G-2/207/21

Roll No.....

M.Sc. II Semester Examination, 2021

BIOTECHNOLOGY

Paper III

(Microbial Morphology and Physiology)

Time: 3 Hours]

[Maximum Marks : 80

Note: All questions are compulsory. Question Paper comprises of 3 sections. **Section** A is objective type/multiple choice questions with no internal choice. **Section** B is short answer type with internal choice. **Section** C is long answer type with internal choice.

SECTION 'A' (Objective Type Questions)

Choose the correct answer:

 $1 \times 8 = 8$

- **1.** Chlorobium species is which of the following type bacteria?
 - (a) Purple sulphur bacteria
 - (b) Green sulphur bacteria
 - (c) Purple non-sulpher bacteria
 - (d) Green non-sulpher bacteria

P.T.O.

2. Rotatory motor of flagella is associated with which ring?

(a) M Ring

(b) P Ring

(c) M and S Ring

(d) L Ring

3. During exponential phase growth rate is

(a) Same as generation time

(b) Reciprocal of generation time

(c) Time required to double the population

(d) Rate of doubling population

4. Against HIV there is no any vaccine because

(a) The virus is so antigenically variable

(b) Such a vaccine would be very expensive

(c) Virus can be controlled by change in sexual habits

(d) Latency can abrogate any vaccine effect

5. An intermediate of TCA cycle which undergoes reductive amination with glutamine is......

(a) Acetyl CoA

(b) Glutamine

(c) α-keto glutarate

(d) NADPH

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6. During photosynthesis RuBisCo play an important role in which phase :

(a) Light phase

(b) Dark phase

(c) Electron transport chain

(d) TCA cycle

7. Organism *Thermus aquaticus* generally prevails in which temperature?

(a) 0°C

(b) 100°C

(c) 70-72°C

(d) 80-82°C

8. Which of the following mineral most often limits the primary productivity of an ecosystem ?

(a) carbon

(b) nitrogen

(c) sulphur

(d) phosphorus

SECTION 'B'

 $6 \times 4 = 24$

(Short Answer Type Questions)

Note: Answer the following questions in 250 words.

Unit I

1. Write short note on any one of the following:

(a) Cyanobacteria,

(b) Mycobacterium.

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Unit II

2. Write a note on any one of the following:

(a) TMV,

(b) Growth curve.

Unit III

3. Write a note on Entener-Doudoroff pathway and its significance.

Or

Describe methanogens and process of methanogenesis.

Unit IV

4. Write note on aero-allergens.

Or

Explain the soil microbes and its interactions.

SECTION'C'

 $12 \times 4 = 48$

(Long Answer Type Questions)

Note: Answer the following questions in 500 words.

Unit I

1. Write an essay on various physical and chemical methods of sterilization.

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	Or
	Write short notes on the following:
	(a) Purple bacteria,
	(b) Gliding and sheathed bacteria.
	Unit II
2.	Write notes on the following:
	(a) Continuous culture,
	(b) Mathematics of growth.
	Or
	Write notes on the following:
	(a) Retrovirus,
	(b) Pox virus.
	Unit III
3.	Write an essay on various nutritional types of microbes.
	Or
	Write note on the following:

[6]

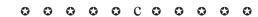
Unit IV

4. Give detail account of N_2 cycle and its significance.

Or

Write note on the following:

- (a) Phosphorus cycle,
- (b) Microbiology of marine water.



(a) Fermentation,

(b) PPP.