provided with emergency lighting of adequate intensity.

**228) A) Outline TWO advantages and TWO disadvantages of using hose reels as a means of extinguishing fires.**

**Advantages:-**

A hose provides a continuous supply of water and at a great force than extinguishers so users can be at a greater distance from the fire and will not find themselves in a situation where the water runs out after a few seconds.

**Disadvantages:-**

Relate to the efforts required to position the hose.

The possibility of the hose compromising fire & smoke barriers by passing through doorways.

The fact that water is not a suitable extinguishers medium for some types of fire.

The hose becoming tripping hazard and hindering evacuation.

**B) Outline the main factors to consider when siting hose reels in the workplace.**

- 1) Accessibility.
- 2) Area to be covered.
- 3) Prevention of obstruction & facilitation of escape.
- 4) Adjacent to an exit.
- 5) Be recessed if possible to prevent obstruction of the escape route.
- 6) Sited where they are less prone to vandalism & misused.

**228) A) Outline the main factors to be considered in the siting of fire extinguishers.**

- 1) Accessibility.
- 2) Visibility.
- 3) Proximity to exits & escape routes.
- 4) Travel distances.
- 5) Means of supporting the equipment off the ground and free from obstruction.
- 6) Need to protect extinguishers from the weather and other sources of damage.

**B) Outline the inspection & maintenance requirements for the extinguishers in the work place.**

**Inspection:-**

- 1) Routine inspection of fire extinguishers (i.e. monthly).
- 2) Visual checks to ensure that extinguishers are in place, have not been discharged & bear no obvious damage.

**Maintenance:-**Is something rather more extensive and usually involves annual test by competent person according to the manufacturer's instruction in order to ensure the integrity of the extinguisher, with the removal and replacement of equipment found to be faulty.



**229) List eight rules to follow that may reduce the risk of fire starting in the workplace.**

- 1) No smoking.
- 2) PTW for any Hot work.
- 3) Good housekeeping, removal of waste daily.
- 4) Control of flammable materials only daily/ shift required amount allowed.
- 5) Good electrical maintenance (PAT) testing on equipment.
- 6) No overloading sockets.
- 7) Regular testing on the electrical distribution system.
- 8) Good storage for any flammable material off the workshop floor.
- 9) Regular workshop tours to spot material build up.
- 10) Regular briefing of the workforce on the need to be vigilant etc.

**LOCAL EXHAUST VENTILLATION**

**230) What is dilution ventilation and under what circumstances can be used in the working environment.**

**Dilution Ventilation:-**

Is designed to induce a flow of air through room such that contaminants are sufficiently diluted by the incoming air. This is achieved by the use of extractor, fans in walls, windows or roofs, sometimes combined with inlet fans to ensure clean air. Natural ventilation provided by open windows or doors is also sometimes included as a form of dilution ventilation (this cannot be considered to be an engineered solution).

**Circumstances:-**

Dilution ventilation is appropriate only when dealing with low toxicity, low density contaminants (no dust), that are uniformly evolved, where the rate of evolution is known & where quantities are small; & it is not practical to extract close to its point of origin e.g. where there is a non specific point of release.

**231) Outline the factors that may affect the efficiency of a local exhaust ventilation system.**

- 1) Blocked filters.
- 2) Hoods placed to far away from the source of contaminants.
- 3) Lack of maintenance and testing.
- 4) Unauthorized alterations.
- 5) Wear or corrosion of the fan blades.
- 6) Incorrect setting.
- 7) Overwhelming by increased contaminant levels.
- 8) Inadequate design.

**COSHH**

**232) Explain the meaning of the following terms, and give one example of a substance in each category.**

**1) Occupational Exposure Standard (OES):-**

**OEL:-** refers to airborne concentrations of particular substances and thus are primarily concerned with the prevention of ill health effects by inhalation.

**OES:-** harmful substance is assigned an OES when current evidence indicates that there is no harmful effect at this level, and that average airborne concentrations at or below the standard are considered acceptable.

**MEL:-** is assigned to a substance when there are difficulties, either, technical or due to lack of evidence in establishing a level that is considered 'safe'. For this reason, airborne concentrations of substance with an MEL must be as far as reasonably practicable below this maximum limit in order to minimize any ill health effects. Excursions above an MEL must be explained and immediately controlled.

**233) A) Draw a labeled sketch of a chemical indicator (stain) tube suitable for atmospheric monitoring**

**B) List FOUR of the main limitations of chemical indicator (Stain) tube detectors**

- 1) Chemical interference.
- 2) Limited accuracy.
- 3) Unrepresentative grab sample.
- 4) Limited shape life.

**234) A) Outline the factors that should be considered when carrying out an assessment as required by the COSHH Regulation-1998.**

- 1) Properties.
- 2) Type of hazards (toxic, irritant, caustic).
- 3) Routes of exposure.
- 4) Number exposed.
- 5) Exposure durations and frequencies/ or measurements and comparisons with Standards.

**B) Outline the relevance of HSE guidance note EH40 'Occupational exposure limits) when carrying out this assessment.**

- 1) Base on EH40 list distinguish 'DES, MEL.
- 2) How to deal with mixed exposures.
- 3) How to use the 8 hour reference period for calculating exposures over a specifies period.

**235) Outline a hierarchy for controlling risk.**

**Hierarchy of control appear in various regulations, ACOP and HSC Guidance.**

- 1) Elimination.
- 2) Substitution.
- 3) Segregation/ Isolation.
- 4) Engineering control.
- 5) PPE.

**236) A) Explain the meaning of term**

- 1) Occupational exposure standard (OES).
- 2) Maximum exposure limit (MEL).

**B) Outline FOUR actions management could take when an MEL has been exceeded.**

- 1) Emergency procedures such as evacuation.
- 2) Isolation and venting of the affected area.
- 3) Curtailing the process producing the contaminant would be required immediately.
- 4) Assessment should be made of reasons for the break down in control and improvements (such more effective ventilation).
- 5) Anyone exposed to high concentration should be the subject of special health surveillance.

**237) A) Define the term 'target organ within the contest of occupational health'.**

"Target organ" id the part of the body that sustains and adverse effect when it is exposed to contaminated by a particular harmful substance or agent".

