KATHMANDU UNIVERSITY
End Semester Examination [C]
June, 2018

Marks Scored:

Level : B.Sc.
Year : IV

Course : ENVS 415
Semester: I

Exam Roll No.:

Time: 30 mins.

F.M. : 20

Registration No.:

Date JUN 18 2018

SECTION "A"
[15 Q.× 0.5 = 7.5 marks]

Choose and mark (X) against the correct answer:

1. Redfield ratio is concerned with the concentrations of
   [ ] C, N and S
   [ ] C, N and P
   [ ] P, N and S
   [ ] C, S and H

2. Which of the following statement is wrong?
   [ ] Water with higher SAR values cause sodium toxicity in soil.
   [ ] Water with higher SAR values is very good for crop production.
   [ ] Water with higher SAR values often tends to have higher conductivity values too.
   [ ] Groundwater contaminated with sea water intrusion often has higher SAR values.

3. A river stretch receiving untreated sewage contains
   [ ] low DO and low BOD values.
   [ ] low DO and high BOD values.
   [ ] high DO and high BOD values.
   [ ] high DO and high BOD values.

4. *Daphnia* is a
   [ ] periphyton [ ] phytoplankton [ ] nanoplankton [ ] zooplankton

5. An echo-sounder is used to measure
   [ ] lake depth
   [ ] lake surface area
   [ ] lake water transparency
   [ ] lake dissolved oxygen

6. The deepest part of oceans are represented by the
   [ ] Pelagic zone
   [ ] Bathayal zone
   [ ] Abyssal zone
   [ ] Hadal zone

7. Plants take up nitrogen in the form of
   [ ] Ammonia [ ] Nitrates [ ] Nitrite [ ] Nitric oxide

8. Diatoms belong to
   [ ] Chlorophyceae
   [ ] Rhodophyceae
   [ ] Bacillariophyceae
   [ ] Cyanophyceae

9. Graphical representation of the relationship of the surface area of a lake to its depth is shown by
   [ ] hypsographic curve
   [ ] piper plot
   [ ] fetch
   [ ] Shoreline development

10. Excessive Sulphate loading in aquatic ecosystems result into
[ ] eutrophication of water bodies [ ] sedimentation in water bodies
[ ] stratification of water bodies [ ] acidification of water bodies

11. Barophilic taxa are adapted to
[ ] current [ ] pressure [ ] temperature [ ] salinity

12. Stone flies belong to order
[ ] Trichoptera [ ] Plecoptera [ ] Ephemeroptera [ ] Diptera

13. Which of the following statement is incorrect about phytoplanktons?
[ ] They are aquatic heterotrophs. [ ] They move along with the water currents.
[ ] They are aquatic autotrophs. [ ] They are plant planktons.

14. Headwater zones are characterized by
[ ] Low temperature and low velocity
[ ] low temperature and high velocity
[ ] High temperature and low velocity
[ ] High temperature and high velocity

15. Krills represent
[ ] Nektons [ ] Periphytons [ ] Zooplanktons [ ] Phytoplanktons

SECTION "B"
[5Q. x 0.5= 2.5 marks]

