Name: **Enrolment No:**	

UPES

End Semester Examination, May 2024

Course: Industrial Microbiology **Semester: IV**

Program: BSC-MICROBIOLOGY **Duration: 3 Hours**

Course Code: HSMB2024 **Max. Marks: 100**

Instructions:

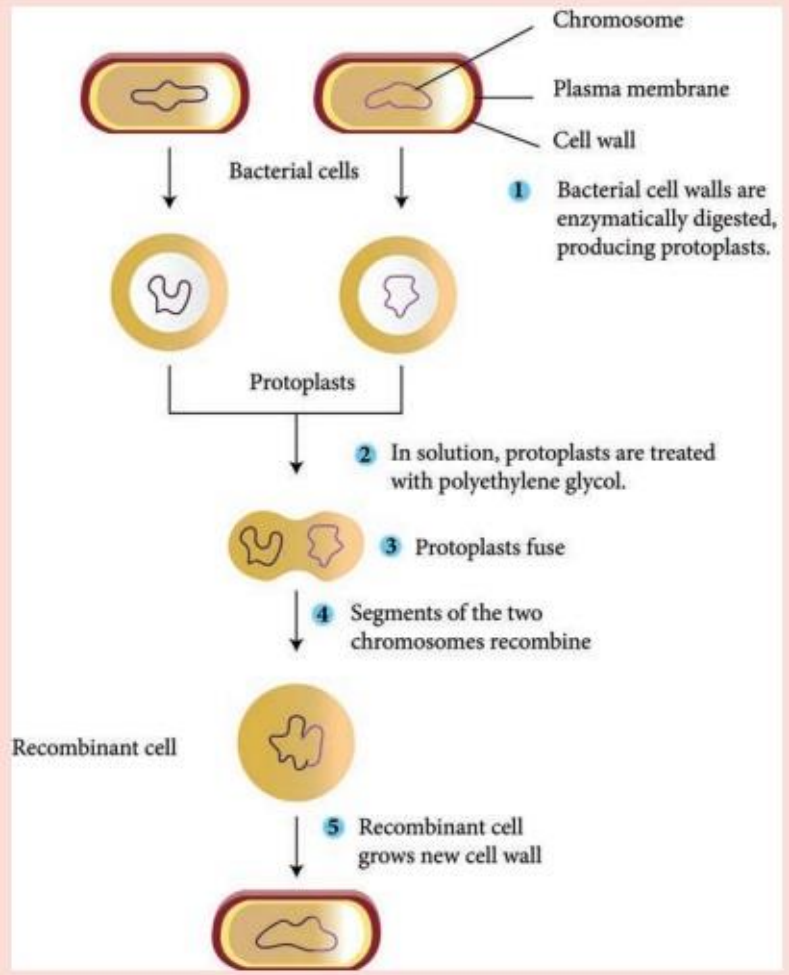
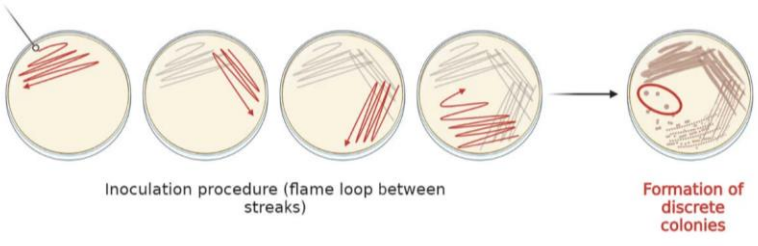
S. No.	Section A Short answer questions/ MCQ/T&F (20Qx1.5M= 30 Marks)	Marks	COs
Q 1.	In 1928, the discovery of penicillin was determined by. A. Anton van Leeuwenhoek B. Adward Jenner C. Joseph lister D. Alexander Fleming	1.5	CO1
Q 2.	Commonly known as "the Father of Microbiology" and regarded as one of the first microscopists and microbiologists. A. Robert Koch B. Anton van Leeuwenhoek C. Louis Pasteur D. Alexander Fleming	1.5	CO1
Q 3.	Identify the scientist stating that a set of postulates for determining whether a particular disease is caused by a particular pathogen. A. John Snow B. Robert Koch C. Joseph Lister D. Louis Pasteur	1.5	CO1
Q 4.	The Period is referred to as golden age of microbiology. A. The period of years between 1857 and 1914 B. The period of years between 2001 and 2021 C. The period of years between 1625 and 1857 D. The period of years between 1416 and 1521	1.5	CO1