Most toxic substances are confined to a particular organ within the body i.e. lungs, liver, skin, kidneys.

**B) Outline personal hygiene practices that should be followed to reduce the risk of injection of hazardous substance.**

- 1) Regular hand washing.
- 2) Restriction of smoking and eating in the workplace.
- 3) The use of suitable PPE e.g. gloves.
- 4) The need for removing and cleaning of contaminated clothing.

**FIRST AID**

**238) Outline the factors to consider when making an assessment of first aid provision in a work place.**

- 1) The number and level of tracing of first aider as well as
- 2) Type and location of first aid facilities and equipment.
- 3) The number and distribution of employees.
- 4) The work patterns in operation in (e.g. shift work).
- 5) The work place activities and risks.
- 6) Proximity of emergency services.

## **TRANSPORT OF HAZRDOUS SUBSTANCE**

**239) Describe the main precautions which must be taken during the transport of hazardous substances by the road.**

- 1) Container design.
- 2) Labeling. (e.g. HAZCHEM CODES).
- 3) Availability of emergency information.
- 4) Training of drivers.
- 5) TREMCARD.
- 6) (Consigner & Consignee)
- 7) Road condition.
- 8) Weather.
- 9) Emergency equipment, first aid kit.

## **RADIATION**

**240) A) Outline the possible effects on health arising from exposure to ionizing radiation.**

- 1) Cancer.
- 2) Genetic defect.
- 3) Sterility.
- 4) Radiation sickness.

**B) Outline the main principles of control for ionizing radiation.**

- 1) Shielding.
- 2) Segregation by time and distance.
- 3) PPE.
- 4) Monitoring.

**241) A) Explain the term ionizing radiation.**

"Ionizing radiation has high energy potential and it has the ability to penetrate, ionize and damage the body tissue and organs.

**B) Outline suitable measures for the control of ionizing radiaton.**

- 1) Shielding.
- 2) Reduce time exposure.
- 3) Increased distance.
- 4) PPE.
- 5) Monitoring.

## **MECHANICAL HANDLING.**

**242) Draw a list of Precautions to help to prevent forklift truck from overturning.**

- 1) Forks at ground level.
- 2) Pre-checks.
- 3) Careful driving.
- 4) "IT IS".
- 5) Reversing down slope under load.
- 6) Avoiding high speed or sudden braking.
- 7) Following defined routes.

**243) Outline EIGHT types of hazards associated with the operation of forklift trucks.**

- 1) Contact with hot surfaces. LPG GAS leaks, diesel and electric shock etc.
- 2) Fire.
- 3) Battery acid
- 4) Manual handling of batteries and LPG cylinders.
- 5) Exhaust fumes emission.
- 6) Overturning.
- 7) Collision.
- 8) Load stability.

**244) outline the hazards and corresponding precautions to be taken when charging batteries for forklift trucks.**

- 1) Fire/ explosion (hydrogen release) and chemical corrosivity.
- 2) Manual handling.
- 3) Electrical safety (short circuit).

**Precautions:-**

- 1) Ventilation / exhaustion of ignition sources.
- 2) Suitable PPE.
- 3) Emergency wash facility.
- 4) Manual handling.
- 5) Training /equipments.
- 6) Insulating covers.
- 7) Non conducting tools.
- 8) Proper connection procedure.

**245) List the ways in which a forklift truck may become unstable whilst in operation.**

- 1) Load.
- 2) Environment.
- 3) Vehicle itself was adopted.
- 4) Insecure, excessive or uneven loading.
- 5) Incorrect tilt and / or elevation force when traveling.
- 6) Uneven or unconsolidated ground.
- 7) Slopes (and incorrect procedure to deal with them).
- 8) Obstructions (overhead or low level).
- 9) Mechanical failure.

**246) Outline the precautions which should be taken during lifting operations with a mobile crane.**

- 1) Working within the safe working load.
- 2) Use on stable ground with outriggers.
- 3) Avoidance of obstructions.
- 4) Slings technique.
- 5) Use by competent persons in controlled areas.

**247) Outline the precautions that should be taken when using mobile cranes.**

- 1) Ensuring stability of mobile crane (reach, lifting capacity, test certificate etc.).
- 2) Stable ground conditions.
- 3) Use of outriggers.
- 4) Avoidance of obstruction / overhead power lines.
- 5) Designated and protected operation area.
- 6) Suitable and tested lifting tackles.
- 7) Correct slinging techniques.
- 8) Ensuring competence of personal.
- 9) Load to be carried near ground if traveling with load.
- 10) Ensuring good visibility & communications, if poor visibility use of banks man.

**248) Outline a procedure for the safe lifting of a load by use of a crane, having ensured that the crane has been correctly selected and positioned for the job.**

- 1) Suitable of the lifting tackle (safe working load, free from defects etc.)
- 2) Competence of the personnel involved.
- 3) Ensuring the load is lifted vertically & that it is secure, balanced & controlled during the lift by the attachment of tag lines where necessary.
- 4) Ensuring proper communication.
- 5) Keeping the area clear of other persons.
- 6) Performing each part of the operation ( lifting, slewing, moving & lowering) at a rate that maintains proper control.

**249) Outline the precautions that should be taken when using mobile cranes -refer**

- 1) Ensuring stability of the crane (reach, lifting capacity, test certificate).
- 2) Stable ground conditions.
- 3) Use of outriggers.
- 4) Avoidance of obstructions / overhead powerlines.
- 5) Designated and protected operation area.
- 6) Suitable and tested lifting tackles.
- 7) Correct slinging techniques.
- 8) Ensuring competence of personal.
- 9) Load to be carried near ground if traveling with load.
- 10) Ensuring good visibility & communications, if poor visibility use of banks man.

