

Seat No.	
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**M.Phil./Ph.D. Entrance Examination, May - 2019 (Special Drive)**  
**MICROBIOLOGY**

**Day and Date : Wednesday, 22 - 05 - 2019****Total Marks : 100****Time : 10.00 a.m. to 12.00 Noon**

- Instructions :**
- 1) All questions are compulsory.
  - 2) Each question carries 2 marks.
  - 3) Answers should be marked in the given OMR answer sheet by darkening the appropriate option.
  - 4) Use black ball point pen only for marking the circle. Do not make any stray mark on the OMR Answer Sheet.
  - 5) Follow the instructions given on OMR Sheet.
  - 6) Rough work shall be done on the sheet provided at the end of question paper.
  - 7) Only non programmable calculators are allowed.

- 1) \_\_\_\_\_ section of research paper describe the gap in current knowledge that can be filled by your conclusion.  
A) Introduction  
B) Materials and methods  
C) Results  
D) Discussion
- 2) Ranking of quality journals is carried out by considering its \_\_\_\_\_.  
A) Audience range  
B) Reputation  
C) Frequency of publication  
D) Impact factor
- 3) \_\_\_\_\_ paper is collection of data from wide resources to compile and compare common theme.  
A) Interpretive  
B) Review  
C) Analytical  
D) Research



9) Which of the following is the first step in starting the research process?

- A) Searching sources of information to locate problem
- B) Survey of related literature
- C) Identification of problem
- D) Searching for solution to the problem

10) To test null hypothesis a researcher uses\_\_\_\_\_.

- A) t test
- B) ANOVA
- C)  $\chi^2$
- D) factorial analysis

11) Manipulation is always a part of\_\_\_\_\_.

- A) Historical research
- B) Fundamental research
- C) Descriptive research
- D) Experimental research

12) Research is conducted to\_\_\_\_\_.

- I) Generate new knowledge
- II) Not to develop a theory
- III) Obtain research degree
- IV) Reinterpret existing knowledge

Which of the above are correct?

- A) I, III & II
- B) III, II & IV
- C) II, I & III
- D) I, III & IV



## M/P ENT - 15

- 19) In which of the following ways, absorption is related to transmittance?
- A) Absorption is the logarithm of transmittance
  - B) Absorption is the reciprocal of transmittance
  - C) Absorption is the negative logarithm of transmittance
  - D) Absorption is a multiple of transmittance
- 20) In which type of chromatography, the stationary phase held in a narrow tube and the mobile phase is forced through it under pressure?
- A) Column chromatography
  - B) Planar chromatography
  - C) Liquid chromatography
  - D) Gas chromatography
- 21) Which of the following cannot be used as adsorbent in Column adsorption chromatography?
- A) Magnesium oxide
  - B) Silica gel
  - C) Activated alumina
  - D) Potassium permanganate
- 22) For the separation of which of the following substances, Gas-solid chromatography is being used?
- A) Thermally stable organic components
  - B) Volatile organic components
  - C) Thermally stable inorganic components
  - D) Low molecular weight gaseous species
- 23) Which of the following statements are true regarding PCR.
- A) Billions of copies of desired DNA can be synthesized from microgram quantities of DNA
  - B) Automated PCR machines are called thermal cyclers
  - C) A thermostable DNA polymerase is required
  - D) all of these

## M/P ENT - 15

- 24) In X-ray spectrometers, the specimen or the sample is placed after which of the following components?
- A) X-ray tube
  - B) Monochromator
  - C) Collimator
  - D) Detector
- 25) Which of the following colour reagents are used in Resin column chromatography?
- A) Marquis reagent
  - B) Benedict reagent
  - C) Ninhydrin
  - D) Nessler's reagent
- 26) \_\_\_\_\_ is essential for collagen synthesis.
- A) Vit A
  - B) Vit C
  - C) Vit E
  - D) Vit K
- 27) \_\_\_\_\_ are basic amino acids.
- A) Valine, Tyrosine, Tryptophan
  - B) Histidine, Arginine, Lysine
  - C) Alanine, Aspartate, Tryptophan
  - D) Lysine, Alanine, Arginine
- 28)  $\alpha$ -helices and  $\beta$ -sheets are \_\_\_\_\_ structural elements.
- A) primary
  - B) tertiary
  - C) secondary
  - D) all of these