Q 5.	Whittaker classified microorganisms on the basis of A. Nutritional requirements B. Chromogenic requirements C. Pathogenic Requirements D. Pathophysiological requirements	1.5	CO1
Q 6.	Bergey's Manual is a manual of A. Taxonomy of eukaryotic bacteria B. Taxonomy of prokaryotic bacteria C. Taxonomy of plants D. Taxonomy of animals	1.5	CO1
Q 7.	Following microorganisms can be grown on artificial/synthetic Medium. A. Bacteria B. Fungi C. Virus D. Bacteria and Fungi	1.5	CO1
Q 8.	Identify the statement that is not correct: - A. Microbial biotechnology, enabled by genome studies, lead to breakthroughs such as improved vaccines and better disease-diagnostic tools. B. Microbial biotechnology is an advanced area of physical, chemical and historical science that deals with only animal models. C. Microbial biotechnology improves microbial agents for biological control of plant and animal pests, modifications of plant and animal pathogens for reduced virulence. D. Microbial biotechnology is the development of new industrial catalysts and fermentation organisms, and development of new microbial	1.5	CO1
Q 9.	A microbial fuel cell (MFC) is. A. known to respond to various stimuli, such as chemicals, light, temperature changes, and electromagnetic fields. B. A device that converts chemical energy to electrical energy by the action of microorganisms C. A relatively simple cell structure compared to eukaryotic cells. D. None of the Above	1.5	CO1

Q 10.	State the primary focus of microbiology in the context of probiotics and prebiotics? A. Developing new antibiotics B. Investigating the role of vitamins in digestion C. Studying harmful bacteria in the gut D. Understanding the interactions between microorganisms and the host	1.5	CO1
Q 11.	Identify the false statement regarding primary metabolites? A. They have identifiable functions. B. They play a role in normal physiological processes. C. Secondary metabolites are derived from primary metabolites. D. Lipids are primary metabolite	1.5	CO2
Q 12.	Determine the following type of fermentation is observed in yeasts A. Acrylic fermentation B. Alcoholic fermentation C. Lactic acid fermentation D. Pyruvic fermentation	1.5	CO2
Q 13.	List the various Operational modes of fermentation? A. Batch, fed batch and continuous. B. Cultural, continuous, enriched C. Selective, continuous, enrichment D. None of the above	1.5	CO2
Q 14.	Identify the following is the correct definition for the 'pasteurization' process of milk and fermented products? A. The sterilization method that uses heat at a boiling temperature of 100 degrees Celcius B. The sterilization method that uses heat at 100 to 120 degrees Celcius C. The sterilization method that uses moist heat below 100 degrees Celcius D. The sterilization method that uses moist heat above 100 degrees Celsius	1.5	CO2
Q 15.	Determine the following functions of water in the culture medium A. Nutrients must be in aqueous solution B. cofactor of enzymes C. provides resistance to sudden transient temperature changes	1.5	CO2

	D. it is a chemical reactant, nutrients must also be present in aqueous solution and provide resistance to sudden temperature changes		
Q 16.	Gama – Amylase is active at which pH: A. pH 7.4 B. pH 8 C. pH 5 D. pH 3	1.5	CO3
Q 17.	Microorganisms are involved in Ethanol production: A. Corynebacterium diphtheriae B. Saccharomyces cerevisiae C. Penicillium notatum D. E. coli	1.5	CO3
Q 18.	Tryptic soya agar is A. Simple media for vaccine production B. Enriched media for protease production C. A fish component used in probiotics. D. None of the above	1.5	CO3
Q 19.	One major microorganism is used for Glutamic acid production. A. Corynebacterium glutamicum B. Corynebacterium diphtheriae C. Vibrio glutamicum D. Saccharomyces glutamicum	1.5	CO3
Q 20.	Vitamin B12 is A. Fat soluble vitamin B. Water soluble vitamin C. Both D. None of the above	1.5	CO3
Section B (4Qx5M=20 Marks)			
Q 1.	Elucidate the role of microorganisms in natural system and artificial system.	5	CO2
Q 2.	Discuss the microorganism involved in industrial production of protease.	5	CO2
Q 3.	Describe the microbial fermentation process of Glutamic acid.	5	CO3
Q 4.	Differentiate various types of bioreactors.	5	CO3

Section C (2Qx15M=30 Marks)			
Q 1.	A scientist working on gene cloning wants to improve the strain. 1. What considerations in terms of their high yield he should take for his experimentation? 2. Can gene cloning improve the strain performance for industrial production of enzymes? 3. Discuss how to improve strain performance.	5+5+5	CO2
Q 2.	The new commercial production unit of alcoholic beverages is stuck on following questionnaires. Please answer. 1. Suggest the microorganisms involved in alcoholic beverage production. 2. Discuss the downstream processing of alcoholic beverage production. 3. Elucidate the uses of wine production.	5+5+5	CO3
Section D (2Qx10M=20 Marks)			

Q 1.	 1.1 Analyze the above diagram and suggest the process which is performed by an industrial microbiology personnel to improve effective production? Describe the process in detail? 1.2 Discuss why there is a need for frequent effective production?	8+2	CO3
Q 2.	 2.1 Identify the above plating method. How to perform this plating method. 2.2 Discuss the primary, secondary, and tertiary inoculum?	5+5	CO2