**250) Outline the precautions to be taken to prevent accidents to employees working at ground level in a workshop where heavy loads are lifted and transported by means of an overhead gantry crane.**

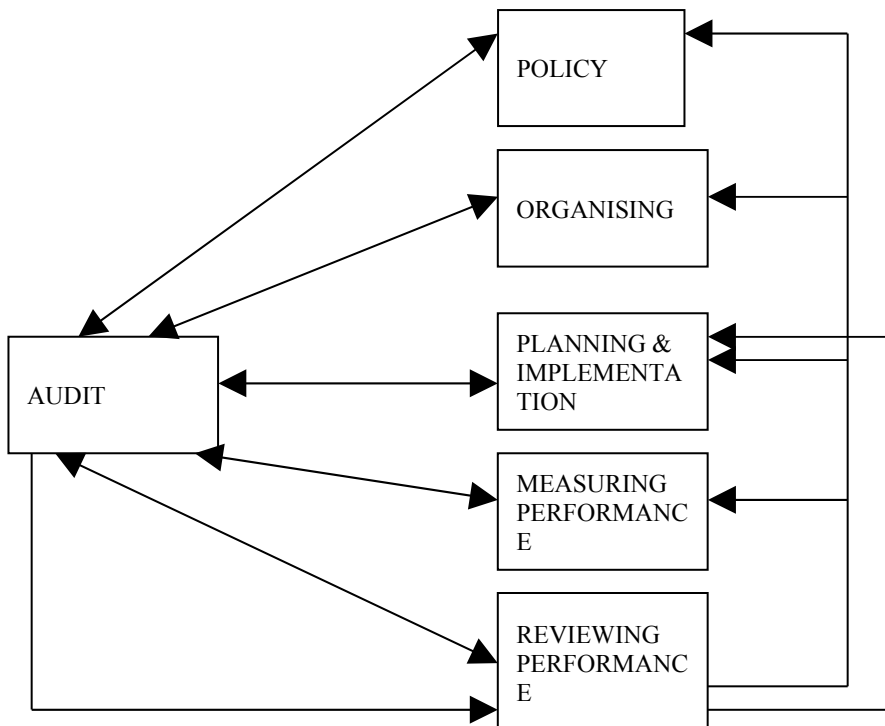
1. Training and competence of key personnel (operator, signaller, slinger are of the utmost importance).
2. Requirements for the maintenance and statutory inspection of the crane and lifting tackles bear in mind the workshop situation.
3. Use appropriate warnings of a lift taking place (audible / visual ).
4. Ensuring that the load is secure and does not exceed the SWL is lifted to the correct height and moved at an appropriate speed.
5. Ensuring that all those working in the area have been properly trained and are adequately supervised.

**251) Outline a procedure for the safe lifting of a load by the use of a crane, having ensured that the crane has been correctly selected and positioned for the job.**

- 1) Suitability of lifting tackles (SWL, free from defect etc.).
- 2) The competence of the persons involved (drivers, slinger, and signaller).
- 3) Ensuring that the load is lifted vertically and it is secure balanced and controlled during the lift by the attachment of tag lines where necessary.
- 4) Ensure proper communication.
- 5) Keeping the area clear of other persons.
- 6) Performing each part of the operation (lifting, slewing, moving, lowering) at a rate that maintains proper control.

**MANAGEMENT OF SAFETY & HEALTH AT WORK**

**252) H & S Management System: Draw a flow chart - 6**



**Elements**

- 1) Policy development.
- 2) Organization of development.
- 3) Developing technique of measuring & reviewing
- 4) Feed back loop to improve performance.

**253) H & S Management Model ( Outline - parts plays (HSG 65).**

- 1) Establishing a policy that states management's intentions & sets clear aims, objectives & targets.
- 2) Organizing by H & S by allocating responsibilities & establishing effective communication & commitment at all level established.
- 3) Planning & implementing, where practical plans are developed to meet the objective & effective control measures introduced based on risk assessment.
- 4) Proactive & reactive monitoring systems should be introduced to measure performance in H & S and a system of review established to evaluate performance against the objectives & targets to consider options for improvement and to reset the targets.
- 5) The review would be reinforced by the independent and structured audit of all parts of the system, which would assess compliance with H & S management procedures & identify where existing standards are inadequate or deficient.

**254) Outline the economic benefits of H & S management system.**

- 1) Increased productivity.
- 2) Improved morale & reduction in downtime.
- 3) Improvement in product quality & reduced wastage.
- 4) Reduction in the cost associated with accidents.
- 5) Reduced insurance premiums.
- 6) An enhance corporate image.
- 7) Lower staff turnover involving a reduction in recruitment & training costs.

**255) Verbal Instructions are not clearly understood - reasons**

- 1) Nature of working environment e.g. high noise level.
- 2) Interference from PPE, other distraction.
- 3) Use of too much technical jargon.
- 4) Language or dialect issues.
- 5) Ambiguity of message.
- 6) Sensory impairment or learning difficulties.
- 7) Inexperience of the recipient. i.e being unable to relate properly to what is being said.
- 8) Instruction may be too complete or lengthy to be given verbally.

**256) Negligence - define**

" Civil wrong (tort) involving unreasonably careless conduct ( a breach of the common law duty of care) resulting in loss, damage or injury.

**A case of negligence.**

" Three standard condition to prove against employer (outline)

1. A duty of care was owed by the employer (e.g. employee was acting in the course of his / her employment).
2. The employer acted in breach of that duty by not doing everything that was reasonably to prevent foreseeable harm.
3. The breach lead directly to the loss, damage or injury.

**257) PPE - last option to control OH Hazard ( Explain).**

- 1) PPE should be considered only after other possibilities have been exhausted.
- 2) It is legal requirement ( e.g. within the COSHH regulations and MHSWR) that other means of the control are considered first.
- 3) PPE may not provide adequate protection because of,
  - poor selection.
  - Poor feet.
  - Incompatibility with other type of PPE.
  - Contamination.
  - Misuse or non use by employees.
- 4) PPE is likely to be uncomfortable and relies for its effectiveness on a conscious action by the user.
- 5) Its use can actually create additional risk in certain cases e.g. warning sounds masked by hearing protection.

**258) Proactive monitoring methods to assess H & S management performance- Outline.**

- 1) Audits- involving comprehensive and independently executed examinations of all aspects of an organization's H & S performance against stated objectives.
- 2) Safety surveys- focusing on a particular activity such as manual handling, training program's and employees attitude towards safety.
- 3) Sampling – specific area of O, H & S are targeted.
- 4) Tours- involving unscheduled workplace inspection to check on issues such as wearing of PPE and housekeeping.
- 5) Benchmarking- where an organization performance in certain areas is compared with that of other organization with similar process and risks.
- 6) Health & medical surveillance – audiometric, blood & urine analysis.

