

Write the following information in the first page of Answer Script before starting answer

ODD SEMESTER EXAMINATION: 2020-21

Exam ID Number _____

Course _____ Semester _____

Paper Code _____ Paper Title _____

Type of Exam: _____ (Regular/Back/Improvement)

Important Instruction for students:

1. Student should write objective and descriptive answer on plain white paper.
2. Give page number in each page starting from 1st page.
3. After completion of examination, Scan all pages, convert into a single PDF, rename the file with Class Roll No. (2019MBA15) and upload to the Google classroom as attachment.
4. Exam timing from 10am – 1pm (for morning shift).
5. Question Paper will be uploaded before 10 mins from the schedule time.
6. Additional 20 mins time will be given for scanning and uploading the single PDF file.
7. Student will be marked as ABSENT if failed to upload the PDF answer script due to any reason.

**M.Sc. BOTANY
THIRD SEMESTER
PLANT ECOLOGY
MSB - 303**

Duration : 3 hrs.

Full Marks : 70

(PART-A : Objective)

Time : 20 min.

Marks : 20

Choose the correct answer from the following:

1X20=20

1. The term Ecosystem was first used by
 - a. Dempster (1960)
 - b. Arthur Tansley (1935)
 - c. Bray (1961)
 - d. Odum (1971)
2. Which phenomenon is not a result of Pyramid of numbers
 - a. A great many small units are required to equal to the mass of one big unit
 - b. the pattern of many small organisms and few large ones is the food chain
 - c. horizontal size of the metabolic rate pattern
 - d. inverse size metabolic rate pattern
3. Energy flow provides a suitable index for comparing any and all components of an ecosystem by
 - a. P+R
 - b. R+R
 - c. P+P
 - d. none of the above
4. Logistic model is represented by
 - a. $dN/dT = rN(K-N)/K$
 - b. $dN/dT = rN$
 - c. $(k-N) = rN$
 - d. $dN=Dt$
5. The concept of using Subscripts to show the energy content of different tropic levels is known as
 - a. Y shaped energy flow model concept
 - b. Eltonian concept
 - c. Lindeman's Trophic -Dynamic concept
 - d. none of the above
6. When a stationary and stable age distribution exists, the specific growth rate is called
 - a. co- efficient of population growth
 - b. carrying capacity
 - c. age structure
 - d. intrinsic rate of natural increase
7. The term used for ecological interaction between two species where one species obtains a benefit from the relationship and the second species is affected by it
 - a. parasitism
 - b. mutualism
 - c. proto-cooperation
 - d. symbiosis
8. $e = \sum (ni/N)$ designate
 - a. Shannon index of general diversity
 - b. Evenness index
 - c. Dominance index
 - d. Index of similarity

9. Density increases rapidly in exponential or compound interest fashion and stops abruptly as environmental resistance or another limit become effective more or less suddenly in
- the J shaped form of growth curve
 - sigmoid form
 - acceleration phase
 - survivorship curve
10. Suppose in an ecosystem considering the availability of space, food and availability of minimum space requirement of an individual of species. $K=100$. $N=99$. What is the carrying capacity
- 1
 - 0.01
 - 0
 - 0.001
11. The most potent greenhouse gas among the following is ___?
- CO_2
 - CH_4
 - H_2O
 - O_3
12. Typically the pH value of acid rain is
- 5.5
 - 6.4
 - 5.0
 - 5.6
13. The final stage of ecological succession is a...
- secondary succession
 - primary succession
 - climax community
 - pioneer species
14. Plant succession taking place in the sandy area
- Halosere
 - Psammosere
 - Hydrosere
 - Xerosere
15. Which of the following IUCN species threatened categories is in correct sequence?
- $\text{EW} < \text{CR} < \text{VU} < \text{NT}$
 - $\text{VU} < \text{CR} < \text{EW} < \text{NT}$
 - $\text{EW} < \text{VU} < \text{NT} < \text{CR}$
 - $\text{CR} < \text{EW} < \text{VU} < \text{NT}$
16. The following cause alkalinity in natural water
- Potassium carbonate
 - Potassium bicarbonate
 - Sodium carbonate
 - All of the above
17. CITES is also known as
- Washington convention
 - Bonn convention
 - Ramsar convention
 - Convention on biological diversity
18. Which of the following is a secondary air pollutant?
- SPM
 - PAN
 - SO_2
 - NO_2
19. _____ is an operation designed to force agitation in the fluid and induce coagulation.
- Sedimentation
 - Flocculation
 - Disinfection
 - Aeration
20. _____ is the amount of oxygen required to oxidize only organic matter in sewage.
- Turbidity
 - BOD
 - COD
 - DO

(PART-B : Descriptive)

Time : 2 hrs. 40 min.

Marks : 50

[Answer question no.1 & any four (4) from the rest]

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| 1. Define the concept of Energy. Elaborate the laws governing energy transformation. Discuss Y shaped energy flow model with suitable diagram | 2+4+4
=10 |
| 2. What is community? Elaborate different community indices with proper formula | 2+8=10 |
| 3. Define population. Discuss the different attributes of population | 2+8=10 |
| 4. . Discuss different type of population growth forms (J and S Shaped). | 5+5=10 |
| 5. Define water pollution? Discuss the various physiochemical properties of water used to assess the quality of water pollution | 2+8=10 |
| 6. What is ecological succession? Discuss the various theories of succession | 2+8=10 |
| 7. Discuss any three process used in the management of soil pollution | 10 |
| 8. Write short notes (<i>any two</i>) | 5+5=10 |
| a. In situ conservation | |
| b. Electrostatic precipitator | |
| c. Cyclone separator | |

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