- 29) pfam is a \_\_\_\_\_.
- A) Primary protein sequence Database
  - B) Structural Database
  - C) Composite Database
  - D) Secondary protein sequence Database
- 30) BLASTp is useful for \_\_\_\_\_.
- A) Basic search
  - B) Protein-nucleic acid search
  - C) Local search
  - D) Protein-protein search
- 31) Ion exchange chromatography is based on the \_\_\_\_\_
- A) electrostatic attraction
  - B) affinity
  - C) adsorption
  - D) partition
- 32) Proteins are separated on the basis of \_\_\_\_\_.
- A) net electric charge
  - B) solubility in salt solutions
  - C) size or mass
  - D) all of these
- 33) In \_\_\_\_\_, the fungus forms a compact mantle or sheath over the root surface and hyphae grow out into the soil.
- A) ectomycorrhiza
  - B) VA mycorrhiza
  - C) ericoid mycorrhiza
  - D) orchidaceous mycorrhiza

- 34) \_\_\_\_\_ is the causative agent of tikka disease of groundnut.
- A) *Cercospora beticola*
  - B) *Cercospora personata*
  - C) *Cercospora musae*
  - D) *Cercospora nicotiana*
- 35) \_\_\_\_\_ is not used as a propellant gas for preservation of pasteurized packaged foods.
- A) Carbon dioxide
  - B) Nitrogen
  - C) Sulphur dioxide
  - D) Nitrous oxide
- 36) Fortified wines contain \_\_\_\_\_ percent of alcohol by volume.
- A) 5 to 10
  - B) 10 to 15
  - C) 19 to 21
  - D) 25 to 35
- 37) \_\_\_\_\_ is a milk borne disease of bovine origin.
- A) Diphtheria
  - B) Scarlet fever
  - C) Tuberculosis
  - D) Sore throat
- 38) \_\_\_\_\_ is a byproduct of acetone butanol fermentation by *Clostridium* species.
- A) Riboflavin
  - B) Cobalmin
  - C) Niacin
  - D) Folic Acid



## M/P ENT - 15

- 39) \_\_\_\_\_ is a major organic acid produced by microbial process and used in food materials.
- A) Lactic acid
  - B) Acetic Acid
  - C) Propionic acid
  - D) Citric Acid
- 40) In polluted lake, the index of pollution is \_\_\_\_\_.
- A) Aaphnia
  - B) Artcmisia
  - C) Algae
  - D) Bacteria
- 41) Among following, what is the purpose of secondary treatment of sewage?
- A) to reduce BOD
  - B) to increase chlorine content
  - C) ammonification
  - D) to increase O<sub>2</sub> content
- 42) The result of numeral taxonomic analysis is often summarized as \_\_\_\_\_.
- A) dendrogram
  - B) similarity matrix
  - C) phenons
  - D) matching coefficient

- 43) T cells are killer cells which \_\_\_\_\_.
- A) destroy invader but not the infected cells
  - B) destroy the infected cells and its invader
  - C) destroy infected cells but not the invader
  - D) fuses with infected cells and invader cell
- 44) The mode of action of sulfonamides is by inhibition of \_\_\_\_\_.
- A) cell wall synthesis
  - B) folic acid metabolism
  - C) DNA replication
  - D) sulphur metabolism
- 45) Anaphylaxis is initiated by \_\_\_\_\_.
- A) IgE bound to mast cell
  - B) Antigen bound to IgE on mast cell
  - C) Antigen bound to mast cell
  - D) All of these
- 46) Which of the following virus has a single stranded positive sense RNA genome?
- A) Influenza
  - B) Polio
  - C) Hepatitis B
  - D) Pox
- 47) Taq polymerase is a \_\_\_\_\_ enzyme.
- A) DNA Polymerase
  - B) RNA Polymerase
  - C) Polynucleotide Ligase
  - D) Reverse Transcriptase

- 48) Lichen is a \_\_\_\_\_ association in between algae and fungi.
- A) Symbiotic
  - B) Nonsymbiotic
  - C) Antagonistic
  - D) Parasitic
- 49) Conversion of one molecule of acetyl Co-A into  $2\text{CO}_2$  through TCA cycle gives \_\_\_\_\_.
- A)  $3\text{NADH} + \text{FADH}_2 + \text{GTP}$
  - B)  $2\text{NADH} + 2\text{FADH}_2 + \text{GTP}$
  - C)  $1\text{NADH} + 3\text{FADH}_2 + \text{GTP}$
  - D)  $2\text{NADH} + 1\text{FADH}_2 + \text{GTP}$
- 50) Restriction enzymes used in the genetic engineering technology are \_\_\_\_\_.
- A) Endonucleases
  - B) Exonucleases
  - C) Polynucleotide ligases
  - D) DNA polymerases



**Rough Work**