Ph.D. COMMON ENTRANCE TEST AUGUST 2024

SUBJECT – MICROBIOLOGY

PART B

Roll No:	

Duration: 60 minutes **Maximum Marks: 50**

Instructions:

1. **This entrance test question paper is not to be taken out of the examination hall**
2. **Question paper consists of Section A and Section B**
3. **Section A consists of 30 MCQs carrying 1 Mark each. Write the Alphabet of the correct answer in the space given.**
4. **Section B consists of Descriptive questions carrying 5 marks each. Restrict your answer to 500 words. Additional plain sheets have been attached to the question paper to answer Section B**

SECTION – A

Answer the following questions by writing the Alphabet of the correct answer in the Box given: **30 X 1 = 30**

1. The blue-green algae belong to _____.
   A. Eukaryota
   B. Prokaryota
   C. Myxomycetes
   D. None of the mentioned

2. Scanning electron microscope is often used to reveal _____.
   A. surface structures
   B. internal structures
   C. Both surface and internal structures
   D. None of the mentioned

3. The objective lenses are the ones?
   A. Closest to the eye
   B. Closest to the specimen
   C. At the base of the microscope
   D. None of the mentioned

4. Which of the following is a low power lens?
   A. 4X
   B. 40X
   C. 100X
   D. None of the mentioned

5. What is the wavelength range for UV spectrum of light?
   E. 400 nm – 700 nm
   F. 700 nm to 1 mm
   G. 0.01 nm to 10 nm
   H. 100 nm to 400 nm

6. Chemical nature of an unknown compound can be obtained using _____.
   A. NMR spectroscopy
   B. Mass spectroscopy
   C. FTIR spectroscopy
   D. All of the mentioned

7. In thin layer chromatography, the stationary phase is made of _____ and the mobile phase is made of _____.
   A. solid, liquid
   B. liquid, liquid
   C. liquid, gas
   D. solid, gas

8. If proteins are separated according to their electrophoretic mobility then the type of electrophoresis is _____.
   A. SDS PAGE
   B. affinity electrophoresis
   C. electro focusing
   D. free flow electrophoresis

9. Purification of enzymes and proteins is done using _____.
   A. affinity chromatography
   B. liquid chromatography
   C. column chromatography
   D. thin layer chromatography

10 Before the research report is concluded, there must be a _____.
   A. summary
   B. question
   C. discussion
   D. agenda

11 Failure to acknowledge the borrowed material is called (Take and use of others as one's own).
   A. Acknowledgement
   B. Foot note
   C. Index
   D. Plagiarism

12 Fungi can be stained with _____.
A. saffranine
B. cotton blue
C. glycerine
D. None of the mentioned

13 Fleming discovered penicillin from _____.
A. *Penicillium notatum*
B. *Penicillium roqueforti*
C. *Penicillium camemberti*
D. *Penicillium chrysogenum*

14 *Penicillium roqueforti* and *P. camemberti* are responsible for _____.
A. pathogenic disease in man
B. imparting flavour to cheese
C. pathogenic disease in plants
D. None of the mentioned

15 Aflatoxin is produced by:
A. Virus
B. Bacteria
C. Fungi
D. Algae

16 Anthrax is a disease of the following type _____.
A. zoonosis
B. hospital acquired
C. community acquired
D. childhood infection

17 Herpes simplex virus has affinity towards _____.
A. local nerve endings
B. endothelial tissues
C. keratinised tissues
D. musculoskeletal tissues

18 Xenobiotics are _____.
A. any chemicals that contain carbon
B. products used for biological control of pests
C. special soil amendments favoured in organic farming
D. synthetic organic compounds not present naturally

19 Degradation of organic wastes by using earth worms is called _____.
A. vermicomposting
B. compost bedding
C. humus
D. None of the mentioned

20 Diagrammatic representation of data can be _____.
A. line graph
B. bar graph
C. pie chart
D. All of the mentioned

21 Bacteria used as biogas fermenters are _____.
A. halophiles
B. methanogens
C. cyanobacteria
D. *Vibrio*

22 Which of the following organisms can be found in extreme saline conditions?
A. Eubacteria
B. Archaebacteria
C. Cyanobacteria
D. Mycobacteria

23 The cell reproduction in bacteria may occur by _____.
A. binary fission
B. budding
C. fragmentation
D. All of the mentioned

24 Which of the following stains is used frequently to identify *Mycobacterium* sp.?
A. Gram stain
B. Schaeffer-Fulton stain
C. Acid fast stain
D. Giemsa Stain

25 Which device is used to pick a single bacterial cell from a mixed culture?
A. microscope
B. micropipette
C. microprobe
D. micromanipulator

26 In which of the following phase secondary metabolites are produced during growth?
A. Lag phase
B. Log/Exponential phase
C. Stationary phase
D. Death phase

27 Which of the following instruments is used for sterilizing the media after it has been prepared?

A. Autoclave
B. Laminar Air Flow Chamber
C. Inoculum Needle
D. Incubator

28 The recovery of microbial metabolite after fermentation is called _____.

A. upstream processing
B. formulation
C. recombination
D. downstream processing

29 What does HACCP stand for?

A. Hazard Analysis and Critical Control Point
B. Hazard and Critical Control Point
C. Health Analysis and Critical Control Point
D. Hazard and Critical Cooking Point

30 Mosquito responsible for malaria transmission is _____.

A. *Aedes aegypti*
B. *Aedes albopictus*
C. *Anopheles*
D. *Haemagogus*

Section - B

Answer any four questions (Each question carries 5 marks). 4*5 = 20

1. Discuss the health benefits of probiotics with examples.

2. Summarize the role of nitrogen fixing bacteria in agriculture.

3. Explain the contribution of microbes in biodegradation of xenobiotics.

4. Interpret the functions of various enzymes involved in prokaryotic DNA replication.

5. Differentiate between various staining techniques used in microbiology.

6. Describe various methods used for preservation of microbial cultures.