

2024

MICROBIOLOGY — HONOURS

Paper : DSCC-1

(Introduction to Microbiology and Microbial Diversity)

Full Marks : 75

*The figures in the margin indicate full marks.**Candidates are required to give their answers in their own words as far as practicable.*1. Answer *any ten* questions :

2×10

- ✓(a) What is coenocyte?
- ✓(b) What is prion?
- ✓(c) What is diatomaceous earth?
- (d) What is a rhizomorph?
- ✓(e) Write two morphological features of amoeba.
- (f) Differentiate between Epizoic and Endozoic algae.
- (g) How do molds differ from yeasts?
- (h) What is sclerotium?
- ✓(i) What was Elie Metchnikoff's contribution in the field of Microbiology?
- ✓(j) Name the causative agent of giardiasis. What is its source?
- (k) Why anemia is caused in Malaria?
- ✓(l) Name the algal source of agar-agar. (*Gelidium*)
- ✓(m) What are Deuteromycetes fungi? Give an example.
- ✓(n) What is Plasmogamy?
- ✓(o) State the difference between virus and viroids.

2. Answer *any ten* questions :

- ✓(a) Mention the contribution of M.W. Beijerinck in the field of Soil Microbiology. 3
- ✓(b) Differentiate between Chlorophyceae and Cyanophyceae on the basis of their photosynthetic pigments. 3
- (c) What is meant by palmella stage? Cite example. 2+1
- (d) Classify lichens on the basis of habitat. 3

Please Turn Over

(1085)

Q.1. What is meant by 'Alternation of Generations'?

3

(i) Briefly explain parasexual cycle in fungi. Give one example of fungi exhibiting parasexual cycle.

2+1

(ii) Algae show great diversity in pigmentation. — Justify the statement as true or false. Briefly explain.

3

(b) Write short notes on

(i) Haustoria

(ii) Siphonaceous algae.

(i) Describe multiple fission in Protozoa with example.

1½+1½

(i) What are phycobilisome? Comment on its composition.

3

(k) Differentiate between —

3

(i) Abiogenesis and Biogenesis

(ii) *Aspergillus* and *Penicillium*.

(l) What is meant by Halophytic algae? Give an example.

1½+1½

(m) Write down the identifying characteristics of Paramecium.

2+1

(n) Write the difference between sexual and asexual reproduction of algae.

3

(o) Cite an example of each halophilic, parasitic and symbiotic algae.

3

3

3. Answer **any five** questions :

(a) Give a concise account of thallus organization in algae.

5

(b) (i) Which group of fungi is called imperfect fungi and why?

(ii) What are Autoecious and Heteroecious fungi? Cite example for each.

(iii) What type of fungi produce haustoria?

2+2+1

(c) (i) What is the basis of Carl Woese's phylogenetic three domains classification system?

2+3

(ii) Explain the domains in Carl Woese classification system briefly.

(d) (i) What is the concept of pure culture? Who first obtained the pure culture of bacteria and how?

3+2

(ii) What is meant by dikaryotization?

(e) Comment on the following structures of fungi —

(i) Clamp connection in hypha

(ii) Appressorium

(iii) Conidia.

1½+2+1½

(3)

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- ✓ (f) (i) Distinguish between haplontic and diplontic life cycle patterns in algae.
- ✓ (ii) What are single-cell proteins?
- ✓ (iii) Why red-tide is caused and why are they harmful? 2+1+2
- (g) (i) ✓ Describe various types of asexual spores found in fungi.
- (ii) Define Heterokaryosis with example. 3+2
- ✓ (h) Mention the application of algae in the field of medicine, agriculture and food industry. 5
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