

**Class: XII****MODEL EXAMINATION PAPER 2026****Time Allowed: 20 minutes****SUBJECT: MICROBIOLOGY****SECTION "A" (MULTIPLE CHOICE QUESTIONS)****Marks 17****Q1:** Attempt **ALL** questions. Each question carries **ONE** mark.

1. What is the primary advantage of using a dark-field objective in microscopy?
 - A. Increased resolution
 - B. Improved visibility of stained structures
 - C. Enhanced contrast for transparent specimens
 - D. Reduced background illumination
2. Which method uses dry-heat for sterilisation?
 - A. Autoclaving
 - B. Seitz Filter
 - C. Hot air sterilizer
 - D. Water bath
3. In microbiology, what does the term 'aseptic technique' refer to?
 - A. Sterilizing equipment
 - B. Isolating pure cultures
 - C. Preventing contamination during experiments
 - D. Identifying microorganisms
4. Which of the following is a chemical method used for sterilization?
 - A. Autoclaving
 - B. Pasteurization
 - C. Using ethylene oxide
 - D. Seitz Filter
5. What is the primary role of the housefly (*Musca domestica*) in disease transmission?
 - A. Biological vector
 - B. Mechanical vector
 - C. Intermediate host
 - D. Definitive host
6. Which parasite causes a sexually transmitted infection?
 - A. *Giardia lamblia*
 - B. *Trichomonas vaginalis*
 - C. *Balantidium coli*
 - D. *Entamoeba histolytica*
7. Which parasite is the only ciliated protozoan that infects humans?
 - A. *Taenia* species
 - B. *Balantidium coli*
 - C. *Trichomonas vaginalis*
 - D. *Giardia lamblia*
8. What is the primary mode of transmission for *Giardia lamblia*?
 - A. Vector-borne
 - B. Fecal-oral route
 - C. Air borne
 - D. Direct contact
9. What is the primary diagnostic method for detecting protozoa in the blood of patients with filarial infections?
 - A. Polymerase chain reaction (PCR)
 - B. Serological testing
 - C. Blood smear examination
 - D. Chest X-ray
10. Which vector is responsible for transmitting *Leishmania* parasites to humans?
 - A. Mosquitoes
 - B. Ticks
 - C. Sandflies
 - D. Lice
11. What is the main preventive measure for controlling vector-borne infections in endemic areas?
 - A. Insecticide-treated bed nets
 - B. Vaccination
 - C. Antibiotics
 - D. Antifungal creams
12. What is the primary vector for transmitting malaria to humans?
 - A. *Aedes* mosquito
 - B. *Anopheles* mosquito
 - C. *Culex* mosquito
 - D. Ixodes tick
13. What is the middle part of an insect's body called?
 - A. Thorax
 - B. Head
 - C. Abdomen
 - D. None of the above
14. Each of the following statements about hookworm infection is correct except:
 - A. It can cause pneumonia
 - B. It is acquired by humans when filariform larvae penetrate the skin
 - C. It is caused by *Necator americanus*
 - D. It can be diagnosed by finding the trophozoite in the stool
15. Each of the following statements about *Ascaris lumbricoides* is correct except:
 - A. It is one of the largest nematodes
 - B. It can cause pneumonia
 - C. Dogs and cats are intermediate hosts
 - D. It is transmitted by ingestion of eggs
16. Infection with dermatophytes is most often associated with:
 - A. Intravenous drug abuse
 - B. Inhalation of the organism from contaminated bird feces
 - C. Adherence of the organism to moist perspiration-covered skin
 - D. Fecal-oral transmission
17. Fungal cells that reproduce by budding are seen in the infected tissues of patients with:
 - A. Candidiasis, Cryptococcosis, and Sporotrichosis
 - B. Mycetoma, Candidiasis, and Mucormycosis
 - C. Tinea corporis, Tinea unguium, and Tinea versicolor
 - D. Sporotrichosis, Mycetoma, and Aspergillosis

Practical Based Assessment (PBA)**Marks 15****Q2:** Attempt **ALL** questions. Each question carries **ONE** marks.

18. A laboratory technologist wants to observe the motility of *Trichomonas vaginalis* in a fresh vaginal sample. Which microscopy technique should be selected?
 - A. Brightfield microscopy using Gram-stained slide
 - B. Wet preparation observed under darkfield microscopy
 - C. Stained preparation observed under brightfield microscopy
 - D. KOH preparation observed under phase contrast microscopy

