

LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034



M.Sc. DEGREE EXAMINATION – BIOTECHNOLOGY

SECOND SEMESTER – APRIL 2022

PBT 2503 – ENVIRONMENTAL BIOTECHNOLOGY

Date: 20-06-2022

Dept. No.

Max. : 100 Marks

Time: 09:00 AM - 12:00 NOON

PART – A

Answer ALL the Questions

I. Choose the correct answer

(5 x 1 = 5 Marks)

- The Headquarters of the National Biodiversity Authority of India is situated in
a) New Delhi b) Mumbai c) Chennai d) Kolkata
- According to a global survey conducted in March 2017, Delhi ranks _____ in noise pollution.
a) first b) second c) third d) fourth
- What does zero discharge actually refer to?
a) There is zero discharge of ions
b) The reject is recycled from every part of the treatment plant
c) The reject is not rejected out. Influent equals effluent
d) 100 percent efficient plant
- Use of plants to uptake, store and degrade contaminants is
a) Phytodegradation b) phytostimulation
c) Phytoextraction d) Phytostabilisation
- Metallothioneine is rich in
a) Cysteine b) Serine c) threonine d) Asparagine

II. State whether the following are true or false.

(5x1=5 Marks)

- Sparrows exhibit type II survivorship curve.
- An AQI of 300 is considered as good quality air with no or minimal particulate matter.
- Supplemental means of aeration are often employed with an equalization basin to provide better mixing.
- As the amount of organic matter present in water increases, the biological oxygen demand increases.
- Biodegradation of aliphatic hydrocarbons is slow due to their low solubility in aqueous medium.

III. Complete the following

(5 x 1= 5 Marks)

- _____ enables two similar species to co-exist in a habitat by using non-overlapping resources.
- Hydrocephaly is related to _____ tragedy.
- Widely used coagulant in water treatment is _____.
- Biomass and wastewater added to activated sludge process is called _____.
- The process of using fungi for bioremediation is termed _____.

IV. Answer the following within 50 words

(5 x 1 = 5 Marks)

16. How does niche differ from habitat?
17. Name any two species that are threatened due to the pollution of River Ganga.
18. What is the purpose of aeration in a membrane reactor system?
19. What is fenton process?
20. Give the classification of hydrocarbons.

PART B

Answer the following each within 500 words.

(5 x 8 = 40 Marks)

Draw diagrams wherever necessary.

21. (a) Write a note on population growth curves.
OR
(b) Compare and contrast r-strategists and k-strategist with examples.
22. (a) Highlight the impact of Delhi's air pollution on health impact.
OR
(b) Write a note on the applications of remote sensing in environmental monitoring.
23. (a) Write briefly on activated sludge process and discuss the problems associated with it.
OR
(b) Discuss the types of chlorination.
24. (a) Explain the four phases of anaerobic digestion.
OR
(b) Summarise the degradation of alkanes and aromatic hydrocarbons.
25. (a) Write briefly on the mechanism of bioleaching of Copper.
OR
(b) Discuss the types of *exsitu* bioremediation processes.

PART – C

Answer any TWO of the following, each within 1500 words.

(2 x 20 = 40 Marks)

Draw diagrams wherever necessary.

26. Discuss *In situ* and *Ex situ* conservation methods.
27. Summarize the Environmental Protection Act 1986.
28. Discuss the biochemical activities in sewage treatment.
29. Write in detail on the different methods of phytoremediation and the mechanism involved.

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