Register Number:……..

KUMARAGURU
college of technology
character is life

B.TECH DEGREE EXAMINATIONS: NOV/DEC 2022

(Regulation 2018)

Third Semester

BIOECHNOLOGY

U18BTI3204: Microbiology

COURSE OUTCOMES

CO1: Comprehend knowledge about the taxonomical classifications and fundamentals of Microscopy
CO2: Recognize the fundamental concepts in the structure and functioning of a microbial cell
CO3: Understand concepts of nutritional requirements for microbial growth and pure culture isolation
CO4: Demonstrate the microbial nutritional requirements for growth and metabolism
CO5: Understand the controlling of microbes using physical and chemical methods
CO6: Apply and evaluate the antibiotics and antifungal agents to control the microbial species

Time: Three Hours **Maximum Marks: 100**

Answer all the Questions:-
PART A (10 x 2 = 20 Marks)
(Answer not more than 40 words)

1.	Distinguish phase contrast and florescence microscopy.	CO1	[K_2]
2.	How will you prepare 100 ml Nutrient Agar for culturing of bacteria from any soil sample?	CO1	[K_3]
3.	Mention any two methods available to quantify bacterial growth / population.	CO2	[K_2]
4.	Illustrate simple structure of T4 bacteriophage.	CO2	[K_3]
5.	Differentiate simple and chemically defined media.	CO3	[K_2]
6.	Draw bacterial growth curve with distinct all 4 phases.	CO3	[K_2]
7.	Narrate simple mechanism of action of 70% ethanol.	CO4	[K_3]
8.	As a microbiologist, what will be the main reason for recommending any antiseptic and disinfect for microbial control? – Give one example for each.	CO4	[K_3]
9.	Illustrate mode of action of any ONE antibiotic.	CO5	[K_2]
10.	Expand: MIC and MBC.	CO6	[K_2]

Answer any FIVE Questions:-
PART B (5 x 16 = 80 Marks)
(Answer not more than 400 words)

11.	a)	How will you relate basic information of microorganisms and nomenclature to explore microbial classification and diversity?	8	CO1	[K_3]
	b)	Illustrate simple operating procedure (SOP) for given Bright field light	8	CO1	[K_3]

microscope for any specimen identification.

12.	a)	Enlighten any four chemical elements and their role in microbial culture media.	8	CO2	[K_3]
	b)	As a life science student, what are the parameters to be considered to enhance industrial microbial strain production potential?	8	CO2	[K_4]
13.	a)	C:N ratio is one of the main factors that influence microbial growth- Justify this statement	4	CO3	[K_4]
	b)	Illustrate the steps in obtaining pure colony for industrial applications.	12	CO3	[K_3]
14.	a)	Describe silent features of Entner–Doudoroff pathway in utilizing carbon sources.	12	CO4	[K_4]
	b)	Narrate bacterial binary fission with suitable illustrations.	4	CO4	[K_3]
15.	a)	Tabulate and compare few unique advantages and limitations of heat sterilization, radiation and filter sterilization for control of microorganisms in laboratory workplace.	12	CO5	[K_4]
	b)	List any two disinfectants and their mode of action	4	CO5	[K_3]
16.	a)	Recommend any one antibiotics/ chemotherapy procedure to overcome growth of multidrug resistance *Staphylococcus aureus* (MRSA).	10	CO6	[K_3]
	b)	Analyse the reasons for development of bacterial resistance against antibiotics.	6	CO6	[K_4]

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