

Code No. : 20408 E Sub. Code : CNCH 32

U.G. (CBCS) DEGREE EXAMINATION,  
NOVEMBER 2022.

Third Semester

Chemistry

Non-Major Elective – WATER MANAGEMENT

(For those who joined in July 2021 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. The water pollution is caused by
  - (a) Marine dumping
  - (b) Sewage
  - (c) Oil leaks and spills
  - (d) All the above
2. Tritiated water is a
  - (a) pure water
  - (b) distilled water
  - (c) deionised water
  - (d) radioactive form of water
3. The amount of hardness is expressed in
  - (a) mg/L
  - (b) g/ml
  - (c) grains per gallon
  - (d) (a) and (c)
4. The estimate of oxygen required for the portion of organic matter in wastewater is called as
  - (a) BOD
  - (b) COD
  - (c) TDS
  - (d) None of the above
5. A chemical coagulant added to the water acts to facilitate bonding between particles is known as
  - (a) Coagulation
  - (b) Filtration
  - (c) Flocculation
  - (d) Osmosis
6. The removal of calcium, magnesium, in hard water is termed as
  - (a) water softening
  - (b) water purification
  - (c) water turbidity
  - (d) hazardous
7. The removal of biodegradable organic matter is known as
  - (a) Primary treatment
  - (b) Secondary treatment
  - (c) Permutit process
  - (d) Chemical precipitation
8. The final stage of the multi-stage wastewater cleaning process is called as
  - (a) Primary treatment
  - (b) Secondary treatment
  - (c) Tertiary treatment
  - (d) All the above
9. The water pollution prevention Act 1974 was enacted to provide
  - (a) to prevent the soil water
  - (b) to establish the agriculture
  - (c) water pollution
  - (d) the prevention and control of water pollution
10. The failures of the Ganga action plan was that
  - (a) top-down
  - (b) end of the pipe interventions
  - (c) bureaucratic exercise
  - (d) all the above
11. (a) How the environment is affected by the agricultural discharges?  
Or  
(b) Write a note on pharmaceutical pollutants.
12. (a) Write on total hardness.  
Or  
(b) Discuss on turbidity and salinity of water.
13. (a) Describe on ion exchange process of water purification.  
Or  
(b) Write a short note on desalination.
14. (a) How the biological processes are playing a significant role in the waste water treatment?  
Or  
(b) Explain chemical precipitation.

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PART B — (5 × 5 = 25 marks)

Answer ALL questions choosing either (a) or (b).  
Each answer should not exceed 250 words.

11. (a) How the environment is affected by the agricultural discharges?  
Or  
(b) Write a note on pharmaceutical pollutants.
12. (a) Write on total hardness.  
Or  
(b) Discuss on turbidity and salinity of water.
13. (a) Describe on ion exchange process of water purification.  
Or  
(b) Write a short note on desalination.
14. (a) How the biological processes are playing a significant role in the waste water treatment?  
Or  
(b) Explain chemical precipitation.

15. (a) Illustrate the importance of lakes and rivers.  
Or  
(b) Explain the water prevention and control of pollution act of 1974.

PART C — (5 × 8 = 40 marks)

Answer ALL questions choosing either (a) or (b).  
Each answer should not exceed 600 words.

16. (a) Discuss on the following in water pollution.  
(i) detergents (4)  
(ii) pathogens. (4)  
Or  
(b) (i) How the sewage (4)  
(ii) and domestic (4)  
wastes are creating pollution in water bodies.
17. (a) Explain the following :  
(i) BOD  
(ii) COD.  
Or  
(b) (i) Describe on the WHO standards for drinking water. (4)  
(ii) What do you understand on biological water quality parameters of drinking water? (4)

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18. (a) Write a note on :  
(i) sedimentation. (4)  
(ii) flocculation. (4)  
Or  
(b) (i) How the permutit process is useful in the purification of water? (5)  
(ii) Write a short note on reverse osmosis. (3)
19. (a) Explain in terms of waste water treatment  
(i) aerobic (ii) anaerobic processes.  
Or  
(b) How the biological and chemical processes are useful in waste water treatment?
20. (a) (i) Write in detail on ganga action plan. (4)  
(ii) Discuss on rain water harvesting. (4)  
Or  
(b) (i) List out the stresses on the Indian rivers and their effects. (5)  
(ii) Write a short note on drip irrigation. (3)

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