VCD/ 31/10/23 S.Y.B.Sc SEM III BIOCHEMISTRY III 3 HRS 100 marks

Note:

1. All the questions are compulsory. Choice is internal.
2. Figures to the right indicate full marks.
3. All questions carry equal marks.
4. Draw flowcharts/diagrams wherever necessary.

Q.1.A) State True or False: **(04)**

(i) Genetic material of all viruses is DNA.
(ii) Rhizobium and Azotobacter are nitrogen fixing bacteria.
(iii) Yeasts are classified as members of the fungus kingdom.
(iv) Lactobacillus are considered as friendly bacteria.

Q.1.B) Write short notes on: (Any three) **(09)**

(i) Foodborne botulism
(ii) Nitrogen fixing bacteria
(iii) *Staphylococcus aureus*
(iv) Probiotics
(v) Animal as viral host.
(vi) *Vibrio cholerae*

Q.1.C) Answer of the following: (Any two) **(12)**

(i) Write a brief note on any three airborne microorganisms.
(ii) Explain any three water borne microorganisms in detail.
(iii) Write in brief about soil borne microorganism.
(iv) Explain about the causative agent of wound and food botulism in detail.

Q.2.A) State True or False: **(04)**

(i) Haploid plants can be obtained from anther culture.
(ii) In the tissue culture system, shoot elongation is the main effect of cytokines.
(iii) Cotton is the first transgenic crop.
(iv) Growth of plant tissues in artificial media is called gene expression.

Q.2.B) Answer the following: (Any three) **(09)**

(i) What is plant tissue culture and its types?
(ii) Difference between Animal cell culture and Plant tissue culture.
(iii) Application of animal cell culture technology in production of vaccines.
(iv) What is the concept of totipotency?
(v) What are the culture techniques used for primary culture?
(vi) What are monoclonal antibodies?

Q.2.C) Answer the following: (Any two) **(12)**

(i) Explain how an animal cell varies from a plant cell.
(ii) What is Single cell protein?
(iii) Applications of hybridoma technology and monoclonal antibodies.
(iv) Explain animal cell structure.

Q.3.A) State True or False: **(04)**

(i) Industrial biotechnology is also known as Green technology.
(ii) Enzymes are inactivated by heat generated in the system.
(iii)Large scale industrial fermenters are always constructed of Stainless steel.
(iv)Enzymes play a major part in the food and drink industry.

Q.3.B) Write short notes on: (Any three) **(09)**

(i) Steps involved in wine production.
(ii) Explain the process of Antibiotic production
(iii) Components of fermenters.
(iv) Write a note on continuous stirred tank bioreactor
(v) Write a note on Biosensor.
(vi)Write a note on micro-encapsulation.

Q.3.C) Answer the following: (Any two) **(12)**

(i) What is a fermentor and explain the process of fermentation?
(ii) Explain the process of wine production
(iii) Explain stabilisation of soluble enzymes.
(iv) Write a brief on Air lift Bioreactor

Q.4.A) Define and explain: (Any five) **(10)**

(i) Yeast (ii) Hepatitis (iii) Incubator (iv) Enzyme (v) Explant
(vi)Protoplast (vii)Antibiotics

Q.4.B) Write Short notes on: (Any three) **(15)**

(i) Lytic and lysogenic cycle of virus in detail.
(ii) General structure and genome of virus.
(iii) Advantages of tissue culture
(iv) Hybridoma technology.
(v) Advantages of fermentation.
(vi)Applications of Biosensors in the Food Industry.