**259) “So far as is reasonably practicable”- Explain**

“Balance of risk against the cost (in terms of time, cost & trouble & money).

Duties of Employer:- General & specific step (State)

**HSWA 1974 -section 2**

- 1) To ensure ( so far as is reasonably practicable) the H, S & welfare of employees but.
- 2) Provide and maintain safe plant and systems of work.
- 3) To ensure safe use, storage , handling and transport of articles and substances.
- 4) Provide and maintain safe workplace including safe access and egress.
- 5) Provision of safe working environment with adequate welfare facilities.
- 6) Provision of “IT IS”.

**260) H & S culture (Ways- Outline).**

- 1) Establishing and implementing sound H & S policy, securing commitment of management.
- 2) Ensuring managers lead by example.
- 3) Involving and consulting with employees on matters affecting their H & S and,
- 4) Providing effective supervision and training.
- 5) Equal priority to H & S as compare with business objectives by the organization (such as production and quality).
- 6) Establishing effective communication with the work force.
- 7) Providing pleasant environment with good welfare facilities.

**261) Establish safety Committee - Employer**

Circumstances – State ; “one is requested, in writing, by two or more trade union- appointed safety representatives” (within 3 month).

H & S Committee – Ineffective – 6 Reasons.

- 1) lack of management commitment.
- 2) No terms of reference for the committee.
- 3) No agenda and or minutes of meetings being produced.
- 4) An uneven balance between management & employee representative.
- 5) Poor chairmanship.
- 6) Inappropriate topics for discussion.
- 7) No access to H & S expertise.

**262) H & S of persons required to work on their own way from the workplace. (factor-Identify).**

- 1) Type of work to be done and its attendant hazards and risks.
- 2) The equipment to be used.
- 3) The work environment and control measures in place.
- 4) Factor in relation to those working alone at distance location.
- 5) The competence and suitability of the person involved.
- 6) The methods of communication with home base.
- 7) Emergency and first aid procedure.
- 8) Need for risk assessment.

**263) Major injury accident at work (initial action- OUTLINE).**

- 1) Isolation of services and making area safe.
- 2) Administering first aid treatment and summoning the emergency services.
- 3) Informing next of kin.
- 4) Notifying the enforcement authority by quickest practicable means.
- 5) Collecting initial evidences - photographs, sketches, name of the witness.
- 6) Setting up the accident investigation.

**264) Risk - Explain**

"Probability / likelihood of the occurrence of an unwanted event and severity of its consequences (injury/ill health)".

**H & S of a multi storaged car park attendant (6 Hazards - Identify).**

1. Fumes and / or dust.
2. Impact or crushing by moving vehicles.
3. Fire (fuel).
4. Extreme ambient temperature.
5. Possibility of being subjected to violence (noise from car alarms, slips, trips or faults by oil and stairs).
6. Biological hazards- presence of vermin, human waste and hypodermic needles.
7. Ergonomic hazards- need to stoop or twist in what might be a restricted work place, manual handling task.

**CONTROLLING WORKPLACE HAZARDS**

**265) a) Identify possible indications of a dust problem in a work place.**

- 1) Find deposit on surface.
- 2) People and products.
- 3) Dust particle visible in the air.
- 4) Plant issues such as blocked filters.
- 5) Complaints from the work force of discomfort and irritation.
- 6) Cases of ill health reported or detected by health surveillance.

**B) Describe the how the body may defend itself against the harmful effects of airborne dust.**

- 1) Filtering effect of nasal hairs.
- 2) Role of mucus in the respiratory tract and bronchi, which allows dust particle to be trapped and then carried upwards by tiny hairs (Cilia). Fine particles reaching the bronchi holes may be subjected to the engulfing action of scavenging cells (macrophages) and absorbed into blood stream.
- 3) Damage eyes may be prevented by the action of tear ducts, causing the eyes to "water". And dust problem to be removed.

**C) Control measures to reduce dust problem in the work place - Outline with Example.**

- 1) Elimination- e.g. by introducing preformed components or outsourcing the dusty operation.
- 2) Substitution - e.g. of powder by granules, liquids or paste.
- 3) Isolation- Of process in separate rooms.
- 4) Enclosure- in a glove box, for instance.
- 5) Ventilation- provision of local exhaust.
- 6) Suppression - by damping down and carrying out clean operation by vacuuming rather than sweeping.



**266) A) Outline the main factor to be considered in the siting of fire extinguishers.**

- 1) Accessibility.
- 2) Visibility.
- 3) Proximity to exits and escape routes.
- 4) Travel distance from the extinguishers to the possible location of a fire.
- 5) The means of supporting the equipment of the ground and without causing obstruction.
- 6) Need to protect extinguishers from the weather and other sources of damage.

**B) Outline suitable arrangement for the inspection and maintenance of fire extinguishers in the work place.**

- 1) Frequent visual inspection of fire extinguishers is required to ensure that they are in place, have not lost pressure and bear no obvious damage.
- 2) More thorough, less frequent inspection should check in addition that safety clips are functioning and that there are no signs of corrosion.
- 3) Maintenance on the other hand is something rather more expensive and usually involves an annual examination and test by competent person according to the manufacturer's instruction in order to ensure the integrity of the extinguisher, with the date of the examination recorded on the extinguishers and replacement of extinguishers should be discharge and refilled.
- 4) Every 20 years an extinguisher should undergo complete overhaul or replacement.

**267) Outline the issues that should be addressed by an organization when developing a system for the safe collection & disposal of its waste.**

- Identification of waste by its hazardous properties. E.g. general, biological or special waste. Nature – e.g. solid or liquid.
- The quantity produced.
- Need for separation of incompatible waste.
- Marking and labeling.
- Provision of safe storage on site.
- Methods of transportation to & from the storage facility.
- The appointment of a competent and / or licensed waste contractor.
- Possible pollution issues arising from spillages.
- Competence & training of staff.
- Keeping the necessary records.

