



Class: XI

MODEL PAPER EXAMINATION 2025

Time Allowed: 20 minutes

SUBJECT: MICROBIOLOGY

Q1:

SECTION "A"

Marks: 17

Note: Attempt **ALL** questions from this section. Each question carries **ONE** mark.

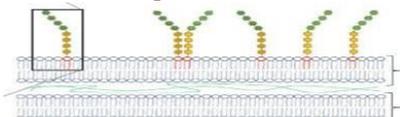
- Microorganisms which cause any infectious disease are known as  
A. Parasites      B. Pathogens      C. Algae      D. Spores
- The method of Pasteurization was discovered by:  
A. Robert Boyle      B. Rosalind Franklin      C. Louis Pasteur      D. Theodor Sachwann
- This can be stored for a long time, provided that they were properly made  
A. Permanent slide      B. Temporary slide      C. Open slide      D. All of the above
- Which oil is used with oil immersion objective lens to magnify the image.  
A. Blackseed oil      B. Argon oil      C. Camomile oil      D. Cedar wood oil
- Which bacterial shape is characterized by a spherical or round morphology?  
A. Bacillus      B. Spirillum      C. Coccus      D. Vibrio
- What is the term for bacteria that form pairs after cell division?  
A. Tetrads      B. Staphylococci      C. Diplococci      D. Streptococci
- Which structure contributes to the motility of some bacteria, aiding in their movement?  
A. Capsule      B. Pili      C. Flagella      D. Spore
- What is the main mode of action of antibiotics that target bacterial cell walls?  
A. Inhibition of protein synthesis      B. Disruption of cell membrane  
C. Inhibition of cell wall synthesis      D. Interference with DNA replication
- Which of the following is a Gram-negative bacterium?  
A. Staphylococcus aureus      B. Escherichia coli  
C. Streptococcus pyogenes      D. Clostridium perfringens
- What is the primary function of the endospore in bacterial cells?  
A. Reproduction      B. Protection during unfavorable conditions  
C. Facilitating genetic recombination      D. Energy storage
- Which of the following is a common method for sterilizing heat-sensitive solutions?  
A. Autoclaving      B. Pasteurization      C. Filtration      D. Incineration
- What is the purpose of a mordant in staining procedures?  
A. Stabilize the stain      B. Increase staining time      C. Remove excess stain      D. Enhance contrast
- Which gas is often added to anaerobic culture systems to create an oxygen-free environment for anaerobic bacteria?  
A. Nitrogen      B. Carbon dioxide      C. Hydrogen      D. Argon
- What is the primary characteristic of capnophiles?  
A. Grow in low pH      B. Grow at high temperatures  
C. Require high salt concentrations      D. Thrive in elevated CO<sub>2</sub> levels
- Which of the following is an example of a selective medium?  
A. Nutrient agar      B. Mannitol salt agar      C. Blood agar      D. MacConkey agar
- Which hepatitis virus is primarily transmitted through contaminated food or water?  
A. Hepatitis A virus      B. Hepatitis B virus      C. Hepatitis C virus      D. Hepatitis D virus
- Human immunodeficiency virus (HIV) primarily targets:  
A. Liver cells      B. T lymphocytes      C. Nervous system cells      D. Red blood cell

Time Allowed: 30 minutes

Practical Based Assessment (PBA)

