

M.Sc. 1st Semester Examination, 2015

ZOOLOGY

PAPER – ZOO-103 (Gr.-A & B)

Full Marks : 40

Time : 2 hours

Answer all questions

The figures in the right-hand margin indicate marks

Candidates are required to give their answers in their own words as far as practicable

Illustrate the answers wherever necessary

Write the answers to questions of each Group in separate books

GROUP – A

(Wildlife and Adaptation)

1. Answer any two of the following : 2 × 2

(a) Enlist two biosphere reserves from Eastern India. 2

(Turn Over)

- (b) Mention common and scientific names of four chelonian species from Sundarbans mangrove ecosystem. 2
- (c) Enlist diversified global environmental set-ups which are likely to act adversely on organisms. 2
- (d) Briefly highlight the concept of stress mentioning its various types. 2
2. Answer any *two* questions of the following : 4 × 2
- (a) Mention different threats on the life of elephants in the South-West Bengal. 4
- (b) Briefly highlight two major laws and acts pertaining to the conservation of wildlife in India. 2 + 2
- (c) Draw and describe the pathway of destruction of free radicals. 4
- (d) Elaborate three-stage general adaptation syndrome (GAS) model against environmental stress. 4

(4)

- (d) Differentiate the quorum sensing system of Gram-Negative bacteria from Gram-Positive bacteria. 2
5. Answer any *two* questions of the following : 4×2
- (a) Diagrammatically explain the requirements of a Bioreactor used for fermentation. 4
- (b) How do temperature and oxygen affect the growth of bacteria ? $2 + 2$
- (c) Compare the advantages and disadvantages of solid and liquid media, with examples. $2 + 2$
- (d) Elucidate the role of bacteria in fossil fuel formation. 4
6. Answer any *one* question of the following : 8×1
- (a) (i) Explain the intracellular mechanism of chemotaxis within a flagellate bacteria.
- (ii) Draw and describe the composition and structure of a bacterial cell wall. $4 + 4$

(3)

3. Answer *one* question of the following : 8×1

(a) Mention the criteria for declaring an area as 'Biosphere Reserve'. What are the differences between Sanctuary and National Park ? Enlist four critically endangered carnivores from the 'Jungle Mahal' of South-West Bengal. $2\frac{1}{2} + 2\frac{1}{2} + 3$

(b) Explain positive and negative feedback loop within homeostasis. Briefly describe different adaptive changes undertaken by freshwater animals to counteract ionic loss. $2 + 2 + 4$

GROUP – B

(*Microbiology*)

4. Answer any *two* of the following : 2×2

(a) What methods are used for measuring of Bacterial growth ? 2

(b) Describe 5-kingdom system of classification. 2

(c) Explain the role of plasmids. 2

(5)

(b) Write short notes on any *four* of the following: 2 × 4

- (i) Benchtop test
 - (ii) Microbivory
 - (iii) Mycoplasma
 - (iv) Spirochaeta
 - (v) Difference between Fimbria and Flagella
 - (vi) Comparison of Algae with Fungi.
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