Ref. No. : Ex/PG/CHE/T/115A/2024

MASTER OF CHEMICAL ENGINEERING FIRST YEAR FIRST SEMESTER EXAMINATION, 2024

M.E. BIO-PROCESS ENGINEERING FIRST YEAR FIRST SEMESTER – 2024

ENVIRONMENTAL POLLUTION CONTROL

Time: 3 Hours Full Marks 100

Answer Question no. 1 and any four from the rest

All symbols have their usual meaning

Assume for any missing Data

1.

a) Mention four components of environment?

b) Highlight the differences of biotic and Abiotic components?

c) Define water sustainability and its importance?

d) What is the constitutional provision of environmental law?

e) Mention the use of Respirable Dust Sampler (RDS)

f) What is Environmental Impact Assessment mention two of its laws?

g) How eutrophication is related to environmental pollution?

h) What is limnology and mention its importance in environmental pollution?

i) Explain the terns Temporary Threshold Shift (TTS) and Noise -induced permanent threshold shift (NIPTS) in reference to noise pollution.

j) Mention importance of holographic sensor and VOC sensor

2×10=20

2. a) Explant the various environmental components, and natural cycle for clean Environment
b) Mention the sources and products of anthropogenic air pollution.

10+10= 20

3. a) Define environmental sustainability and the strategies of sustainable environmental management.
b) Mention the theoretical framework of sustainable biodiversity and the processes involved.

(4+10)+6=20

4. a) Explain the terms BOD and COD and explain how these are indicative of water quality.

b) Calculate theoretical COD of samples containing 300mg/L of (i) ethanol and (ii) phenol.
c) Determine the 5day BOD for a 150ml sample that is diluted with water to total volume of 3L when the initial DO concentration is 8mg/l and after 5days, has been reduced to 2mg/l.

8+6+6= 20

[Turn over

5. Describe the Controlling Measures of air pollution In Industrial Establishments with emphasis on particulate matter and gaseous pollutants.

10+10=20

6. a) Mention the elements involve in noise pollution problem. How the noise pollution is quantified? Suggest some controlling measures to be taken for noise pollution at receivers end.

   b) It is required to find out the day-night equivalent noise levels at a location. The Three-hourly day average values in dB are 48, 54, 56, 52, 61 and three-hourly night average values in dB are 36, 42, and 48. Calculate the value of Ldn.

2+4+6+8=20

7. a) What is smog? Mention the different types of smog based on the component involved. What is photochemical smog and how its affect environment and human health?

   b) Describe an *Ex situ* and an *In situ* remedial measures related to water pollution.

10+10=20