**268) A person is employed to lay carpet tiles using a solvent based adhesive.**

**1) Identify the possible effects on health.**

- Skin & eye irritation.
- Dermatitis.
- Headaches.
- Nausea.
- Dizziness.
- Narcosis.
- Consciousness.

**2) Outline the control measures that should be considered.**

- Ventilation.
- Possible substitution of the adhesive for less toxic or volatile one.
- Minimum amount of substance for the job.
- Use of respirator & other PPE (e.g. Overall, gloves).
- Good personal hygiene.
- Provision of information (IT IS).

**269) Outline the FOUR main categories of the guard and safeguarding devices that may be used to minimize the risk of contact with dangerous part of machineries.**  
**FIAT**

- 1) **Fixed Guard** : Physical barrier held in place at all times, not linked to machine operation and requiring a special tool for its removal.
- 2) **Interlocked Guard:-** Guard linked mechanically, electrically, hydraulically or pneumatically to the machine operation and preventing access when the machine is in a dangerous condition, while also preventing operation of the machine when the guard is open.
- 3) **Adjustable or self adjusting Guards:-** Essentially a fixed guard that has elements that can be adjusted (or which adjust themselves ) to allow for the material being processed. (e.g. circular saw) or (drill chucks).
- 4) **Trip Device:** (e.g. pressure mat, probe or photoelectric system) stops movement of the machine when approach is detected.

**270) A) Give FOUR reasons why accidents may occur on stairs.**

- 1) Poor design of the staircase.
- 2) Slippery condition of the stairs ( highly polished, icy, oily etc).
- 3) A poor state of repair (e.g. worn steps or loose coverings).
- 4) Obstructions on the stairs.
- 5) A poor standard of the lighting.
- 6) Bad practice (carrying of loads, rushing, improper footwear etc.).

**B) Outline ways in which accidents on stairs may be prevented.**

- 1) Removal of obstructions.
- 2) Provision of non-slip surfaces, reflective edging & adequate lighting.
- 3) Safe design and construction of the stair case including provision of handrails.
- 4) Maintenance of staircase.
- 5) Introduction & monitoring of site rules & procedures for using stairs.

**271) Outline the practical measures to reduce the risk of injury from electricity when using a portable electrical appliances on a construction site.**

- Selection of equipment: such as battery operated appliances or those operating at reduced voltage (typically 110 v).
- Cables connected to the power supply with proper connectors.
- The use of residual current devices.
- The training of operators in the checking procedures to be followed before use.
- The introduction of a regular appliances inspection & testing procedures.
- The avoidance of using the appliance in wet condition.

**272) An organization is about to purchase a forklift truck. With reference to its possible intended use and working environment. Outline the particular features of the vehicle that should be taken into account when determining its suitability of its job.**

- Power source of the truck:- the choice of battery, diesel or LPG would depend partly on whether the truck was to be operated indoor or outdoor.
- Its size & capacity.
- The height of the mast.
- The types of tires:- the choice of solid or pneumatic would depend on the nature of the terrain over which the truck was to run.
- Warning system.
- Protection provided for operator.

**273) A) Identify the person that an employer may need to appoint in order to comply with the ionizing Radiations 1999.**

- 1) Radiation protection supervisors.
- 2) Radiation protection advisors.

**B) Outline the means of controlling exposure to ionizing radiations.**

- 1) Enclosures:- (ranging from a concentrate and / or lead encasement to a glove box).
- 2) Shielding:- by barriers or screens.
- 3) Segregation:- by distance.
- 4) Exposure time:- reducing of the employees involved.
- 5) PPE:- respirators, lead apron, full body suit.
- 6) Environmental or personal monitoring:- the use of film badges, the correct disposal of waste.
- 7) Training / supervision / hygiene.

**274) Identify FOUR different types of hazard that may necessitate the use of special footwear, explaining in each case the footwear affords protection.**

- 1) Falling objects: steel toe, caps.
- 2) Sharp objects:- steel insoles.
- 3) Chemicals:- chemical resistant.
- 4) Hot material:- heat resistant boots with gaiters.
- 5) Slippery surfaces:- non slip soles.
- 6) Cold environment: insulated boots.
- 7) Wet environment:- rubberized boots or Wellingtons.
- 8) Spread of contamination:- washable boots.
- 9) Flammable atmosphere:- antistatic footwear.
- 10) Electricity:- non-conducting sole.

**275) Mobile tower scaffold should be used on stable. Level ground, list additional points that should be considered to ensure safe use of a mobile tower scaffold.**

- 1) Ratio between height & base dimension of the tower.
- 2) The use of diagonal bracing.
- 3) Stabilizers & locking wheels.
- 4) The provision of toe boards & handrails.
- 5) Ensuring that the platform is fully boarded.
- 6) The prevention of overloading taking account of overhead obstructions & power lines.
- 7) The provision of suitable means of access (preferably fixed internal ladder).
- 8) Need to ensure that the tower is not moved when loaded with equipment and or people.

**MANAGEMENT OF SAFETY & HEALTH.**

**276) A) Outline the steps that should be used in carrying out the risk assessment identifying the issues that would be considered at each stage.**

- 1) Need to define the process or task that is being assessed.
- 2) Identifying the hazards involved and determining their possible consequences.
- 3) Identifying the number and types of person exposed.
- 4) Evaluating the associated risk by assessing the likelihood & severity of harm that could be caused.
- 5) Evaluating the adequacy of existing controls and the need for additional measures to secure compliance with legislation and other standards.
- 6) Recording the results of the assessment together with making arrangement for its monitoring & review.

**B) Explain the criteria that must be met for the assessment to be deemed 'suitable & sufficient'.**

- 1) Comprehensive identification of significant hazards and risks.
- 2) The identification prioritization of measures needed to reduce the risk to an acceptable level.
- 3) Ensuring that the assessment remains valid for a reasonable period of time.

**C) Identify the various circumstances that might require a review of the risk assessment.**

- 1) Change of the review of the risk assessment.
- 2) The introduction of new or modified plant.
- 3) The availability of new information on hazards & risks.
- 4) Accidents or accidents of ill health.
- 5) The result of monitoring and / or auditing.
- 6) A change in the requirement of legislation.
- 7) Action taken or advice given by an enforcement authority or insurance company.

