3 Hours

Total Marks: 100

1. Attempt **all** questions.
2. **All questions** carry **equal** marks.
3. Draw **neat labeled diagrams** wherever necessary.
4. Use of **log tables** and **non-programmable calculator** is **allowed**.

Q.1 a. Do as directed: (Any Six) **06**

1. Write any one advantage of single cell analysis.
2. What are deposit feeders?
3. Give an example of culture independent phylogenetic approach for cultivation of marine bacteria.
4. Write any one adaptation of organisms residing in deep sea.
5. Give an example of highly productive marine habitat.
6. State true or false: Ciguatoxin is a toxin responsible for ciguatera fish poisoning.
7. _____ are defined as coastal areas where sea water is measurably diluted by freshwater runoff.
8. Name any one strategy used for screening of a metagenomic library.
9. Give any one example of planktonic organisms.

Q.1 b. Answer the following questions: (Any Two) **14**

1. Describe limitations encountered with the culturing of marine bacteria and the solutions implemented through novel culturing techniques.
2. Elaborate on cytotoxic compounds isolated form marine organisms.
3. Give an account on neritic environments.

Q.2 a. Do as instructed: (Any Six) **06**

1. Give mode of action of omega toxin.
2. Name the organism producing Vidarabine.
3. Give one application of Squalamine.
4. State true or false: Bryostatin 1 is a cyclic peptide
5. Give one symptom resulting from ingestion of Tetrodotoxin.
6. What is Fuelzyme?
7. Give one example of alkaliphilic enzyme.

8. State true or false: Ziconotide is also known as Prialt.
9. Fill in the blank: Aplidine has been shown to induce_____ by interruption of cell cycle at G1and G2/M phase of leukaemia cells.

Q.2 b. Attempt the following questions: (Any Two) 14

1. Discuss the structure, mode of action and any one application of marine derived drug Ecteinascidins.
2. Give a brief account on applications of metagenomics in the study of marine derived natural products.
3. Elaborate on characteristic features and applications of thermostable and cold adaptive marine derived enzymes.

Q.3 a. Answer the following objective questions as directed: (Any Six) 06

1. Give any one use of laminarin.
2. _____is extractable from crustaceans, being the second most abundant natural polymer.
3. What is fucoidan?
4. Write the full form of EPA.
5. Green algae: Chlorophyceae :: Red algae :_____.
6. Define nutraceutical.
7. Give any one significance of collagen.
8. COS stands for _____.
9. Name any one pigment present in red algae.

Q.3 b. Elaborate on following: (Any Two) 14

1. Role of collagen and gelatin obtained from marine source in nutraceuticals.
2. Biological activities of fatty acids and phenolic compounds as an ingredient in nutraceutical.
3. Role of fish and crustaceans as a potential source of functional food ingredient.

Q.4 a. Attempt the following objective questions as instructed: (Any Six) 06

1. Give an example of a marine organism used as a source of anti-proliferative drugs.
2. Give an example of a marine organism used as a source of Gelatin.

3. Give the application of marine alga *Lithothamnium calcareum*.
4. Give any one advantage of marine proteins over conventional drugs
5. Name any one Colorant derived from marine resources.
6. Name any one Thickener obtained from marine resources.
7. What are Excipients?
8. State True or false: Jaspine B is able to kill melanoma cells.
9. Carrageenan is obtained from _____.

Q.4 b. Discuss the following: (Any Two) **14**

1. Major functions of marine components in cosmetics.
2. Secondary metabolites from marine organisms as a bioresource for pharmaceutical industry.
3. Target organs for cosmetics derived from marine resources and add a note on depigmenting activity of marine derived cosmetics.

Q.5 Write Short notes on the following: (Any Four) **20**

a. Salient features of Coral reefs.

b. Saxitoxin.

c. Nutraceutical potential of COS.

d. Marine probiotics.

e. Anti-Pruritic activity of marine derived components for cosmetics.

f. Cosmeceuticals.

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