



VINAYAKA MISSION'S RESEARCH FOUNDATION, SALEM
(Deemed to be University under section 3 of the UGC Act 1956)

Ph.D Entrance Test – November – 2025

Faculty of Medicine / Microbiology

Instructions / Note:

1. Answer all the questions. Each question carries one mark.
2. No negative marks for wrong answers.
3. Read each question carefully and answer in the OMR sheet provided for each question with only blue/ black pen to fill the circles in the OMR Sheet.
4. Question number 1 - 35 questions belong to Research Methodology component and Question number 36-70 questions belong to the subject at PG level
5. Return the question paper along with the OMR sheet.

36. Immune cells which are considered as bridges between innate and acquired immunity

- _____
- A. Marginal zone B cells
 - B. Dendritic cells
 - C. C3, C4 components of complement
 - D. Mast

37. Antigen presentation pathway by MHC class-1 molecule include _____

- A. Cytosolic pathway
- B. Endocytic pathway
- C. Lectin pathway
- D. Classical pathway

38. Role of adjuvant in vaccine is _____

- A. Stimulation of toll like receptors
- B. Increase both adaptive and innate immune response
- C. Activate both B and T lymphocyte
- D. All the above



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39. A woman with infertility receives an ovary transplant from her sister who is an identical twin. What type of graft is it?
- A. Xenograft
 - B. Autograft
 - C. Allograft
 - D. Isograft
40. Infective stage of *E. histolytica* to humans _____
- A. Sporulated oocyst
 - B. Trophozoite
 - C. Matured tetra-nucleated cyst
 - D. Binucleated cyst
41. Colonies of *Shigella* appear red without black centre on the following medium _____
- A. DCA
 - B. SS Agar
 - C. Hektoen enteric agar
 - D. XLD agar
42. Incubation period for *C. Perfringens* food poisoning associated with consumption of beef, poultry food _____
- A. 1-6 hrs
 - B. 8-16 hrs
 - C. ≥ 16 hrs
 - D. ≥ 24 hrs
43. Following all are invasive tests employed for the diagnosis of *H. pylori* associated clinical disease, except _____
- A. Biopsy urease test
 - B. Endoscopy guided biopsy
 - C. Coproantigen assay
 - D. Both A and B
44. Protective antibody titre against HBV among vaccinated people _____
- A. ≥ 5 mIU/ ml
 - B. ≥ 3 mIU/ ml
 - C. ≥ 10 mIU/ ml
 - D. 3-7mIU/ml



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45. Gold standard method for the confirmation and determining HCV genotype and subtype _____
- A. RIBA
 - B. 5th generation ELISA
 - C. Real-time reverse transcriptase PCR
 - D. Ultra-biorad
46. Colonies produced by *Prevotella melaninogenica* when exposed to UV light produces _____
- A. Pink fluorescence
 - B. Purple fluorescence
 - C. Black fluorescence
 - D. Red fluorescence
47. Site of presence of Negri bodies in rabies infection _____
- A. Purkinje cells of cerebellum
 - B. Hippocampus
 - C. Thalamus
 - D. A and B
48. HAI surveillance includes the following parameter _____
- A. CA-UTI surveillance
 - B. SSI surveillance
 - C. VAP surveillance
 - D. All the above
49. All the following are water borne viral pathogens, except _____
- A. Polio virus
 - B. Rota virus
 - C. HAV
 - D. HDV
50. Ideal clinical specimen for the diagnosis of suspected lower respiratory tract infection in a 55-year-old chronic smoker _____
- A. Throat swab
 - B. Naso-pharyngeal aspirate
 - C. BAL
 - D. A and C



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51. 3Cs protocol in HIV does not include _____
- A. Care
 - B. Consent
 - C. Counseling
 - D. All the above
52. All the following are heterophile tube agglutination tests, except _____
- A. Weil-Felix test
 - B. RA test
 - C. Paul-Bunnell test
 - D. Cold agglutination test
53. Blocking antibodies can be detected/eliminated by _____
- A. Preheating the serum
 - B. Coombs test
 - C. Latex test
 - D. A and B
54. Which of the following microorganisms is involved in biological nitrogen fixation in root nodules of legumes?
- A. Azotobacter
 - B. Bacillus subtilis
 - C. Clostridium
 - D. Rhizobium
55. Bioleaching is mainly used for extracting _____
- A. Copper from sulphide ores
 - B. Nitrogen from soil
 - C. Phosphate from rocks
 - D. Methane from biomass
56. Composting is facilitated by _____
- A. Autotrophic bacteria
 - B. Methanogens
 - C. Saprophytic bacteria and fungi
 - D. Cyanobacteria



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57. What are biofertilizers used in agriculture made up of?
- A. Chemical nutrients
 - B. Pesticides
 - C. Plant Hormones
 - D. Beneficial microbes that enhance nutrient availability and plant growth
58. Eutrophication in lakes can lead to _____
- A. Oxygen depletion due to microbial decomposition of organic matter
 - B. Increase in nitrogen fixation
 - C. Methane oxidation
 - D. Sulphate accumulation
59. Which of the following microorganisms is most commonly associated with botulism in canned foods?
- A. Clostridium perfringens
 - B. Clostridium botulinum
 - C. Bacillus cereus
 - D. Listeria monocytogenes
60. Which of the following tests is used for assessing the quality of raw milk by determining the microbial load?
- A. Methylene Blue Reduction Test
 - B. Alcohol Test
 - C. Phosphatase Test
 - D. Clot-on-Boiling Test
61. Which microorganism is most commonly used as a probiotic in fermented foods?
- A. Escherichia coli
 - B. Lactobacillus acidophilus
 - C. Acetobacter aceti
 - D. Candida albicans
62. The primary goal of HACCP in food processing is to _____
- A. Test the final product for pathogens
 - B. Ensure higher shelf life of products
 - C. Identify and control hazards through out the production process
 - D. Improve taste and appearance of food



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63. Which of the following best describes the primary purpose of a DNA microarray?
- A. To sequence an entire genome in a single experiment
 - B. To measure the expression levels of thousands of genes simultaneously
 - C. To amplify DNA using polymerase chain reaction
 - D. To detect protein-protein interactions
64. Which “omics” approach focuses on the complete set of RNA transcripts in a cell or tissue?
- A. Genomics
 - B. Metabolomics
 - C. Proteomics
 - D. Transcriptomics
65. Which of the following next-generation sequencing (NGS) platforms is commonly used for microbial genome sequencing?
- A. Illumina sequencing
 - B. Northern blotting
 - C. ELISA
 - D. Microarray hybridization
66. In TaqMan probe-based qPCR, fluorescence is generated due to _____
- A. DNA binding of SYBR Green
 - B. Hydrolysis of a dual-labeled probe by Taq polymerase during amplification
 - C. RNA degradation
 - D. Binding of primers to the template
67. One of the following sequence represents increasing size of Microorganisms
- _____
- A. Fungi, viruses, bacteria
 - B. Protozoa, fungi, rickettsia
 - C. Viruses, bacteria, fungi
 - D. Rickettsia, viruses, protozoa
68. Restriction endonucleases are also called _____
- A. Molecular scissors
 - B. DNA synthesis
 - C. Molecular stitchers
 - D. Polymerases



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69. A technique called Southern blotting is used in _____
- A. Monoclonal antibody production
 - B. Genetic finger printing
 - C. In vitro culture
 - D. Polymerase chain reaction
70. VNTR is _____
- A. Variable nucleotide triplet repeat
 - B. Variable nucleoside tandem repeat
 - C. Variable nucleoside triplet repeat
 - D. Variable number of tandem repeat

