Seat No. : _____

MU-126

March-2019

B.Sc., (Fire & Safety) Sem.-IV

Safety Equipments & Documentation

Time : 2:30 Hours] **[Max. Marks : 70**

1. (A) (i) Name the various types of Work Equipment. Describe User's responsibilities and important points to be checked by an Employers before selection of work equipment. **7**

(ii) Describe the importance of "Declaration of Conformity and CE Marking". Discuss relevant information provided by these documents. **7**

OR

(i) Discuss main points or controls which are required to operate equipment safely. How will you ensure that working environment around the equipment is safe ? **7**

(ii) Describe "Maintenance Management Scheme" with numbers of techniques to prevent health and safety risks. **7**

(B) MCQs : (Any **Four**) **4**

(i) The primary purpose of the Supply of Machinery (Safety) Regulations, 1992 is to :

(a) Prevent barriers to trade across the EU (European Union),

(b) Protect people at work.

(c) Provide cheap machinery at reasonable cost.

(d) Prepare service and operation manual.

(ii) Pressured Hot Water Plant will be inspected under :

(a) PUWER 98

(b) The Supply of Machinery (Safety) Regulations, 1992

(c) LOLER 98

(d) The Pressure Systems Safety Regulations, 2000

(iii) Overheated bearing is detected during monitoring, it will be attended during

(a) Preventive maintenance

(b) Condition based maintenance

(c) Breakdown based maintenance

(d) Anytime

(iv) The operating and maintenance manual of the equipment are supplied by :

(a) Competent Person

(b) Maintenance Manager

(c) Manufacturer

(d) Employer

(v) When the equipment has been supplied the buyer should look for :

(a) CE marking

(b) Declaration of Conformity

(c) Operation and Maintenance Manual

(d) All the above

(vi) Declaration of Conformity is signed by :

(a) Director of Engineering

(b) Head of Engineering

(c) One who has authority to do so

(d) Anyone of the above

2. (A) (i) Describe typical safety instruction and control of Hand-held power tools. **7**

(ii) What are the important safeguards required for smooth operation of the work equipment ? **7**

OR

(i) Discuss important mechanical machinery hazards and their control measures. **7**

(ii) Describe important hazards and control measures related to Chainsaw ? **7**

(B) MCQs : (Any **Four**) **4**

(i) Musculoskeletal disorders belongs to :

(a) Mechanical hazard

(b) Non-mechanical hazard

(c) Physiological hazard

(d) Psycho-physiological hazard

(ii) The hazard which is developed due to the rotating drive belt and pulley is an example of :

(a) Entanglement

(b) Drawing in

(c) Crushing

(d) Puncture

(iii) There are possibility of fire when operated :

(a) Chainsaw

(b) Bench-mounted circular saw

(c) Conveyor System

(d) Pedestal drill

(iv) The guard which only allows access when the component is in safe state is called _____

(a) Fixed guard

(b) Adjustable guard

(c) Self-adjustable guard

(d) Interlocking guard

(v) Safeguards are mandatory to prevent access to dangerous parts of machinery under :

(a) PUWER 98

(b) The Supply of Machinery (Safety) Regulations, 1992

(c) LOLER 98

(d) The Pressure Systems Safety Regulations, 2000

(vi) The design and construction of guards must be appropriate to the risks identified and the mode of operation of the machinery in question.

3. (A) (i) Describe needs and limitations of personal protective equipment in detail. **7**

(ii) Classify respiratory equipment in various categories and explain in detail with example. **7**

OR

(i) Explain Air-supplying respiratory protective equipment and their classification. **7**

(ii) Give short note on training, maintenance, precaution and care of PPE. **7**

(B) MCQs : (Any **Three**) **3**

(i) Aluminised fabric gloves are used to prevent :

(a) Chemical spurt

(b) Ionising radiation

(c) Excess heat

(d) Grease oil

(ii) Conductive footwear resistance should not exceed :

(a) 150 kilo ohms

(b) 250 kilo ohms

(c) 350 kilo ohms

(d) 450 kilo ohms

(iii) Air supplied should be at least _____ to enter into the face-piece of continuous flow type air respirator.

(a) 100 litres of air per minute
(b) 110 litres of air per minute
(c) 120 litres of air per minute
(d) 130 litres of air per minute

(iv) Which is treated as High level noise ?

(a) 90 dB
(b) 100 dB
(c) 120 dB
(d) >90 dB

(v) Air can be drawn in by respiratory effort of the wearer upto _____ length of the hose.

