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**UNIVERSITY OF PETROLEUM AND ENERGY STUDIES**

**End Semester Examination, April 2018**

**Programme: B.Tech. APE & GSE**

**Course Name: Safety Health & Environment Management**

**Course Code: ENVO 401**

**No. of page/s:3**

**Semester – VIII**

**Max. Marks : 100**

**Duration : 3 Hrs**

**Section A : (5 x 4 = 20 Marks)**

**Note : Attempt all questions from section “A”. Each question carry equal marks.**

**Q.1 . Choose the correct answers:**

**( 1 x 4 = 4Marks)**

- i) ----- source of water pollution occur when effluent or toxic material is directly discharged into the water body.  
Point            b) Non Point            c) both point and non point            d) none of these
- ii) ----- injury result from worker performing the same task time after time.  
a) Cumulative trauma injury    b) Dizziness    c) Lung Cancer    d) None of these
- iii) ----- Hard hat protect against falling object and high voltez shock and burn.  
a) Class B                            b) Class A                            c) Class C                            d) Class D
- iv) Which of the following is a secondary air pollutant  
a) Photochemical smog    b) Sulphur dioxide    c) Nitrogen dioxide            d. Dust particles

**Q.2. Fill in the Blanks :**

**(1 x 4 = 4**

**Marks)**

- i) Electrostatic precipitator remove ----- impurities / emission from under high pressure, temperature and in corrosive environment.
- ii) The oxygen concentration in Class B confined space is ----- %.
- iii) In India EIA was introduced as an administrative measures in 1978-79, initially for ----- and extending later to industrial projects.
- iv)----- is the injury or destruction of skin and underlying tissue, most often that of the nose, ears, fingers, or toes, resulting from prolonged exposure to freezing or subfreezing

**Q.3. State True and False.**

**(4 Marks)**

- i) A threshold shift is the loss of person’s ability to hear low frequency of sounds. It result from the damage to cochlea.
- ii) Colloidal particles which are fine particles of size finer than 0.0001 mm carry electric charges on them.

iii) A confined space that does not contain or, with respect to atmospheric hazards, have the potential to contain any hazard capable of causing death or serious physical harm known as permit required confined space.

iv) The act was revised in 1987 to include hazardous chemical factories and some other amendments brought in the factories rules of many states in 1995.

**Q.4. Write the full form of the following abbreviations: ( 4 Marks)**

- a) TLV and LFL-----
- b) BOD and COD-----
- c) ALARP and TDS -----
- d) IDLH and TSS-----

**Q.5. Define the following terms : ( 4 Marks)**

- a) EIS ( 2 Marks)
- b) Lock Out (2 Marks)

**Section “B” ( 12 x 5 = 60 Marks)**

**B1 ( Attempt all questions from section B1)**

Q.6. What is ergonomics ? What are different types of ergonomic hazards. Explain any four programme which are designed to eliminate ergonomics hazards. ( 2 + 2 + 8 = 12 Marks)

Q.7. Your workplace is required to have Material Safety Data Sheets available for every hazardous chemical or substance you use or encounter as a part of your job. Explain all the sections of Material Safety Data Sheet. (12 Marks)

Q.8. Every organization must have a written policy on health, safety and environment signed by the Head of the organization with date. Identify any twelve salient features of HSE policy which you should implement in your organization. (12 Marks)

Q.9. Explain the principles and functions of any six air pollution control equipment which are used to control particulate matter generated from process industries with schematic diagram. (12 Marks)

**B2**

**(Note : Attempt any one question from this section B2 i.e either Q.10 or Q.11.)**

Q.10 What are the objectives of EIA ? . Explain Rapid and Comprehensive EIA. Identify various component of EIA which are considered during conducting EIA process for taking environmental clearance from Ministry of Environment and Forest and Climate Change. ( 3 + 4 +5 = 12 Marks)

**Or**

**Q.11.** Describe the importance of color coding and safety sign in industry. Explain the different types of safety sign and color coding used in oil and gas industries. (12Marks)

**Section C ( 20 X 1 = 20 Marks)**

**Attempt any one question from this section either Q.12 or Q.13**

Q.12. a) What are characteristics of Permit required confined space and non permit confined space as per OSHA standards ? Explain various parameters and characteristic of Class A, Class B and Class C types of confined space. (5+ 5 = 10 Marks)

b) Prepare a check list which you should considered for entry and working in permit required confined space . (10 Marks)

**Or**

Q.13. When effluents or waste water is discharged into a water bodies i.e. river, lake and sea, number physical, chemical and biological characteristics of water change which causes loss of organism and deterioration of water quality. It is necessary to treat industrial effluent before discharging it on land and into water bodies. Explain all unit of Physical, Chemical and Biological treatments of Effluent Treatment Plant with the help of well labelled diagram.

