

UNIVERSITY OF PETROLEUM  
AND ENERGY STUDIES



End Semester Examination – April 2017

Program/course: B.Tech. PSE

Subject: HSE

Code : PSEG 481

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 correct answers: (1 x 5 = 5 Marks)

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) Turbidity is caused due to

- a) Settleable matter    b) Dissolve impurities    c) Colloidal matter    d) Passage of light

iv) Activated carbon is used in the process of

- a) Absorption    b) Adsorption    c) Combustion    d) Condensation

v) Itai- Itai disease is caused by accumulation of

- a) Lead    b) Cadmium    c) Mercury    d) Arsenic

Q.2. Fill in the blanks. (1x5 = 5 Marks)

- a) -----is the process of enrichment of N<sub>2</sub> and P in water bodies that causes excessive growth of algae due to which algal bloom is formed in pond, lake or river.  
b) Initial entry into confined spaces should be done by qualified personnel intending to finish atmosphere testing and hazard evaluation is known as -----.  
c) Secondary treatment is used to remove -----impurities from waste water.  
d) The EIA process in India was made mandatory and was also given a legislative status through a notification issued in January -----.

e) The scientific study of the relationship between man and his working environment is known as -----.

Q.3. Write full form of the following abbreviation (5 Marks)

- a) RSI & CTD-----
- b) IDLH-----
- c) WRULD-----
- d) BOD & COD-----
- e) MSDs & SOP-----

Q.4. Define the followings: (5 Marks)

- a) Lockout & Tagout (3 Marks)
- b) Standby Person (2 Marks)

**Section “B” ( 10 x 4 = 40 Marks)**

**Note : This section is divided into two parts B1 and B2. All questions carry equal marks Student are required to attempt all questions from Part B1 and however choice is given in part B2, student may attempt any one question from part B2 i.e either Q.8 or Q.9**

**Part B1 (All questions are compulsory)**

Q.5. What is fire triangle? What are different types of fire? Describe various types of extinguishing media which are used to control and prevent fire? (10 Marks)

Q.6. 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 sections of Material Safety Data Sheet. (10 Marks)

Q.7. Define permit required confined Space. Explain various hazards which are found in Confined Space. (10 Marks)

**Part B2 (Attempt any one question from part two i.e either Q.8. or Q.9.**

Q.8. Identify any ten components of safety management which you will follow during operation and maintenance of electrical plant and equipment.

Or

Q.9. What is Ergonomics? Explain various programme which are designed to eliminate Ergonomic hazard? (2 + 8 = 10 Marks)

**Section “C” Long Answers Questions 20 x 2 = 40 Marks**

**Note : Section C is divided into two part i.e. Part C1, Part C2. Part C1 i.e Q. No. 10 is compulsory however choice has been given in part C2 i.e student are required to attempt any one part i.e Q.No. 11 or Q.No.12**

**Part C1**

Q.10. a) What are the various objective and types of EIA? Explain various component of EIA.

(2+ 4+ 8 = 14

Marks)

Q.10. b) Describe the Prior Environmental Clearance Process for activities falling under category A and Category B Projects, as per the revised Notification issued on 14<sup>th</sup> September , 2006 for thermal power plant with schematic diagram (6 Marks)

**Part C2**

Q.11. Industries are emitting lots of air pollutants in the environment which are causing harmful effects on human beings, plants and animals. Describe various methods which are used for controlling air pollution ( particulate matter and gaseous pollutants ) in power industries.

(20 Marks)

or

Q.12. When effluents / waste water is discharged into a water bodies i.e. river, lake and sea, a number physical, chemical and biological characteristics of water change which causes loss of organism and deterioration of water quality. Describe the various units of Primary , Secondary and tertiary treatment of Effluent Treatment Plant of thermal power plant with the help of well labelled diagram.

(20 Marks)

Roll No: -----

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

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

Q.1 . Choose correct answers:

(1 x5 = 5 Marks)

i) Minamata disease is caused by accumulation of

- a) Lead                      b) Cobalt                      c) Mercury                      d) Arsenic

ii) 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

iii) Electrostatic Precipitator remove

- a) Sulphur dioxide      b) Nitrogen Oxide      c) Particulate Matter      d) Fog

iv) SOP's is

- a) Standard operating procedures      b) Safe operating procedures  
b) Safety operation procedures      c) Safety occupational procedures

v) Turbidity is caused due to

- a) Settleable matter      b) Dissolve impurities      c) Colloidal matter      d) Passage of light

Q.2. Fill in the blanks.

(1x5 = 5 Marks)

- i) The factories act make the ----- of a factory fully responsible for providing and maintaining the plant and the systems of work that are safe and without any risks to the health and safety of the workers and general public.
- ii) The ----- of Hard hat protect against falling object and high voltez shock and burn.
- iii) Inertial Separator remove ----- of industrial emission.
- iv) Initial entry into confined spaces should be done by qualified personnel intending to finish atmosphere testing and hazard evaluation is known as -----.
- v) The EIA process in India was made mandatory and was also given a legislative status through a notification issued in January -----.

Q.3. Write full form of the following abbreviation: (1 x 5 = 5 Marks)

- a) DGMs & OISD-----
- b) RTA & DNV -----
- c) BOD & COD-----
- d) PSI & PHA-----
- e) IDLH-----

Q.4. Define the followings: (5 Marks)

- a) Tag out (2 Marks)
- b) OISD (3 Marks)

**Section “B” ( 10 x 4 = 40 Marks)**

**Note : This section is divided into two parts B1 and B2. All questions carry equal marks Student are required to attempt all questions from Part B1 and however choice is given in part B2, student may attempt any one question from part B2 i.e either Q.8 or Q.9**

**Part B1 (All questions are compulsory)**

**Part B1**

Q.5. What is MSDs? Explain all the section of MSDs. (10 Marks)

Q.6. What is fire triangle? What are different types of fire? Describe various types of extinguishing media which are used to control and prevent fire? (10 Marks)

Q.7. Explain various steps of Permit-Required Confined Space Entry Procedures which are required to protect the workers from different hazards in confined space. (10 Marks)

**Part B2 (Attempt any one question from part two i.e either Q.8. or Q.9.**

Q.8. Identify any ten components of safety management which you will follow during operation and maintenance of electrical plant and equipment.

Or

Q.9. Define Ergonomics . Write any eight principles of Ergonomics. ( 2 + 8 = 10 Marks)

**Section “C” Long Answers Questions 20 x 2 = 40 Marks**

**Note : Section C is divided into two part i.e. Part C1, Part C2. Part C1 i.e Q. No. 10 is compulsory however choice has been given in part C2 i.e student are required to attempt any one question Q.No. 11 or Q.No.12**

**Part C1**

Q.10. Describe the various units of Primary, Secondary and tertiary treatment of Effluent Treatment Plant with the help of well labelled diagram. (20 Marks)

**Part C2**

Q.11.a) Explain rapid EIA and Comprehensive EIA. Describe various methodologies of EIA which are followed Environmental Clearance Process. Explain in a systematic way how a new project is given environmental clearance from Ministry of Environment and Forest with flow chart. (4+ 8 + 8 =20 Marks)

Or

Q.12) Describe different types of control equipment which are used for controlling particulate matter and gaseous pollutants. (20Marks)

