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UNIVERSITY OF PETROLEUM AND ENERGY STUDIES

End Semester Examination, December 2017

Program: M.Plan

Semester : III

Subject (Course): Environmental Protection and Management

Max. Marks: 100

Course Code : MEEG 844

Duration: 3 Hrs

No. of page/s:

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 = 4 Marks)

i) The Air (Prevention and Control of Pollution) Act was passed in the year-

- a) 1980 b) 1981 c) 1982 d) 1983

ii) Which chemical acts as a catalyst and destroys Ozone layer?

- a) Carbon b) Chlorine c) Sulphur d) Nitrogen

iii) Suspended solids and floating materials are removed in which stage of waste water treatment?

- a) Primary b) Secondary c) Tertiary d) Biological treatment

iv) Chlorosis and dwarfing in plants is caused due to

- a) Sulphur dioxide b) Nitrogen dioxide c) Carbon monoxide d) Carbon dioxide

Q.2 State T and F

(1 x4 = 4 Marks)

i) As per Water Act "outlet" includes any conduit pipe or channel, open or closed carrying sewage or trade effluent.

ii) Screen chamber remove oil and grease impurities from waste water.

iii) Promotion of Organic farming methods is one of the control measures of soil pollution.

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

Q.3. Fill in the blanks:

(1 x 4 = 4 Marks)

- i) As per the Noise standard Recommended by CPCB committee the noise level that should not be exceeded in industrial area in the day is-----.
- ii) -----is a chronic respiratory disease where there is over-inflation of the air sacs (alveoli) in the lungs, causing a decrease in lung function, and often, breathlessness.
- iii) The desirable turbidity in drinking water as per IS: 10500-1991-----.
- iv) The efficiency of Electrostatics precipitator to remove particulate matter is almost -----%.

Q.4. Define the following :

(2 x 2 = 4 Marks)

a) Wind rose diagram

b) Environmental lapse rate

Q.5. What is noise pollution? What are the impact of noise pollution on human being? (4 Marks)

Section “B” (5 x 12 = 60 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 is that either Q.10 or Q.11

Part B1

Q.6. Explain with neat sketch how different atmospheric conditions give rise to six different kind of plumes. (12 Marks)

Q.7. Describe various principle and functions of air pollution control equipment which are used to control particulate matter pollutants from industrial emission with diagram. (12 Marks)

Q. 8. What is global warming? Explain impact of global warming on our environment. Suggest control measures by which global warming can be prevented. Explain salient features of Kyoto Protocol and Earth Summit. (2 +3 +3 +4 = 12 Marks)

Q.9 What is Marine pollution? How does oil spill affect on marine ecosystem? Describe any four methods which are used for controlling oil spills. (2 + 2 + 8 = 12 Marks)

Part B2

Q. 10. What is thermal pollution ? What are the causes and effect of thermal pollution. Explain any three methods which you can use for controlling thermal pollution. (2 + 4 + 6 = 12 Marks)

Or

Q11. What are the different types of non renewable and renewable sources of energy which are used for generating electricity in India. Explain working principle of electricity generation by tidal energy and geothermal energy with schematic diagram. Write the advantages and disadvantages of renewable and non-renewable energy resources. (6 + 6 = 12 Marks)

Part C (Attempt any one question) = 20 Marks

Q. 12. When effluents / waste water is discharged into a water bodies i.e. river, lake and sea, a number of process occur like 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 with the help of well labeled diagram to treat waste water. (20 Marks)

Or

Q.13. All meteorological phenomenon are a result of interaction of the elemental properties of an atmosphere, heat, pressure, wind and moisture. Describe various meteorological factor that influence air pollution of particular region. (20 Marks)

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

iii) Non Point sources of pollution occur when effluent or toxic material is directly discharged into the water body.

iv) The desirable maximum limit for TDS total dissolved solid is 1000 to 1500 mg/L.

Q.3. Fill in the blanks.

(1 x 4 = Marks)

- i) The nitrites enter the blood and combine with hemoglobin to form methaemoglobin which is unable to transport oxygen and gives rise to a disease called as -----
- ii) ----- is the example of secondary pollutant that forms when hydrocarbon radicals react with nitrogen oxide.
- iii) A ----- sample is one discrete sample where all of the material is collected at once and can only represent the conditions at a particular time.
- iv) Smaller particles are made to combine into a bigger mass by addition of coagulant like -----

Q.4. Define the following

(2 x 2 = 4 Marks)

a) Kyoto Protocol

b) UNEP

Q.5. What is thermal pollution? What are various sources of thermal pollution? (2 + 2 = 4 Marks)

Section "B" (5 x 12 = 60 Marks)

Note : This section is divided into two parts B1 and B2. All questions carry equal marks. Students 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 is that either Q.10 or Q.11

Part B1

Q.6. What is noise pollution? What are the sources and impact of noise pollution? Explain the various ways by which we can control noise pollution. (2 + 8 + 2 = 12 Marks)

Q.7. Describe various principle and functions of air pollution control equipment which are used for controlling gaseous pollutant as well as particulate matter. (12 Marks)

Q.8. Water quality refers to the chemical, physical and biological characteristics of water, it is a measure of the condition of water relative to the requirements of one or more biotic species and or to any human need or purpose. Describe all physical, chemical and biological parameters of water quality? (12 Marks)

Q.9. All meteorological phenomenon are a result of interaction of the elemental properties of an atmosphere, heat, pressure, wind and moisture. Describe any six meteorological factors that influence air pollution of a particular region. (12 Marks)

Q.10. To maintain hygienic conditions in the rural and urban environment, there is an urgent need for effective solid waste management. Describe the various elements of municipal solid waste management. (12 Marks)

Or

Q.11. a) Differentiate between grab sampling and composite sampling methods used for water or waste water sampling. (3 + 3 = 6 Marks)

Q.11. b) Write Explanatory Short notes on (3 x 2 = 6 Marks)

i) Ozone layer depletion (3 Marks)

ii) Global Warming (3 Marks)

Section "C" (20 Marks)

Note : Student are required to attempt any one question i.e Q.No. 12 or Q.No.13

Part C1

Q.12. Explain different types of non renewable and renewable sources of energy which are used for generating electricity in India. Write the advantages and disadvantages of renewable and non-renewable energy resources. (15 + 4 = 20 Marks)

Or

Q.13. Explain the various units of primary, secondary and tertiary treatment which are used to treat waste water / effluent generated from process industries. (20 Marks)