- 8) Change in personnel, in particular the involvement of young persons, new or expectant mothers or disabled persons.

**277) Outline a procedure designed to ensure the H & S of visitors to work premises.**

- 1) Need of visitor identification. E.g. with badges, with a routine for signing in and out.
- 2) Prior notification to those members of staff to be involved in the visit.
- 3) The provision of information to visitor on hazards & emergency procedures.
- 4) An explanation of specific site rules e.g. wearing of PPE.
- 5) Need for visitors to be escorted by a member of staff.

**A) Explain the meaning of the term ‘competent person’.**

A person would need to possess knowledge based on appropriate qualifications and training, the skills, experience & personal qualities to apply the knowledge in a given situation and, importantly a clear recognition of his or her limitations.

**B) Outline the organizational factors that may cause a person to work unsafely even though they are competent.**

- 1) Management or peer group pressure.
- 2) A poor safety culture in the organization.
- 3) A lack of resources or equipment.
- 4) A lack of clarity in roles and responsibilities.
- 5) Inadequate supervision and a poor working conditions.

**279) Name & describe FOUR classes of safety sign prescribed by the H & S (safety signs and signals) Regulations 1996.**

- 1) Prohibitory: No smoking.
- 2) Warning:-
- 3) Mandatory : wear PPE
- 4) Emergency escape or first aid:-
- 5) Fire fighting:-

**280) A) Explain the purpose of the ‘statement of intent’ section of a H & S policy.**

“Statement of intent’ section of a H & S policy is designed to demonstrate management commitment to H & S and setting goals & objectives”.

**B) Outline the circumstances that would require a H& S policy to be reviewed.**

- 1) Significant changes in the organization.
- 2) After the introduction of new or changed processes or work methods.
- 3) Following changes in key personnel.
- 4) Following changes in legislation.
- 5) Where risk assessments, monitoring excessive or investigations show that the policy is no longer effective or related.
- 6) After a sufficient period of time has elapsed since the previous review to suggest that another one is due.

**281) A) Explain giving an example in each case the circumstances under which a H & S inspector may serve.**

- 1) An improvement Notice:- an inspector must be of the opinion that there is a breach of relevant statutory provision, or there has been a breach that is likely to be continued or repeated.
- 2) A Prohibition Notice:- an inspector must be of the opinion that there is likely to be risk of serious personal injury and risk that is ‘imminent danger to the life and health of the person.

**B) state the effect on EACH type of enforcement notice of appealing against it.**

The effect of an appeal against an improvement notice is to suspend the notice until the appeal is held.

Whereas prohibition notice continuous in force during this time.

**282) Outline the specific factors that should be considered when assessing the risks to employees working an night shift.**

- 1) The effect of fatigue and increased likelihood of human error.
- 2) The number of hours worked and
- 3) The period allowed for recovery between shifts.
- 4) General well-being when normal routines are disrupted.
- 5) The level of supervision provided and access to specialist advice if required.
- 6) Possible increased risk of violent assault on the way to and from work.
- 7) Lighting.
- 8) Heating.
- 9) Welfare & first-aid provision.
- 10) Emergency arrangement.

**283) In relation to safety representatives and safety committees Regulation 1977. outline,**

**1) The right & functions of a trade union appointed safety representative.**

- i) Investigating hazards & dangerous occurrences & examining the causes of accidents.
- ii) Investigating the complaints from the employees.
- iii) Making representations to the employer.
- iv) carrying out safety inspections.
- v) Attending safety committee meetings.
- vi) Representing employees in consultation with enforcing authority and receiving information from its inspectors.

**In order to achieve this function S.R has certain right:-**

- 1) Access to relevant documents.
- 2) The use of appropriate facilities.
- 3) Entitlement to inspect the work place at set interval.
- 4) Time off with pay for training.

**2) The facilities that an employee may need to provide to safety representatives.**

- i) Private room.
- ii) Telephone.
- iii) Fax machine.
- iv) Photocopier.
- v) Relevant reference material.

**284) Explain the difference between HSC approved code of practice & HSC Guidance, giving an example of each.**

**ACOP:-**

- 1) Approved by HSC with the consent of the secretary of state.
- 2) Provide interpretation of how employer may comply with relevant legislation.
- 3) Failure to comply with ACOP is not itself is an offence.
- 4) Document can be used as a proof in the court.

E.g. **ACOP's complementing the workplace (H, S & Welfare ) Reg 1992.**

**MHSWR -1999.**

**Guidance:-**

- 1) Issued by the H & S executives with the intention of giving advice on good practice. The advice is generally more practically based than that contained in an ACOP.
- 2) Guidance has no legal standing in a court of law. E.g. manual handling, DSE, PPE.

**285) Outline four duties of each of the following person under the CDMR 1994.**

**A) The planning Supervisor:-**

- i) Coordinate activities between the client, designer & principal contractor.
- ii) Notifying the HS executive of the project where notification is required.
- iii) Ensuring preparation of H & S plan.
- iv) Collecting information for H & S file.
- v) Advising the client when requested on the competence of the principle contractor & designer.

**B) The principle contractor:-**

- 1) Coordinating the activities of all contractors on site.
- 2) Developing the H & S plan & ensuring the compliance with it on site.
- 3) Displaying the statutory notices.
- 4) Providing the H & S information to contractors.
- 5) Ensuring effective consultation with employees.
- 6) Controlling access to the site.
- 7) Ensuring the competence of all contractors involved.
- 8) Passing any information to planning supervisor that should be included in the H & S file.

**286) Identify EIGHT sources of information that might be useful when developing a safe system of work**

- 1) Statutory instruments.
- 2) ACPO's & HSC guidance.
- 3) Manufacturer's information.
- 4) European and other official standards.
- 5) Industry or trade literature.
- 6) Result risk assessments.
- 7) Accident statistics & health medical surveillance records.
- 8) The employee involved.
- 9) Enforcement agencies & other experts.

**CONTROLLING WORK PLACE HAZARD**

**287) A) provide sketches to show clearly the nature of the following hazards from moving part of machinery.**

- 1) Entanglement: shaft with projection.
- 2) Crushing:- Scissor lift, trap against fixed structures.
- 3) Drawing In:- belt conveyor, meshing part, counter relating rolls.
- 4) Shearing hazards:- rotating spoke wheel, radial flow fans.

