

Seat No.	
-------------	--

**M.Phil/Ph.D. Entrance Examination, September - 2022****MICROBIOLOGY****Sub. Code : 58797****Day and Date : Friday, 23 - 09 - 2022****Total Marks : 100****Time : 01.00 p.m. to 03.00 p.m.**

- 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.

**SECTION - I**

- 1) The Impact Factor of a journal is the average number of times each of its articles is cited in the \_\_\_\_\_ years after publication.  
  
(A) one (B) three  
(C) four (D) two
- 2) When you copyright a research paper, you own the copyright for the length of \_\_\_\_\_.  
  
(A) life plus 50 years (B) 50 years  
(C) life plus 20 years (D) life plus 5 years

***P.T.O.***

- 3) Listing of the authors other than corresponding author is in the order of their \_\_\_\_\_.
- (A) age (B) seniority  
(C) contributions (D) affection
- 4) \_\_\_\_\_ are pairs of words with the same meaning but different sound and can be misused.
- (A) Synonyms (B) Acronyms  
(C) Heterophones (D) Homophones
- 5) Most effective posters for presentations provide \_\_\_\_\_.
- (A) Minimal text  
(B) Minimal space  
(C) Maximum text  
(D) Minimal drawings
- 6) Oral presentation are appropriate when the research has \_\_\_\_\_.
- (A) broad scope  
(B) complicated theme  
(C) limited scope  
(D) wide applications
- 7) \_\_\_\_\_ is continuous use of technical words unnecessarily in manuscript.
- (A) Homophones  
(B) Metaphors  
(C) Ornamentary  
(D) Jargon

- 8) The feasibility of a research study should be considered in the light of \_\_\_\_\_.
- (A) Potential ethical concerns
  - (B) Skills required for the researcher
  - (C) Cost and time required to conduct the research
  - (D) All of above
- 9) The main purpose of research in education is to \_\_\_\_\_.
- (A) Help in the personal growth of an individual
  - (B) Help the candidate become an eminent educationist
  - (C) Increase job prospects of an individual
  - (D) Increase social status of an individual
- 10) Sampling is advantageous as it \_\_\_\_\_.
- (A) Helps in capital-saving
  - (B) Saves time
  - (C) Increases accuracy
  - (D) Both (A) and (B)
- 11) 'Internal criticism' is a required step in \_\_\_\_\_.
- (A) Experimental Research
  - (B) Historical Research
  - (C) Descriptive Research
  - (D) Philosophical Research

- 12) Random sampling is helpful as it is \_\_\_\_\_.  
(A) An economical method of data collection  
(B) Free from personal biases  
(C) Reasonably accurate  
(D) All the above
- 13) Tippit table refers to \_\_\_\_\_.  
(A) Table of random digits  
(B) Table used in sampling methods  
(C) Table used in statistical investigations  
(D) All the above
- 14) \_\_\_\_\_ screening allow the determination of capability of microorganism to produce an industrially important product.  
(A) Primary  
(B) Secondary  
(C) Tertiary  
(D) All of these
- 15) Bacterial inoculum is transferred to production media when bacteria are \_\_\_\_\_.  
(A) metabolically active  
(B) in dormant stage  
(C) in sporulating stage  
(D) none of the above

- 16) \_\_\_\_\_ is a major concern in inoculum development for fermentations employing recombinant bacteria.
- (A) Strain improvement
  - (B) Strain stability
  - (C) Strain availability
  - (D) All of the above
- 17) Strain improvement does not increase \_\_\_\_\_.
- (A) Product yield
  - (B) Strain stability
  - (C) Resistance to phage infection
  - (D) Intolerance to media
- 18) Large volumes of strong industrial effluents can be better treated by \_\_\_\_\_.
- (A) chlorination
  - (B) bio-towers
  - (C) sedimentation
  - (D) filtration
- 19) \_\_\_\_\_ sparger has a single opening or partially closed pipe that provides the stream of air bubbles avoiding sparger blockage.
- (A) Nozzle
  - (B) Orifice
  - (C) Porous
  - (D) Impeller

- 20) Among following \_\_\_\_\_ technique makes use of the difference in net charges of proteins at a given pH.
- (A) Thin layer chromatography
  - (B) Ion exchange chromatography
  - (C) High performance liquid chromatography
  - (D) Paper chromatography
- 21) \_\_\_\_\_ technique separate proteins based on different pH at which it is electrically neutral.
- (A) Isoelectric focussing
  - (B) Immuno electrophoresis
  - (C) Chromatography
  - (D) HPLC
- 22) Resolving power of a microscope can be increased by \_\_\_\_\_
- (A) using an illumination of longer wavelength and by decreasing the NA
  - (B) using an illumination of longer wavelength and by increasing the NA
  - (C) using an illumination of shorter wavelength and by increasing the NA
  - (D) using an illumination of shorter wavelength and by decreasing the NA
- 23) Among following \_\_\_\_\_ is a primary protein sequence database.
- (A) GenBank
  - (B) PDB
  - (C) BLOCKS
  - (D) PIR

- 24) BLAST stands for \_\_\_\_\_.
- (A) Basic local alignment sequence tool
  - (B) Basic local alignment search tool
  - (C) Basic locally aligned search tool
  - (D) Basic lower alignment sequence tool
- 25) In \_\_\_\_\_ technique sorting out of molecules according to size and shape may be adapted to protein purification.
- (A) Adsorption chromatography
  - (B) Gel filtration chromatography
  - (C) Paper chromatography
  - (D) None of these

