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Reg. No. : | | | | | | | | | | | | |

Question Paper Code: R2D04

B.E./B.Tech. DEGREE EXAMINATION, APRIL 2024

Second Semester

Biotechnology

21UBT204- MICROBIOLOGY

(Regulations 2021)

Duration: Three hours | Maximum: 100 Marks

Answer All Questions

PART A - (5x 1 = 5 Marks)

1. In prokaryotes, the hair-like outgrowths which attach to the surface of other bacterial cells are CO1-U

   (a) flagella (b) pili (c) plasmid (d) capsule

2. The viral envelope is made up of CO1-U

   (a) Proteins (b) Glycoprotein (c) Protein and Lipid (d) All of these

3. Which of the following is commonly used as a gelling agent in microbiology culture media? CO1-U

   (a) Gelatin (b) Agar (c) Starch (d) Cellulose

4. How do antifungal agents typically target fungal cells? CO1-U

   (a) Inhibition of DNA synthesis (b) Disruption of cell wall synthesis

   (c) Inhibition of protein synthesis (d) Blocking ergosterol synthesis

5. The production of penicillin involves which group of microorganisms? CO1-U

   (a) Bacteria (b) Fungi (c) Viruses (d) Archaea

PART – B (5 x 3= 15 Marks)

6. Give a neat representation of Whittaker's five kingdom classification CO1-U

7. Differentiate fungi and algae. CO1-U

8. Differentiate selective media and differential media CO1-U

9. Differentiate exotoxin and endotoxin. CO1-U

10. Describe the role of biofertilizers in agriculture. CO1-U

PART – C (5 x 16= 80 Marks)

11.	(a)	Write about the different types of microscopes and highlight the parts and function of each part of bright field microscope.	CO1-U	(16)
		Or		
	(b)	Explain the principle and procedure of Simple staining and Gram Staining	CO1-U	(16)
12.	(a)	Summarize synthesis and release of virions from the infected host.	CO1-U	(16)
		Or		
	(b)	Write a detailed note on asexual reproduction of fungi	CO1-U	(16)
13.	(a)	Salma needs to differentiate bacteria based upon specific characteristics. Suggest her with the different media types availability and explain the functional types of culture media, including selective, differential, and enrichment media.	CO2-App	(16)
		Or		
	(b)	Anjana cultivated a metabolic product form bacterial strain which is grown in batch culture. Her yield not meets her expectation. So, to improve the yield of metabolite what type of culture she can use. Predict the culture type with neat explanation.	CO2-App	(16)
14.	(a)	Discuss the mechanisms of action of chemical agents used for microbial control. Highlight the factors influencing the efficacy of chemical control methods.	CO1-U	(16)
		Or		
	(b)	What is antibiotic? How and why the antibiotic sensitivity assay is done. Explain the steps in detail and how to interpret the results.	CO1-U	(16)
15.	(a)	Explain in detail about biosensors and biofilters	CO1-U	(16)
		Or		
	(b)	Outline the process of penicillin production, including the microorganism involved and the key steps in the fermentation process.	CO1-U	(16)