

[This question paper contains 4 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 5692

J

Unique Paper Code : 2163012003

Name of the Paper : Applied Phycology

Name of the Course : **Botany (DSE)**

Semester : IV

Duration : 2 Hours

Maximum Marks : 60

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. Attempt **four** questions in all.
3. Question No. 1 is compulsory.
4. Attempt all parts of a question together.

1. (A) Fill in the blanks (**any five**)

5x1=5

- (a) _____ are polymers composed of the uronic acids, D-mannuronic acid and L-guluronic acid.
- (b) Iodine can be readily obtained from _____ (give botanical name of the alga/class).
- (c) _____ is a common freshwater unicellular green alga with cup shaped chloroplast.
- (d) _____ alga is responsible for red colour of snow.
- (e) _____ is a monomeric sugar alcohol used by brown seaweeds as a reserve food.
- (f) _____ is a unicellular green alga which contains large amounts of β -carotene, glycerol, and protein and it can be cultured in highly saline water.

P.T.O.

- (g) Algae often float on the surface of water during the day but sink down during the night due to the evolution and trapping of _____ during photosynthesis.
- (h) _____ is a model marine alga used to study alternation of generations.

(B) Match the following (**any five**)

(5×1=5)

- | | |
|-----------------------------|---------------|
| a) <i>Porphyra</i> | Agar |
| b) <i>Haematococcus</i> | Carrageenan |
| c) <i>Gracilaria</i> | Nori |
| d) <i>Kappaphycus</i> | Space food |
| e) <i>Chlorella</i> | Beta-carotene |
| f) <i>Dunaliella salina</i> | Pond Silk |
| g) <i>Spirogyra</i> | Astaxanthin |

(C) Expand the following (**any five**)

(5×1=5)

- (a) MUFA
- (b) ESW Medium
- (c) DDT
- (d) PAR
- (e) BOD
- (f) ROS
- (g) PAH

2. Briefly describe (**any three**) (5×3=15)

- (a) Pharmaceutical application of algae
- (b) Algal Biorefinery
- (c) Nutritional value of seaweeds
- (d) Algae as fodder
- (e) Role of nanotechnology in algal research

3. Giving one example, define **any ten** : (10×1.5=15)

- (a) Seaweed liquid extract
- (b) Mannitol
- (c) Shellfish poisoning
- (d) Phyco-bioremediators
- (e) Single cell protein
- (f) Algal symbiosis
- (g) Algal Bioplastic
- (h) Bioluminescence
- (i) Pollution Indicator
- (j) Red tides
- (k) Secondary metabolites
- (l) Raft culture of seaweeds

4. Attempt **any three** of the following : (3×5=15)

- (a) With the help of a suitable diagram explain various part of *Acetabularia*.

- (b) Draw a well labelled diagram of a typical raceway pond
- (c) Briefly discuss various application of Diatomaceous Earth
- (d) Algal biofertilizers
- (e) Gene sequencing and algal systematics

5. Answer **any two** of the following : (2×7.5=15)

- (a) Explain briefly any five major water pollutants, along with their sources, harmful effects, and name the algae, which can be used for their remediation.
- (b) Algae are a crucial component in various cosmetics and the nutraceutical industry. Justify this statement by providing suitable examples from both microalgae and macroalgae.
- (c) Define biofuels and their various generations. Emphasize the advantages and challenges faced by the algal biofuel industry, providing suitable examples.