19. A clinician suspects a fungal skin infection. The sample is treated with 10% KOH before microscopic examination. What is the main reason for using KOH in this procedure?
- A. To stain fungal elements for species identification
B. To dissolve keratin and debris for clearer visualization of fungi
C. To enhance bacterial motility during observation
D. To increase the refractive index of fungal cells
20. During a microbiology practical, a student prepares a Gram-stained slide of *Staphylococcus aureus*. Which microscopy setting is most appropriate for observing this stained specimen?
- A. Darkfield microscopy
B. Brightfield microscopy
C. Phase contrast microscopy
D. Fluorescence microscopy
21. A lab technologist examines a freshly passed stool sample using normal saline and Lugol's iodine to identify motile trophozoites of *Entamoeba histolytica*. Which of the following methods is being used?
- A. Formalin-ether sedimentation technique
B. Sodium chloride flotation technique
C. Zinc sulphate flotation method
D. Direct wet preparation
22. A stool sample shows no visible ova or cysts on direct saline preparation, but infection is still suspected. Which of the following techniques should be used next to increase the chance of detecting parasitic eggs?
- A. Simple iodine-stained wet mount
B. KOH preparation
C. Hanging drop method
D. Concentration techniques
23. During examination of a stool specimen, a laboratory worker uses a saturated sodium chloride solution to allow lighter parasite eggs to float to the surface for collection. Which specific concentration method is this?
- A. Formalin-ether sedimentation technique
B. KOH clearing method
C. Direct wet mount method
D. Sodium chloride flotation technique
24. A laboratory technologist observes a motile organism in a stool wet mount that shows unidirectional movement by pseudopodia and contains ingested RBCs. Which organism is most likely responsible?
- A. *Giardia lamblia*
B. *Balantidium coli*
C. *Entamoeba histolytica*
D. *Entamoeba coli*
25. In a stained trophozoite form, a clear differentiation of ectoplasm and endoplasm, a small central karyosome, uniform peripheral chromatin, and ingested RBCs are diagnostic features of:
- A. *Giardia lamblia*
B. *Trichomonas hominis*
C. *Entamoeba histolytica*
D. *Endolimax nana*
26. The fertilized egg of *Ascaris lumbricoides* is characterized by:
- A. A thick double shell with rough brown outer coat and smooth transparent inner shell
B. A thin single shell with jagged outer lumps and coarse granules inside
C. A colourless single shell containing large refractile granules
D. A thin transparent wall with polar filaments and hexacanth embryo
27. The ovum of *Hymenolepis nana* can be identified microscopically by the presence of:
- A. A hexacanth embryo with three pairs of hooklets and polar filaments
B. A rough brown albuminous coat and crescentic polar spaces
C. A thick colorless inner shell containing granular cytoplasm
D. Large, refractile globules filling a puffy brown shell
28. Which of the following media is commonly used for cultivating *Candida* species?
- A. Sabouraud dextrose agar
B. Potato dextrose agar
C. Blood agar
D. MacConkey agar
29. What is the preferred specimen for diagnosing fungal infections of the skin, hair, or nails?
- A. Blood sample
B. Tissue biopsy
C. Scraping or clipping of infected area
D. Urine sample
30. Which of the following fungi is commonly found in the human body?
- A. *Aspergillus*
B. *Candida*
C. *Histoplasma*
D. *Cryptococcus*
31. What is the primary function of fungal spores?
- A. To reproduce
B. To infect hosts
C. To produce toxins
D. To degrade organic matter
32. Which of the following fungi is used in food production?
- A. *Aspergillus*
B. *Penicillium*
C. *Saccharomyces*
D. All of the above

END OF SECTION A



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EXAMINATION BOARD

Class: XII

MODEL EXAMINATION PAPER 2026

Time: 2 hours 40 minutes SUBJECT: MICROBIOLOGY SECTION "B" & SECTION "C"
SECTION "B" SHORT ANSWER QUESTIONSTotal Marks 68
36 MarksQ3: Answer any **NINE** questions from this section. All questions carry equal marks.

- i. Briefly define any four types of microscopy techniques used in microbiology.
- ii. Differentiate between the following:
 - a. Disinfection and Disinfectant
 - b. Antisepsis and Antiseptic

- iii. Explain the application of X-rays in cold sterilization.
- iv. Describe the pathogenesis of *Entamoeba histolytica*.
- v. Define the following terms:
 - a. Vectors
 - b. Reservoir
 - c. Parasitology
 - d. Zoonosis
- vi. Explain any two different types of hosts.
- vii. Describe any four characteristic features of *Giardia lamblia*.
- viii. Draw and label the life cycle of a mosquito.
- ix. List the effective control measures for vector-borne diseases transmitted by flies and mosquitoes.
- x. What are the major factors contributing to the transmission of parasitic infections?
- xi. Explain the concept of dimorphism as seen in molds and yeasts.
- xii. Discuss any two pathogenic fungi with suitable examples.

SECTION "C" DETAILED ANSWER QUESTIONS

Q4: Answer any **TWO-PART** questions from this section. All questions carry equal marks. Your answer should not exceed 30 – 40 lines.

- i.
 - a. Describe the hanging drop technique and explain its application in microbiology.
 - b. Explain how the efficiency of sterilization is evaluated in microbiological procedures.

- ii.
 - a. Discuss the major factors contributing to the transmission of parasitic infections.
 - b. Describe the life cycle of the pathogenic protozoan *Balantidium coli* with the help of a labelled diagram.

- iii.
 - a. Describe the morphological characteristics of fungi with the help of a labelled diagram.
 - b. Explain the life cycle of a house fly with the help of a labelled diagram.

END OF PAPER