**B) Outline a hierarchy of control measures that may be used to prevent contact with dangerous parts of machinery.**

**A) FIAT**

- 1) Fixed guards.
- 2) Interlocked.
- 3) Automatic.
- 4) Trip.

**B) "IT IS".**

**C) protection appliances:- jigs, holders or push sticks.**

**288) Identify FOUR non-mechanical hazards that may be encountered on wood making machine & outline the possible health & safety effects from exposure in each case.**

- 1) Noise:- noise induced hearing loss & Tinnitus.
- 2) Vibration:- hand arm vibration syndrome.
- 3) Electricity:- shock & burn.
- 4) Dust:- lung disorders, cancers, fire explosion.
- 5) Ergonomic / manual handling issues:- musculoskeletal disorders.
- 6) Splinters- cuts, infections and eye injuries.

**289) A) Explain the meaning of term 'Hazard'.**

"Something that has the potential to cause harm".

**B) Outline the main hazards associated with demolition work.**

- 1) Falls from the height.
- 2) Trip hazards.
- 3) Falling debris & premature collapse of the building.
- 4) Use of explosives.
- 5) Noise/vibration & mechanical hazards from the use of heavy plant.
- 6) Pneumatic breakers & other power tools.
- 7) Dust (particularly asbestos) & fumes.
- 8) Existence of underground services such as electricity gas & water.

**290) Outline a range of checks that should be made to ensure electrical safety in an office environment.**

- 1) Visual inspections for damage to cables, plugs & sockets.
- 2) The need to ensure that all fuses are of the correct rating.
- 3) Checking that outlets are not overloaded.
- 4) Proper fittings of the cables.
- 5) Equipment itself should be checked to ensure that it is suitable and conform with recognized standards (e.g. CE marking).
- 6) Proper siting of equipment to avoid damage, that it has been subject to appropriate portable appliance testing & it has been properly maintained.
- 7) Ensuring reporting procedure for defects or damage.

**291) A) Describe the differences between 'Acute and Chronic effects'.**

**Acute:-** The adverse effects appear after a single or short term exposure to the agent, and response is invariably rapid or immediate. In most cases, acute effect recedes on cessation of exposure (the obvious exception being death).

**Chronic:-** usually result from prolonged or repeated exposure to the agent. The response is normally gradual, often progressive & irreversible, and may go unrecognized for long periods of time.

**B) Identify the factors that could affect the level of harm experienced by an employee exposed to a toxic substance.**

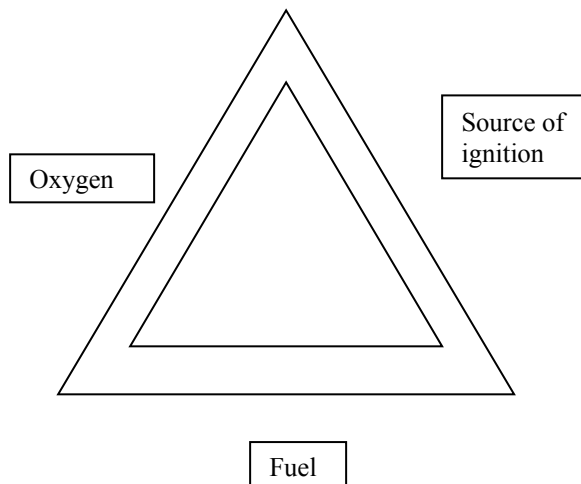
- 1) the route of entry of toxic substance into the body & the associated mode of exposure (e.g. contact, inhalation).
- 2) The concentration, physical state & toxicity of the substance.
- 3) The level duration & frequency of exposure.
- 4) The effectiveness of the control measures in place.
- 5) Personal factors such as the age, gender, health status & susceptibility of those exposed.

**292) Outline the precautions that might be taken in order to reduce the risk of injury when using stepladders.**

- 1) Need to ensure that stepladder is inspected for defects before use.
- 2) Ladders is correctly erected on level ground with its chain or rope fully extended.
- 3) Ladder is suitable for the task to be performed and doesn't involve carrying out work from the top step.
- 4) Ensure that it is footed by a second person when necessary.
- 5) Ladder is correctly positioned to avoid over-reaching.

**293) A) Explain using a suitable sketch, the significance of the fire triangle.**

All three of which must be present for combustion to occur.





**B) List FOUR types of ignition sources that may cause a fire to occur, giving a typical workplace example of each type.**

- 1) Electricity:- arcing, overheating due to faulty wiring, poor connections or excess current).
- 2) Chemical reduction: (Reaction involving heat).
- 3) Hot work/ spark: Reaction involving heat.
- 4) Naked flame or burning material:- discarded smoking materials.
- 5) Friction - caused by inadequate lubrication or machinery & hot surfaces, cooking or heating appliances.

**294) Outline EIGHT rules to follow when a forklift truck is left unattended during a drivers work break.**

- 1) Return the forklift truck to a designated area.
- 2) Parking on firm, level ground.
- 3) Leaving the truck with mast tilted slightly forward & fork resting on the floor.
- 4) Isolating the power with the ignition key removed and retained by a responsible person.
- 5) Parking the truck away from the other vehicle and in a position that does not cause obstruction to the traffic routes, fire points or emergency exits.

**295) An employee is required to install glass fiber insulation in a loft.**

**A) Identify FOUR hazards connected with this activity.**

- 1) Fibers from insulation material (through inhalation or contact).
- 2) Falls through fragile ceilings or from access equipment.
- 3) Possible contact with live electrical services in loft.
- 4) Ergonomic and work environment hazards from working in a situation where space might be restricted and which may be hot and or dusty.
- 5) Biological hazards from wasp nests, rodent infestation & bird droppings.

**B) Outline the precautions that might be taken to minimize harm to the employee.**

- 1) Provision and use of PPE.
- 2) Laying boards across the joists to prevent falls through the ceiling.
- 3) Safe access.
- 4) Good lighting.
- 5) Frequent work break.
- 6) Provision of protection for the skin (hooded overall & gloves).