(a) 40 ft
(b) 30 ft
(c) 30 meters
(d) 450 kilo ohms

4. (A) (i) Describe how a Work Permit System is set up in an industry. **7**

(ii) What are hazard identification techniques ? Describe the classification of hazard identification techniques on the basis of area in which they are predominantly applied. **7**

OR

(i) Define Risk assessment. Describe important steps of Risk Assessment. **7**

(ii) Describe responsibilities of Site Controller and Incident Controller during emergency. **7**

(B) MCQs : (Any **Three**) **3**

(i) For carrying out work near radioactive material, which permit is required ?

(a) Entry Permit
(b) Unique Permit
(c) Hot work Permit
(d) General Permit

(ii) The key words in worker involvement are :

(a) Trust
(b) Respect
(c) Co-operation
(d) All the above

(iii) The goal of _____ to ensure a safe and healthy workplace by striving to eliminate unsafe practices and hazards that lead to injuries and accidents.

(a) Permit System

(b) Risk Assessment

(c) Safety Audit

(d) OSEP

(iv) Record of significant finding during risk assessment is not necessary :

(a) If Internal assessment is carried out

(b) If nos. of employee <5

(c) Against statutory non-compliance

(d) As per Instruction of Unit head

(v) Permits will be issued by :

(a) Plant Manager

(b) Engineer on Duty

(c) HSE Manager

(d) Authorised Person

Seat No. : _____

MU-126

March-2019

B.Sc., (Fire and Safety) Sem.-IV

Safety in Hydrocarbon Industry

Time : 2:30 Hours] **[Max. Marks : 70**

1. (a) (i) State the points to be covered while preparing Fire Prevention & Protection Manual. **7**

(ii) Which are the types of maintenance techniques ? Explain any one technique. **7**

OR

(i) What are the advantages and limitations of Non-Destructive Tests ? **7**

(ii) State Non-Destructive methods and write down short note on any one method **7**

(b) MCQ Attempt any **4** out of **6**. **4**

(1) State any two fire and safety requirements for petroleum bulk storage.

(2) Safety valve is essential on gas cylinder. (True / False)

(3) State any two NDT methods.

(4) Define pressure vessels.

(5) No storage license is required to store gas cylinders. (True / False)

(6) OISD is applicable to all chemical industries. (True / False)

2. (a) (i) What are the fire and safety points to be observed while loading / unloading hydrocarbons at Gantries ? **7**

(ii) Classify petroleum as per Petroleum Act with example. **7**

OR

(i) Mention type of bulk storage for petroleum products and their control measures. **7**

(ii) State the fire and safety check points for petroleum storage tanks. **7**

(b) MCQ Attempt any **4** out of **6**. **4**

(1) Full Form of NFPA & DOT.

(2) Hydro testing of pressure vessel is one of the destructive testing methods. (True / False)

(3) What is "RACE" in case of fire ?

(4) No safety valve to be provided on gas cylinder containing toxic gas. (True / False)

(5) All chemical industries are classified as hydro-carbon industries.

(6) Give names of any two agencies involving development of MSDS.

3. (a) (i) List out important factors required for preparing "ON-SITE EMERGENCY PLAN". **7**

(ii) Define OFF SITE EMERGENCY and list out points to be covered while preparing Off Site Emergency Plan. **7**

OR

(i) State the similarities and differences between ON-SITE & OFF-SITE EMERGENCY ACTION PLAN. **7**

(ii) Design Health and Safety policy of hydrocarbon industry as if you are working as HSE head. **7**

(b) MCQ Attempt any **3** out of **5**. **3**

(1) Mention any two elements of MSDS.

(2) Define - Emergency

(3) Lost time accident is covered under On Site Emergency Plan. (True / False)

(4) State any two statutory provisions applicable to hydrocarbon industry.

(5) What is class 'C' petroleum ?

4. (a) (i) What are the methods for risk assessment and analysis ? Explain any one method of risk assessment. **7**

(ii) What are the steps required to have better industrial health and hygiene condition in hydrocarbon industry ? **7**

OR

(i) Give detailed classification of industrial accident. **7**

(ii) Explain in detail about MSDS and its elements. **7**

(b) MCQ Attempt any **3** out of 5. **3**

(1) Give a full form of CNG & PNG.

(2) List out any two occupational diseases.

(3) List any two dangerous occurrences.

(4) Give a full form of FMEA & FTA.

(5) Give a full form of ACGIH & NIOSH.

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