**SECTION - II**

- 26) 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
- 27) \_\_\_\_\_ is the causative agent of tikka disease of groundnut.
- (A) *Cercospora beticola*
  - (B) *Cercospora personata*
  - (C) *Cercospora musae*
  - (D) *Cercospora nicotiana*
- 28) \_\_\_\_\_ is a high acid food.
- (A) Sauerkraut
  - (B) Meat
  - (C) Spinach
  - (D) Pears

## M/P ENT - 23

- 29) \_\_\_\_\_ is not used as a propellant gas for preservation of pasteurized packaged foods.
- (A) Carbon dioxide (B) Nitrogen  
(C) Sulphur dioxide (D) Nitrous oxide
- 30) \_\_\_\_\_ is largely responsible for production of desirable aroma and flavor in milk products.
- (A) *Streptococcus lactis* (B) *Streptococcus diacetylactis*  
(C) *Streptococcus thermophilus* (D) *Streptococcus cremoris*
- 31) \_\_\_\_\_ cheese is known as blue cheese.
- (A) Roquefort (B) Cheddar  
(C) Swiss (D) Camembert.
- 32) In polluted lake, the index of pollution is \_\_\_\_\_.
- (A) Daphnia (B) Arctemia  
(C) Algae (D) Bacteria
- 33) The disinfection of public water supplies by chlorination requires ideally the addition of enough chlorine to leave residual of \_\_\_\_\_ mg/lit of free chlorine.
- (A) 0.01 to 0.02 (B) 2 to 5  
(C) 5 to 10 (D) 0.1 to 0.2
- 34) The specificity of an antibody is due to \_\_\_\_\_.
- (A) the variable portion of the heavy and light chain  
(B) the heavy chains  
(C) the Fc portion of the molecule  
(D) its valence
- 35) Naturally acquired active immunity would be most likely acquired through \_\_\_\_\_.
- (A) natural birth  
(B) drinking colostrum  
(C) vaccination  
(D) infection with disease causing organism followed by recovery



- 36) \_\_\_\_\_ is the evolutionary relationships which is hard to find with bacteria because of lack of fossil records.
- (A) Genotypic (B) Ecological  
(C) Phylogenics (D) Systematics
- 37) Rare mutations that confer a growth advantage is known as \_\_\_\_\_.  
(A) Systematics  
(B) Adaptive Mutations  
(C) Genetic Drift  
(D) Identification
- 38) Serological typing of \_\_\_\_\_ can be carried out by Quellung reaction.  
(A) *Vibrio cholerae*  
(B) *Treponema pallidum*  
(C) *Streptococcus pneumoniae*  
(D) *Clostridium perfringe*
- 39) \_\_\_\_\_ is non-organ specific auto-immune disease.  
(A) Myasthenia gravis  
(B) SLE  
(C) Hashimoto's thyroiditis  
(D) Pernicious anemia
- 40) Among following which method is used to determine the primary structure of proteins.  
(A) Electrophoresis (B) Chromatography  
(C) Ninhydrin (D) Edman degradation
- 41) Identification of bacteria is carried out by \_\_\_\_\_.  
(A) 16S rRNA sequencing  
(B) 18S rDNA sequencing  
(C) 23S rDNA sequencing  
(D) Dabsyl chloride

- 42) In which database three-dimensional structures of nucleic acids and associated molecules are stored?
- (A) MIPS
  - (B) CATH
  - (C) EMBL
  - (D) NDB
- 43) Low level computer language uses \_\_\_\_\_.
- (A) english words
  - (B) limited grammar
  - (C) mnemonic codes
  - (D) mathematical symbols
- 44) \_\_\_\_\_ is essential for the synthesis of collagen.
- (A) Vit A
  - (B) Vit C
  - (C) Vit E
  - (D) Vit K
- 45) Riboflavin is a by-product of \_\_\_\_\_ fermentation carried out by *Clostridium* spp.
- (A) citric acid
  - (B) acetone butanol
  - (C) streptomycin
  - (D) ethanol
- 46) Addition of \_\_\_\_\_ favors the production of Rifampicin B.
- (A) Lactic Acid
  - (B) Acetic Acid
  - (C) Barbituric Acid
  - (D) Sulfuric Acid

- 47) In bacteria, Okazaki fragments are about \_\_\_\_\_ nucleotides long.
- (A) 100 to 200
  - (B) 1,000 to 2,000
  - (C) 200 to 400
  - (D) 400 to 600
- 48) DNA replication involves action of \_\_\_\_\_ for releasing stress in the helical DNA structure created due to strand separation.
- (A) DNA Pol-I
  - (B) DNA Pol-II
  - (C) topoisomerases
  - (D) helicase
- 49) The mammalian estrogen receptor protein gene is used as a \_\_\_\_\_.
- (A) transcriptional control
  - (B) post-translational switch
  - (C) homologous promote
  - (D) recombinant switch
- 50) Cap snatching process is involved in productive cycle of \_\_\_\_\_ virus.
- (A) Influenza
  - (B) Herpes
  - (C) Adeno
  - (D) Pox



**Rough Work**