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END SEMESTER EXAMINATION - 2021

Semester : 5th (New Syllabus / Old syllabus)

Subject Code : FPT-501

**INTRODUCTION TO FOOD MICROBIOLOGY,
BIOCHEMISTRY AND BIOTECHNOLOGY**

Full Marks - 70

Time -- Three hours

The figures in the margin indicate full marks
for the questions.

Instructions :

1. All questions of PART - A are compulsory.
2. Answer any *nine* questions from PART - B.

PART - A

Marks - 25

Answer the following questions as directed :

1×25=25

● Fill in the blanks :

1. The term "pasteurization" is to honour _____,
the pioneering figure in food microbiology.

[Turn over

● Choose the correct answers :

2. Gram positive and Gram negative bacteria differ in the structure of

- (i) plasma membrane (ii) nucleoid
(iii) cell wall (iv) DNA

3. What are the outer-most protein layers in a fungal cell wall ?

- (i) Nanoprotein (ii) Mannoprotein
(iii) Cyanoprotein (iv) None of these

4. Which of the following is a common food fermenting yeast ?

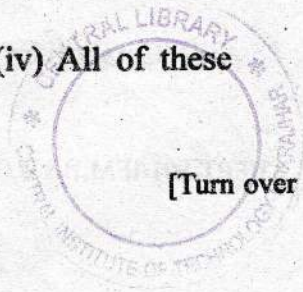
- (i) *Saccharomyces cerevisiae*
(ii) *Kluyveromyces fragilis*
(iii) *Aspergillus oryzae*
(iv) All of these

5. In which of the following bacterial growth phases, rate of cells death is equal to the rate of cell growth ?

- (i) Lag phase (ii) Log phase
(iii) Stationary phase (iv) Death phase

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6. Which of the following is used by bacterial cell for locomotion ?
- (i) Pseudopodia (ii) Flagella
(iii) Pili (iv) Tail fibre
7. Which one of the following is used to create a sterile zone in the laboratory ?
- (i) Platinum loop (ii) Cotton
(iii) Ethanol (iv) Flame
8. Which one of the following commonly used to heat sterilize culture media ?
- (i) Oven (ii) Burner
(iii) Filtration (iv) Retort
9. Aseptate fungal hyphae is also called
- (i) coenocytic (ii) eukaryotic
(iii) prokaryotic (iv) None of these
10. Mitochondria in an eukaryotic cell is also called
- (i) storage house. (ii) power house
(iii) energy house (iv) All of these



15. Which of the following is the pH to be maintained in penicillin fermentation ?

- (i) 4
- (ii) 8
- (iii) 6.5
- (iv) More than 9

16. What are the different substrates used for ethanol production ?

- (i) Juices from sugarcane or molasses or sugar beet
- (ii) Starch containing substrate
- (iii) Waste product from wood or processed wood
- (iv) All of the above

17. Which of the following is used for aeration in a fermenter ?

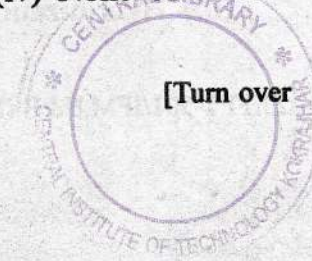
- (i) Impeller
- (ii) Baffles
- (iii) Sparger
- (iv) None of these

18. After the fermentation is over, ethanol is recovered by

- (i) Centrifugation
- (ii) Distillation
- (iii) Filtration
- (iv) None of these

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[Turn over



19. Sauerkraut is _____.

- (i) a cauliflower (ii) a potato
(iii) a cabbage (iv) a tomato

20. Which of the following is produced by fermentation of milk ?

- (i) Sauerkraut (ii) Yogurt
(iii) Tempeh (iv) Kombucha

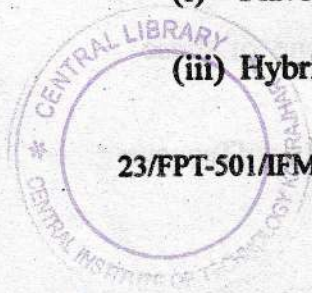
21. Which of the following is correct ?

- (i) Apoenzyme + Co-factor = Holoenzyme
(ii) Apoenzyme - Co-factor = Holoenzyme
(iii) Apoenzyme = Co-factor - Holoenzyme
(iv) None of the above

22. What is the name of metabolic process by which yeast converts sugar to ethanol ?

- (i) Flavouring (ii) Fermentation
(iii) Hybridization (iv) None of these

23/FPT-501/IFM,B&B (N/O) (6)



● Fill in the blanks :

23. All enzymes are proteins but all proteins are not _____.

24. Penicillin is produced by the fungus _____.

25. Non-protein organic part of the enzyme is _____.

(i) Co-factor

(ii) Apoenzyme

(iii) Coenzyme

(iv) Isoenzyme

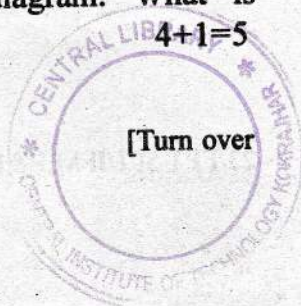
PART - B

Marks - 45

1. What are the nucleotides present in DNA and RNA ? What are the complementary nucleotides ?
4+1=5
2. Draw a schematic diagram of a bacteriophage, and label capsid, tail sheath, collar, tail fibre and base plate.
5
3. Demonstrate fungal hyphae and fungal mycelium using a simple schematic diagram. What is generation time ?
4+1=5

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[Turn over



4. What are plasmids ? What are the major functions of plasmids ? Give an example. $2+2+1=5$
5. Briefly describe the role of FtsZ protein in binary fission of eukaryotic cells. 5
6. Define Biocatalyst. Explain the ES complex. $2+3=5$
7. Explain in brief the process of ethanol production from sugar. 5
8. What is SCP ? What are the important criteria for selection of microbial strain in SCP production ? $2+3=5$
9. What is immobilized enzymes ? Write its advantages. $2+3=5$
10. Draw and label the flow chart for the production of enzymes by microorganisms. 5
11. What is fermentation ? Give examples of fermented food. 5

