BANGLADESH UNIVERSITY OF PROFESSIONALS
Military Institute of Science and Technology
B.Sc. in Environmental, Water Resources, and Coastal Engineering
Student Group : 0 < Earned Credit Hour <= 36, Final Examination (Spring) : Feb 2021

Subject: EWCE 131, Ecology and Environmental Pollution

Total: 2.00 hours **Full Marks: 180**
Section A : 1.00 hour **Section A : 90**

INSTRUCTIONS:

a. Use **SEPARATE** answer scripts for each section.
b. **Question – 1 and Question – 4 (Viva Voce)** in **Section A** are compulsory.
c. Answer any **OTHER ONE** question from this section **(From Q - 2 & Q - 3)**.
d. Figures in the margin indicate full **marks**.
e. Assume reasonable data if necessary.
f. **Symbols** used have their usual meanings.

SECTION-A

Question – 1 (Compulsory)

a. Evaluate the health of the following ecosystems based on Simpson's Index, Margalef's Index, Shanon-Weinar Index and Pielou's Index. **15**

Species	No of Individuals	
	Ecosystem A	Ecosystem B
D	05	08
E	10	15
F	15	05
G	10	12
H	10	10

Also explain the implications of the index results.

b. Explain the impacts of effluent discharge from laundry and textile dying industries on surface water quality in Bangladesh. How fossil fuel burning can alter the carbon cycle? **10+5 = 15**

Question – 2

a. Explain how human activities cause the loss of biodiversity. How can we contribute to conserve biodiversity? Briefly discuss. **7+5 = 12**

b. Explain how soil texture influences its organic matter content and cation exchange capacity. **3+5 = 8**

c. How the prescription drugs are related into environment? Explain how the footprint of pharmaceutical waste can be minimized. **4+6 = 10**

Question – 3

a. Explain how behavioral adaptation mechanisms of different species act as the means of their natural selection. **10**

b. Explain how human activities alter the carbon cycle and the hydrological cycle. **10**

c. Explain how the exposure to persistent pollutants in ecological level can give early warning about potential human health impacts. **10**

Question – 4 Viva Voce (Compulsory) **30**

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Total: 2.00 hours **Full Marks: 180**
Section B: 1.00 hour **Section B: 90**

INSTRUCTIONS:

a. Use **SEPARATE** answer scripts for each section.
b. **Question – 5 and Question – 8 (Viva Voce)** in **Section B** are compulsory.
c. Answer any **OTHER ONE** question from this section **(From Q - 6 & Q - 7)**.
d. Figures in the margin indicate full **marks**.
e. Assume reasonable data if necessary.
f. **Symbols** used have their usual meanings.

SECTION-B

Question – 5 (Compulsory)

a. Explain briefly Eutrophication and its consequences in a lake. **5**

b. Define DO (dissolved oxygen). How it can be depleted in a surface water body? Explain. **5**

c. Differentiate between: **9**
   i. Point and non-point sources of water pollution
   ii. Primary and secondary air pollutants
   iii. Oligotrophic and eutrophic lake.

d. Mention source, effect and example of following pollutants in surface water: **11**
   i. Infection agent
   ii. Organic chemical
   iii. Plant nutrient
   iv. Sediment
   v. Heat

Question – 6

a. Narrate how agricultural activities can affect the environment. **5**

b. Explain the terms of Nuclear pollution: **5**
   i. Nuclear fusion and
   ii. Nuclear fission

c. Briefly discuss the sources and effects of (i) Textile dye and (ii) Detergent on aquatic environment. **10**

d. Explain the causes and adverse effects of soil pollution. **10**

Question – 7

a. Mention some Environmental Acts of Bangladesh. Explain the role of environmental laws in environmental protection. **2+5 = 7**

b. Define monitoring of pollution. Briefly discuss the water sampling methods. **2+5 = 7**

c. Discuss the methods of noise pollution control. **4**

d. Briefly discuss the methods of emission control of CO_2, SO_X, NO_X and particulate matter of air. **12**

Question – 8 Viva Voce (Compulsory) **30**