**296) An assessment has concluded that the person carrying out a particular manual handling task is fit and capable of lifting the loads involved.**

Outline the factors associated with the task and the work environment that would be needed to be considered in order to complete the assessment.

- 1) Need to hold or manipulate the loads at a distance from the truck.
- 2) Frequent or prolonged physical efforts with insufficient rest or recovery periods.
- 3) Excessive pushing or pulling of the loads.
- 4) Excessive carrying or raising / lowering distances.
- 5) Need for the person to avoid unsatisfactory body positions.
- 6) Work environment:- the structure, the condition of floors & walkways area, space constraint, lighting, temperature, humidity & ventilation.

**297) Other than those associated with the physical environment, outline EIGHT possible causes of increased stress levels amongst employees.**

**A) Relating to work or task organization:-**

Job factors might include, shift work or unsocial hours, excessive overtime, job insecurity and fear of redundancy. Repetitive or monotonous work, lack of adequate breaks, lack of control over the job, work load too high or too low and task not matched to the skills of worker.

**B) Relating to workplace interaction:-**

Interaction involves issues like harassment, bullying, discrimination, fear of violence, poor communication and general relationships with work colleagues. There are also a range of personal & social factors such as illness, financial worries and family comments that could increase an employee's level of stress at work even if some may not be work related.

**298) Identify EIGHT safe practices to be followed when using a skip for the collection and removal of waste from a construction site.**

1. Fire hazard created by skips and probable need to site away from buildings and to protect against arson.
2. Construction waste must be carried out by a license waste carrier, under a waste transfer note system, to a disposal site capable of accepting the waste.
3. Locating the skip on firm level ground away from excavations.
4. Ensuring clear access for filling and for removing from site by hand.
5. Introducing controls to prevent overfilling and the tipping of incompatible wastes.
6. Netting or sheeting the skip when full.

**SAFETY SCHEDULE**

**Daily:**

- 1) Tool Box Talk
- 2) HSE Orientation of new employees.
- 3) Regular Inspection - Activity, Housekeeping, PTW, Clients.
- 4) Documentation & HSE Statistics (Man Hours) OHSAS Standard.
- 5) Contractors HSE Performance as per agreed method statements.

**Weekly:**

- 1) Weekly assessment -Client.
- 2) Weekly HSE Statistics- Man hours, Inspection, Training.
- 3) First aid box, F.Ext. Inspection.

**Monthly:**

- 1) Monthly Inspection ( Lifting, Environmental).
- 2) Emergency exercise - Fire, fall of person, evacuation, medical emergency, Gas leakage, Man lost, Electric shock.
- 3) Trainings- In house, first aid, OHS, fire fighting.
- 4) Training Matrix
- 5) Monthly Report to the client.

**Meetings:**

- 1) HSE Management (HSE Manager).
- 2) In House (CSR - Client).
- 3) Tool Box.

**Inspections:**

- 1) Fire Extinguishers.
- 2) Vehicles RAS.
- 3) Road Safety.
- 4) First aid boxes.
- 5) Hygiene & housekeeping.
- 6) Site HSE
- 7) Lifting Equipment / Gears.
- 8) Scaffolding Ladders.
- 9) Portable tools (electrical, pneumatic).

**Audits:**

- 1) Permit to Work.
- 2) Occupational Health.
- 3) Waste Management.
- 4) Site Work.
- 5) HSE Management- External.
- 6) Journey Management.
- 7) Sub-contractors Activity.
- 8) HSE Training & Awareness.
- 9) Lifting equipment & Gears.

**Emergency Drill:**

- 1) Evacuation.
- 2) Fire.
- 3) Electric Shock / Electrocution.

- 4) Fall of a person.
- 5) Vehicle accident.
- 6) Sunstroke / heat exhaustion.
- 7) H2S Leak.

**HSE Training:**

- 1) Emergency Response.
- 2) Man Lost Procedure.
- 3) Accident & Reporting.
- 4) PPE.
- 5) Occupational Health.
- 6) Electrical Hazard.

**Client Walkabout:**

- 1) Stop Client.
- 2) Stop -Staff.

**Engineering Activities:**

- 1) Bolting & Torquing Work.
- 2) Erection of loose structures & loose piping.
- 3) Hydro testing.
- 4) Insulation.
- 5) NDT.
- 6) Piping Material Handling.
- 7) Receipt of Piping Material.
- 8) Tie in Module.
- 9) Electrical Instrumentation.
- 10) Erection of structural steel - 16m height.
- 11) Painting.
- 12) Piping Spool & Support Fabrication.
- 13) Use of Man Basket.
- 14) GRE Piping.
- 15) Installation of pipe Assembly.
- 16) Receipt of Free Issue Material.
- 17) Shipment Preparation.
- 18) Welding of Piping Spool.

**Scaffolding:**

**Name of the parts,**

- 1) Standard.
- 2) Ledger.
- 3) Sectional Bracing.
- 4) Longitudinal Bracing.
- 5) Transom.
- 6) Top Rail.
- 7) Mid Rail.
- 8) Toe Board.
- 9) Base Plate.
- 10) Sole Board (Plate).
- 11) Coupling.
- 12) Self Closing Drop Bar.
- 13) Fall Upright (Puncheon).
- 14) Base Lift.
- 15) Scaffold Plank.
- 16) Raker.

**Types of Scaffolding:**

- 1) Base Supported.
- 2) Birdcage.
- 3) Bracket (Tank Builders).
- 4) Fabricated Tubular Frame.
- 5) Independent Run ( Façade or Independent Tied).

- 6) Mobile.
- 7) System.
- 8) Tower.
- 9) Tube & Coupler.
- 10) Under hung (Slung or suspended).

**Top Rail:** Should not less than .95 m or greater than 1.15m in height.

**Mid Rail:** Should be exactly at the middle of Top Rail & Access Platform.

**Scaffolding Types:**

First Type: Have load bearing capacity= 120 Kg/m<sup>2</sup>.

Second Type: Have load bearing capacity= 240 kg/m<sup>2</sup>.

Third Type: have load bearing capacity more than 240 kg/m<sup>2</sup>.

**Lifeline shall have 2300 Kgs stress capacity.**