Marks: 15

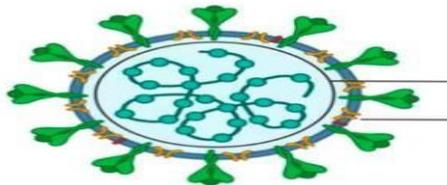
- What is the theoretical limit of resolution in light microscopy primarily determined by?  
A. Wavelength of light      B. Numerical aperture of the objective lens  
C. Thickness of the specimen      D. Magnification power
- In microscopy, what does the term "amplitude" refer to?  
A. Magnification power      B. Intensity of light  
C. Thickness of the specimen      D. Resolution limit
- What is the primary advantage of using immersion oil with high numerical aperture objectives?  
A. Increased resolution      B. Decreased magnification  
C. Reduced contrast      D. Extended depth of field
- Which of the following microscope types uses electrons instead of light for imaging?  
A. Brightfield microscope      B. Phase-contrast microscope  
C. Transmission electron microscope      D. Confocal microscope
- What happens to the image in a compound microscope when using higher magnification objectives?  
A. Increased brightness      B. Decreased resolution  
C. Improved depth of field      D. Reduced field of view
- What is the purpose of a diaphragm in a light microscope?  
A. Holds the objective lenses      B. Focuses the specimen  
C. Adjusts the intensity of light      D. Magnify the image
- Lipopolysaccharide is found in the cell wall of:  
A. Gram-positive      B. Gram-negative      C. Both      D. Fungi



- Which of the following dyes is commonly used for the Negative staining technique?  
A. Crystal violet      B. India ink      C. Lacto-phenol cotton blue      D. Periodic acid- Schiff stain



26. Which of the following is a commonly used antiseptic?  
 A. Hydrogen peroxide    B. Bleach    C. Ammonia    D. Vinegar
27. The protein coat of viruses that encloses the genetic material is called:  
 A. Virion    B. Capsid    C. Peplomers    D. Capsomers



28. Which transport medium is often used for the isolation of enteric viruses?  
 A. Viral transport medium    B. Stuart's transport medium  
 C. Amies transport medium    D. Cary-Blair medium
29. What is the primary purpose of adding antibiotics to viral transport media?  
 A. Enhance viral replication    B. Inhibit bacterial growth  
 C. Stain the viruses    D. Improve specimen color
30. Which factor is crucial in determining the success of virus isolation from clinical specimens?  
 A. Specimen color    B. Specimen volume  
 C. Specimen Ph    D. Time elapsed between collection & processing
31. What is the purpose of using a flocced swab for specimen collection?  
 A. Enhance bacterial growth    B. Improve specimen color  
 C. Increase specimen volume    D. Improve specimen release into the transport medium
32. Which storage condition is recommended for preserving viral specimens for extended periods?  
 A. Refrigeration at 4°C    B. Freezing at -20°C    C. Room temperature    D. Heating at 37°C

**END OF SECTION A**

**Class: XI**

**MODEL PAPER EXAMINATION 2025**

**Time: 2 hours 40 minutes**

**SUBJECT: MICROBIOLOGY SECTION "B" AND SECTION "C"**

**Total Marks 68**

**Q2:**

**SECTION "B" SHORT ANSWER QUESTIONS**

**36 Marks**

**Note:** Answer any **NINE** questions from this section. All questions carry equal marks.

- (i) Elaborate the scope of microbiology in the modern era.
- (ii) Define microscopy. What are the different methods of microscopy?
- (iii) List down the names of stains used for the identification of Gram positive, gram negative bacteria, spores, and fungi.
- (iv) What is the principle and mechanism of Autoclave machine?
- (v) How can you identify bacteria on the basis of oxygen requirement?
- (vi) Elucidate various types of positive staining methods.
- (vii) What are the methods of Pasteurization?
- (viii) What are inorganic trace elements?
- (ix) How are antigenic characters used as a tool for identification of bacteria?
- (x) List down some common pathogens found in the following samples:  
 I. Blood II. Urine III. Stool IV. C.S.F
- (xi) Mention any four antibiotics with their mode of action.
- (xii) What samples are collected for virus isolation?

**SECTION "C" DETAILED ANSWER QUESTIONS**

**32 Marks**

**Note:** Answer any **TWO** questions from this section. All questions carry equal marks.

- Q3. a. What phases are included during the bacterial growth? Elaborate.  
 b. What is the effect of pH on bacterial growth?
- Q4. a. What are the qualities of a good antibiotic?  
 b. How is antibiotic susceptibility determined in the laboratory?
- Q5. a. What are the laboratory diagnosis of viral infections?  
 b. What are the limitations of light microscope in virology?

**END OF PAPER**