(6 + 6 + 8 =20 Marks)

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**Section A : (5 x 4 = 20 Marks)**

**Note : Attempt all questions from section "A". Each question carry equal marks.**

**Q.1 . Choose the correct answers:**

**(1 x 4 = 4Marks)**

- i) In ----- method experts (scientist, engineers and manager) review and identify the different project events and assess their possible effects on existing environmental condition.  
a) Martix method   b) Network method   c) Checklist Method   d) Adhoc Method
- ii) Corona is a mechanism of  
a) Creating a charge on the particles                      b) Migrating of particles to the electrode  
c) Formation of ions in the gas                              d) Developing force of attraction
- iii) ----- injury result from worker performing the same task time after time.  
b) Cumulative trauma injury   b) Dizziness   c) Lung Cancer   d) None of these
- iv) Suspended solids and floating materials are removed in which stage of waste water treatment?  
a) Primary                      b) Secondary                      c) Tertiary                      d) Biological treatment

**Q.2. Fill in the blanks :**

**(1 x 4 = 4 Marks)**

- i) It is difficult to control ----- sources of water pollution.
- ii) Chlorosis and dwarfing in plants is caused due to ----- air pollution.
- iii) ----- is the injury or destruction of skin and underlying tissue, most often that of the nose, ears, fingers, or toes, resulting from prolonged exposure to freezing or subfreezing
- iv) In India EIA was introduced as an administrative measures in 1978-79, initially for ----- and extending later to industrial projects.

**Q.3. State True and False.**

**(4 Marks)**

i) Spray towers can remove both gaseous and particulate impurities from the emission generated from the industries.

ii) The act was revised in 1987 to include hazardous chemical factories and some other amendments brought in the factories rules of many states in 1995.

iii) Eutrophication is the process in which amount of toxic substance goes on increasing along with food chain.

iv) Colloidal particles which are fine particles of size finer than 0.0001 mm carry electric charges on them.

**Q.4. Write the full form of the following abbreviations: ( 4 Marks)**

a) RSI and ALARP -----

b)EIS and IDLH -----

c) TLV and LFL-----

d) TDS and TSS-----

**Q.5. Define the following terms : ( 4 Marks)**

a) Standby person ( 2 Marks)

b) Water pollution (2 Marks)

**Section “B” ( 12 x 5 = 60 Marks)**

**B1 ( Attempt all questions from section B1)**

Q.6. What is disaster? What are the objectives of emergency / disaster management plan?

Explain the elements of major emergency /disaster management plan. ?

(2 + 4 + 6 = 12

Mark)

Q.7. Explain various categories of physical and chemical hazards. What are the various effects of physical hazards on human being. Explain various methods which are used for controlling physical hazards at work place.

(4 + 4 + 4 = 12

Marks)

Q.8.. Your workplace is required to have Material Safety Data Sheets (Safety Data Sheet) available for every hazardous chemical or substance you use or encounter as a part of your job.

Explain all sections of Material Safety Data Sheet.

(12 Marks)

Q.9.Explain the principles and functions of any six air pollution control equipment which are used to control gaseous pollutants generated from process industries with schematic diagram.

(12 Marks)

**B2**

**(Note : Attempt any one question from this section B2 either Q.10 or Q.11.)**

Q.10. What are the benefits of Ergonomic at workplace? Identify the different types of risk factors which causes ergonomic hazards. ( 3 + 9 = 12 Marks)

Or

Q.11. What are point sources and non point sources of water pollution? Explain physical, Chemical and biological parameter of water pollution. ( 3 + 9 = 12 Marks)

**Section C ( 20 X 1 = 20 Marks)**

**Note : Attempt any one question from this section either Q.12 or Q.13.**

Q.12 What is confined space as per OSHA standards. Explain various steps of Permit-Required Confined Space Entry Procedures which are required to protect the workers from different hazards space. ( 4 + 16 = 20 Marks)

**Or**

**Q.13** What is EIA. What are the various methodologies which are used for conducting EIA process? Describe in systematic way block diagram how new project is given environmental clearance from Ministry of Environment and Forest. (2 + 10 + 8 = 20 Marks)