

CS/B.Tech/EE/ECE/EIE/EEE/ICE/PWE/BME/Even/Sem-4th/CH-401/2015

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WEST BENGAL UNIVERSITY OF TECHNOLOGY

CH-401

BASIC ENVIRONMENTAL ENGINEERING & ELEMENTARY BIOLOGY

Time Allotted: 3 Hours

Full Marks: 70

*The questions are of equal value.**The figures in the margin indicate full marks.**Candidates are required to give their answers in their own words as far as practicable.*

GROUP A

(Multiple Choice Type Questions)

1. Answer any ten questions.

10×1 = 10

(i) Blue baby syndrome is related to

- (A) NO_2^- (B) PO_4^{3-}
 (C) NO_3^- (D) SO_4^{2-}

(ii) Which of the following can be used for disinfection of water?

- (A) Chlorine (B) Hydrogen Peroxide
 (C) Ozone (D) none of these

(iii) Greenhouse effect is due to

- (A) over cultivation of land
 (B) testing nuclear weapons
 (C) some atmospheric gases like CO_2 , N_2O and some man made gases
 (D) none of these

(iv) Kyoto protocol is related with

- (A) Ozone layer depletion (B) Green house gas
 (C) SPM (D) Water pollution

(v) Which one of the following statements is true for Threshold Limit Value (TLV)

- (A) less the TLV, more toxic the pollutant is
 (B) more the TLV, more toxic the pollutant is
 (C) TLV is not at all related with toxicity of a pollutant.
 (D) a substance is said to be pollutant if its concentration falls below its TLV.

(vi) Floods are caused by

- (A) afforestation (B) constructing mega dams
 (C) cutting the forests (D) filling the land

(vii) Ozone acts as a pollutant when resides in

- (A) Troposphere (B) Stratosphere
 (C) Mesosphere (D) Ionosphere

(viii) The important mineral for generation of atomic energy is

- (A) Uranium (B) Thorium
 (C) Hafnium (D) Lawrencium

(ix) Synecology can also be termed as

- (A) population ecology (B) landscape ecology
 (C) community ecology (D) none of these

(x) In nephrotoxicity the affected body part is

- (A) Liver (B) Kidney
 (C) Lungs (D) Stomach

(xi) The most useful method of disposal of non-hazardous solid waste is

- (A) open dumping (B) composting
 (C) land filling (D) incineration

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(xii) The major constituent of soil waste is

- (A) Silicon (B) Iron
(C) Potassium (D) Oxygen

GROUP B

(Short Answer Type Questions)

Answer any *three* questions.

3×5 = 15

2. (a) What do you mean by Environmental Impact Assessment? 2+3
(b) How is it related to the setting up of a new process industry?

3. Discuss the working principle of trickling filters used in the secondary treatment of waste water. 5

4. (a) What is black body? 2+3
(b) It took the world about 300 years to increase in population from 0.5 billion to 4.0 billion. If we assume exponential growth at a constant rate over that period of time, what would that growth rate be?

5. (a) What is Maximum Sustainable Yield? 1+4
(b) Prove that maximum sustainable yield = $\frac{R_0 K^2}{4(K - N_0)}$

6. What are the biochemical effects of Arsenic pollution? 5

GROUP C

(Long Answer Type Questions)

Answer any *three* questions.

3×15 = 45

7. (a) Explain the term Green House Effect. 2+2+2.5×4+1
(b) Name the green house gases in the atmosphere.

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- (c) Mention the impact of Green House Effect on global climate, agriculture, and marine ecosystem and sea water level.
(d) Why is existence of life not possible in Venus?

8. (a) Explain what you understand by eco-system. 2+2+3+4+4
(b) Classify the components of eco-system
(c) State the characteristics of food chain.
(d) Define parasitic food chain with example.
(e) What is tropic level?

9. In a BOD₅ test 2+2+2+2+5
(a) Why it is necessary to cover the bottle with a stopper?
(b) Why the dilution of waste water sample is necessary?
(c) In dark test run is conducted Explain why?
(d) What is the necessity of seeding the sample?
(e) Why ultimate BOD is not measured?
(f) Giving a sketch and discuss the typical treatment plant for surface water to make potable water.

10. (a) Explain the harmful effects of noise pollution on human health and migratory birds. 4+3+2+6
(b) How much is a sound of 100 dB louder than a sound of 90 dB? (Reference intensity = 1×10^{-12} w/m²)
(c) What is weathering process? Describe different weathering process briefly.

11. (a) Define coning, looping, fumigation, lofting fanning plume. 4×2
(b) What is the CFC number for CC₁2FCC₁F₂? 1
(c) Write short notes on 3×2
(i) Eutrophication
(ii) Cyclone separator.