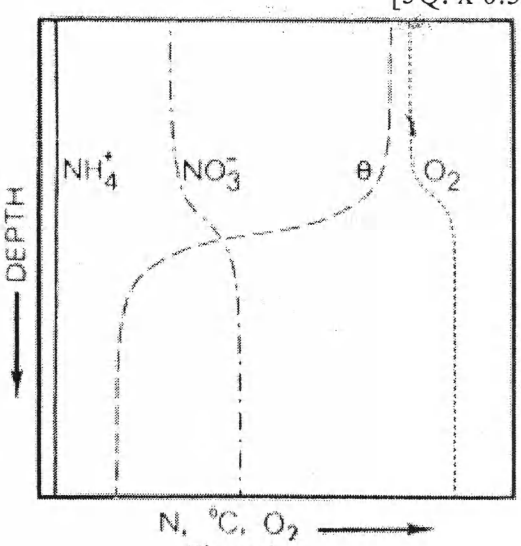

Figure.1

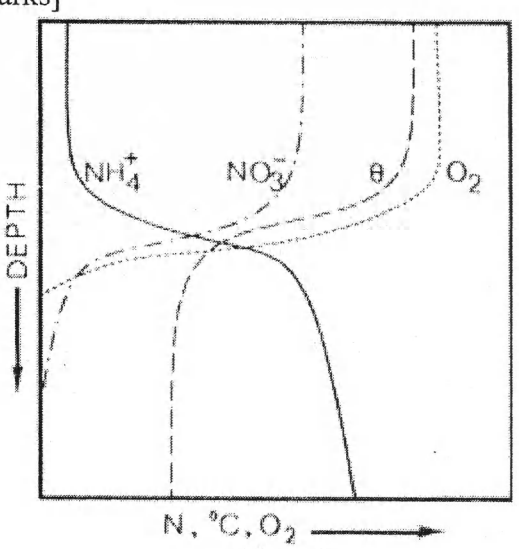

Figure.2

1. The symbol θ represents _____.

2. The NH_4^+ in Figure. 2 shows
[ ] Orthograde profile [ ] Clinograde profile

3. The O_2 in Figure. 2 shows
[ ] Orthograde profile [ ] Clinograde profile

4. Figure. 1 is typical of
[ ] Eutrophic lake [ ] Oligotrophic lake

5. Figure. 2 is typical of
[ ] Eutrophic lake [ ] Oligotrophic lake

SECTION "C"
[10 marks]

JUN 18 2018

Fill in the blanks:

1. Algal blooms are formed by _____.
2. Epilithic algae are found on_____.
3. The column of water in the open ocean is referred to as_____.
4. Stream order classification was proposed by _____.
5. The deepest freshwater lake in the world is _____.
6. The most common form of iron in natural waters is _____.
7. Organisms adapted to a narrow range in salinity changes are called_____.
8. Two most common proxy data used in Palaeolimnological studies are _____and_____.
9. The ratio of the length of the shoreline to the circumference of a circle of area equal to that of the lake is called_____.
10. The macrophyte commonly seen in lake Phewa is_____.
11. The phenomenon of bio-chemical emission of light in deep waters is called_____.
12. Bottom dwelling organisms are also referred to as_____.
13. Insect Families end with suffix_____.
14. Bioassessment with the application of BMWP is based on _____.
15. The full form of DMSO is_____.
16. The deepest part of a lake is designated as_____.
17. Lake cluster of Pokhara valley were designated as the Ramsar sites in the year_____.
18. Hydrothermal vents are characteristics of_____.
19. Streams or rivers that flow into a larger river is known as a_____.

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SECTION "D"
[3 Q. × 7 = 21 marks]

Answer Any *THREE* of the following:

1. Give an account of the different types of lakes based on the concentration of the nutrients. Add a note on the impacts of eutrophication on lake biota.

2. Describe the ecological importance of macrophytes citing appropriate examples.

3. Describe the importance of flood pulse concept.

4. Give an account of the different reservoir zonations.

SECTION "E"

5. Write short notes on (any *FOUR*) [4Q.×2=8]
   a. Lotic ecosystems
   b. Nektons
   c. P cycle
   d. Dystrophic lakes
   e. BOD

6. Differentiate between (any *FOUR*) [4Q.×2=8]
   a. Zooplanktons and phytoplanktons
   b. RCC and SDC
   c. Nitrogen fixation and ammonification
   d. Euphotic and Aphotic zones
   e. Estuary and delta

7. Give an account of (any *THREE*) [3Q.×4=12]
   a. Lake acidification
   b. Headwaters
   c. Macroinvertebrate functional feeding groups
   d. Summer kill

8. Give reasons for the following statements: [4Q.1.5=6]
   a. Riffles are rich in dissolved oxygen.
   b. Photosynthesis does not occur in deep lake bottoms.
   c. High mountain lakes are naturally fishless.
   d. Mangroves are found in tropical areas.