

CS/MCA(A)/ODD/SEM-1/1611/2023-2024/1008



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Paper Code : MCAN-E105A Environment and Ecology

UPID : 001611

Time Allotted : 3 Hours

Full Marks : 70

The Figures in the margin indicate full marks.

Candidate are required to give their answers in their own words as far as practicable

Group-A (Very Short Answer Type Question)

1. Answer any ten of the following :

[1 x 10 = 10]

- (i) _____ is generally absent in an incomplete ecosystem
- (ii) _____ is the main component of ionosphere?
- (iii) What is the ideal N/P ratio to be maintained in an oligotrophic lake to avoid eutrophication?
- (iv) Why is recycled paper banned for use in food containers?
- (v) Write the mathematical expression of Loudness of a given noise level.
- (vi) _____ energy is eco-friendly?
- (vii) Biomagnification is related to the accumulation of _____
- (viii) Kyoto protocol is related to _____
- (ix) What is the value of critical DO content for any water reservoir?
- (x) When the organic matter present in the sanitary landfill decomposes, what gas is generated?
- (xi) Noise in an area is measured as follows: 100 dB(A) for 1 hr/day, 90 dB(A) for 4 hr/day and 70 dB(A) for 5 hr/day. Noise dose limit values for 100 dB(A) is 2 hrs., 90 dB(A) is 8 hrs. and 70 dB(A) is any time. Find whether The existing environmental condition is healthy or not.
- (xii) An aquifer is 2045 m wide and 28 m tall, its hydraulic gradient is 0.05 and hydraulic conductivity is 145 m/day. The volumetric flow rate of water is

Group-B (Short Answer Type Question)

Answer any three of the following :

[5 x 3 = 15]

1. Define eutrophication. Explain how can it be controlled? [5]
2. What is municipal solid waste (MSW)? Briefly explain different treatment processes of MSW. [5]
3. Define Threshold Limit Value of noise pollution. Explain how combined effect of noise pollution can be evaluated. [5]
4. What is GPP and NPP? State the relation between them. Define biomagnification with an example. [5]
5. What is albedo? What is its value for the earth? State Wien's displacement law. [5]

Group-C (Long Answer Type Question)

Answer any three of the following :

[15 x 3 = 45]

7. (a) Discuss in brief adverse effects of noise pollution. [7+3+5]
(b) What is called Leqn noise index? Where is it used?
(c) In a given area the following noise levels are active.
(a) 87 dB for 67 min, (b) 90 dB for 12 min, (c) 80 dB for 92 min and (d) 76 dB for 124 min.
Calculate L_{eq} of that area. <https://www.makaut.com>
8. What is called NBOD and TBOD? Discuss how NBOD of a given waste water sample can be calculated? "Presence of nitrogenous waste does not interfere in determination of CBOD of a given waste water sample" - explain the fact. [6+4+5]
A glycine sample of concentration 150 mg/l is used to calculate ThOD. Given: MW of oxygen and glycine are 32 and 75 respectively and 1 mole glycine consumes 3.5 moles of oxygen. Calculate ThOD of the sample.
9. (a) Draw a neat sketch of temperature profile of atmosphere. [7+5+3]
(b) Write down the principal components of troposphere and mesosphere.
(c) Explain why lapse rate is positive in stratosphere.
10. Explain primary treatment process of waste water treatment. [5+5+5]
State some disadvantages of trickling filter method.

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What is called activated sludge? Why is it called so?

11. (a) State the advantages of COD over BOD.

[3+6+6]

(b) Discuss the reagents required in determination of COD and the function of each reagent.

(c) State causes of eutrophication. How can it be controlled?

*** END OF PAPER ***



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