MEV First Semester Environmental Biology

(MEV-01)

Duration: 3Hrs.

Full Marks: 70

(PART-B: Descriptive)

Duration: 2 hrs. 40 mins. Marks: 50

1. Answer in brief (Any Five)

 $2 \times 5 = 10$

- a) What is biogeochemical cycle?
- b) Define ecological succession.
- c) Mention the factors affecting population density and give diagram.
- d) Write the interdisciplinary nature of environmental sciences.
- e) What is GPP & NPP?
- f) How biosphere can be considered as cybernetic system?
- g) Give the diagrammatic representation of phosphorous cycle.

2. Answer with brief description (Any Five)

 $3 \times 5 = 15$

- a) Ecological pyramid and its types.
- b) Different types of population interactions.
- c) Explain the concept of plate tectonics in brief and name the major plates.
- d) Give three definitions of ecology.
- e) Name the major age groups in a population. Draw different age structures of different types of population.
- f) Write the structure and function of ecosystem.
- g) Distinguish between Darwinism and Lamarckism.

3. Answer the following questions (Any Five)

5×5=25

- a) Explain the concept of biosphere.
- b) Illustrate the nitrogen cycle with diagram and highlight the role of micro-organisms.
- c) Describe the process of ecological succession with diagrammatic representation.
- d) What are the different methods of estimation of productivity? Explain it.
- e) Explain the theories of origin and evolution of life.
- f) Explain the carbon cycle with proper diagram.
- g) Describe the theories of origin and evolution of flowering plants.

c) Cannibalism

MEV First Semester Environmental Biology (MEV-01)

PART A: Objective

| Durat | tion: 20 minutes | Marks – 20 | | |
|-------|--|---|-------|--|
| 1. Aı | nswer the following: | $1\times20=20$ | | |
| | Who proposed the categories a) Bodenheimer, 1958 c) Odum, 1969 | of age groups in population? b) Lynden, 1959 d) none of above | | |
| | | d) none of above | | |
| ii) | $NPP = \underline{\hspace{1cm}} - R$ | | ••••• | |
| iii) | is the ulti | imate stage of succession. | | |
| | a) Nudation | b) Colonization | | |
| | c) Climax | d) Esecis | | |
| iv) | The Jurassic period is under w | which era | | |
| | a) Cenozoic | b) Mesozoic | | |
| | c) Paleozoic | d) Archeozoic | | |
| v) | The pyramid of energy in terr | restrial ecosystem is | | |
| | a) upright | b) inverted | | |
| | c) both a & b | d) always upright | | |
| vi) | Transitional zone between tw | o different ecosystems is | | |
| | a) ecotone | b) biome | | |
| | c) ecozone | d) none of above | | |
| vii) | The air density is least | | | |
| | a)Troposphere | b) Stratosphere | | |
| | c) Mesosphere | d) Exosphere | | |
| viii | i) Interaction between two spe | cies where one is benefited | | |
| | but the other is neither bene | | | |
| | a) Commensalism | b) Amensalism | | |
| | c) Cannibalism | d) Neutralism | | |
| ix) | Interaction between two spec | cies where one is harmed | | |
| | but the other is neither benef | ited nor harmed | | |
| | a) Commensalism | b) Amensalism | | |

d) Neutralism

| x) Plate tectonic is concerne | | |
|---|---|---|
| a) distribution of plate | b) movement of plate | |
| c) formation of plate | d) all of above | • |
| xi) Nitrification is the proces | ss of conversion of | |
| a) nitrite to nitrate | b) nitrate to nitrite | |
| c) nitrate to ammonia | d) nitrite to ammonia | |
| xii) Complete the following | reaction involved in the N cycle | |
| $2NO_3^- \rightarrow 2NO_2^- \rightarrow 2NO$ | $0 \rightarrow N_2O \rightarrow $ | |
| xiii) Which type of age struc | eture is found in India? | |
| a) Diminishing type | b) Stable type | |
| c) Expanding type | d) both b & c | |
| xiv) The J-shaped growth is | mathematically expressed by | |
| a) $dN/dt = rN$ | b) $dN/dt = r^2N$ | |
| c) $dN/dt = rN(K-N)/K$ | $d) dN/dt = rN^2$ | |
| xv) Father of Indian ecology | y | |
| a) M.C. Dash | b) P.D. Sharma | |
| c) K.V.S.G. Murlikrisha | d) R.L. Smith | |
| xvi) Which formula expresse | es the annual change in components of th | e |
| carbon cycle? | | |
| a) $A = F + S - L$ | b) $A = F \pm S - L$ | |
| c) $A = F(S - L)$ | d) $A = F + S/L$ | |
| xvii) Immigration is a | | y |
| a) normal | b) positive | |
| c) negative | d) both a & c | |
| xviii) The term biosphere wa | s coined by | _ |
| a) Aristotle | b) Humbolt | |
| c) Fisher | d) Suess | |
| xix) Arrange the following in | n proper direction in a food chain | |
| $frog \rightarrow grass \rightarrow hawk -$ | \rightarrow snake \rightarrow grasshopper | |
| | | |
| xx) The capacity of nature to | hold population at maximum is denoted | by |
| a) k b) d | c) n d) | |