ENT-20

Seat No.	

Total No. of Pages : 16

P.G. Entrance Examination, July - 2023

M.Sc. Microbiology/Pharmaceutical Microbiology/ Industrial Microbiology/Gen. Microbiology

Sub. Code : 58717

Day and Date : Tuesday, 18-07-2023 **Total Marks : 100**
Time : 1.00 p.m. to 2.30 p.m.

Instructions :
1) **All questions are compulsory.**
2) **Each question carries 1 mark.**
3) **Answers should be marked in the given OMR answer sheet by darkening the appropriate option.**
4) **Follow the instructions given on OMR Sheet.**
5) **Rough work shall be done on the sheet provided at the end of question paper.**

1) The number of rabbits used in original pyrogen test is_____.
   A) 2 B) 3
   C) 4 D) 5

2) The pigment form grape skin which is responsible for colour of red wine is_____.
   A) Anthocyanin B) Pyocyanin
   C) Lecitinin D) Cyctocin

3) The most commonly used filter aid is_____.
   A) talc B) sand
   C) kieselguhr D) charcoal

4) In gel chromatography, molecules are separated on the basis of_____.
   A) surface binding B) charge
   C) size D) affinity

P.T.O.

5) The antimicrobial substance present in egg white is_____.

A) alcohol B) lysozyme

C) acid D) albumin

6) The two major aflatoxins are_____.

A) B1 & G1 B) B2 & G2

C) B3 & G3 D) B4 & G4

7) The most efficient method used in preservation of industrially important microorganism is_____.

A) Lyophilization B) Sterilization

C) Freezing D) Drying

8) _____involves increasing efficiency of fermentation microorganism so that increase in the product yield will occur.

A) Assay B) Scale Up

C) Strain improvement D) Screening

9) _____ assays are highly specific and carried out for quantitative detection of minute amount of product.

A) Metabolic response B) Turbidometric

C) Diffusion D) Enzymatic

10) _____is used to extract alcohol from the fermented broth.

A) Flocculation B) Solvent extraction

C) Distillation D) Chromatography

11) _____refers to the time taken to kill a population of the target microorganism at a specific temperature.

A) TDP B) TDT

C) D value D) F value

12) According to folded fibre model of *E.coli* chromosome,_____are responsible for supercoiling of DNA.

A) RNA B) proteins

C) lipids D) carbohydrates

13) The environmental conditions under which a mutation is phenotypically not expressed are called_____conditions.

A) non-permissive B) restrictive

C) permissive D) selective

14) Streptomycin remedial mutants is an example of_____suppression.

A) Nonsense B) Missense

C) Frameshift D) Nongenetic

15) Transposons were first discovered in_____.

A) Mice B) Rice

C) Maize D) Bacteria

16) DNA fingerprinting is based on_____.

A) Bulk DNA B) Polymorphism in sequence

C) Error in base sequence D) DNA coiling

17) Alkaline phosphatase is used to_____.

A) remove terminal phosphates from 3’ end

B) remove terminal phosphates from 5’ end

C) remove terminal phosphates both 3’ and 5’ ends

D) All of these

18) The organism used in the production of insulin by genetic engineering is_____.
A) *Saccharomyces* B) *Rhizobium*
C) *Escherichia* D) *Mycobacterium*

19) Shot gun method is used for_____.
A) isolation of passanger DNA B) ligation of two copies of DNA
C) transfer of rDNA into host cell D) selection of recombinants

20) Plasmids are ideal vectors for gene cloning as_____.
A) They can be multiplied by culturing
B) They can be multiplied in the laboratory using enzymes
C) They can replicate freely outside the bacterial cell
D) They are self-replicating within the bacterial cell

21) Introduction of DNA into cells by exposing to high voltage electric pulse is called_____.
A) electrophoresis B) electrofusion
C) electroadsorption D) electroporation

22) Kappa particles reproduce by_____.
A) sexual mode B) binary fission
C) spore germination D) budding process

23) The capsid of_____virus shows 5,3,2 rotational symmetry.
A) Vaccinia B) T4
C) Adeno D) TMV

24) Prions contain_____as its structural component.
A) RNA B) DNA
C) proteins D) envelope

25) _____virus is transmitted from animals to humans.
A) Rabies B) T4
C) Cytomegalo D) Polio

26) Bacteriophages are readily counted by the process of_____.

A) Immunoassays
B) ELISA
C) Plaque assays
D) Light Microscopy

27) Bacteriophages that can enter into stable, long-term relationships with their hosts are called_____.

A) Temperate phages
B) Lytic phages
C) Defective phages
D) Virulent phages

28) Generally, most of the RNA viruses multiplies in_____of cell.

A) Nucleus
B) Mitochondria
C) Chloroplast
D) Cytoplasm

29) _____is having a complex type of capsid.

A) Influenza virus
B) Adenovirus
C) Viroids
D) Prions

30) Cancer cells show_____.

A) mortality
B) loss of contact inhibition
C) high cellular adhesion
D) higher serum requirement

31) Lock washer formation occurs during the assembly of_____virus.

A) TMV
B) HIV
C) HPV
D) Polio

32) HIV virus contains_____molecules of RNA.

A) 2
B) 3
C) 4
D) 5

33) The bioremediation techniques applied to excavated materials is called as_____bioremediation.

A) in situ
B) ex situ
C) artificial
D) both in situ and artificial

34) _____is used as an oxidizing agent in COD determination of sewage.

A) $K_2Cr_2O_7$
B) $MnSO_4$
C) $CaSO_4$
D) KH_2PO_4

35) _____is a measure of combined content of all inorganic and organic matter in sewage.

A) Total solids
B) Total dissolved solids
C) Total volatile solids
D) Total suspended solids

36) _____is used to treat sewage on small scale.

A) Activated sludge
B) Septic tank
C) Disinfection
D) Trickling filter

37) The number of bacteria living on a non-sterilized surface is called as_____.

A) biomass
B) bioburden
C) bioaccumulation
D) biomagnification

38) Root zone technology method of wastewater treatment contain_____zones where biodegradation occurs.

A) aerobic
B) anoxic
C) anaerobic
D) aerobic, anoxic and anaerobic

39) _____is the waste generated by distillery industry.

A) Spent wash
B) Bagasse
C) Molasses
D) Press mud

40) The value of Secchi depth (metres) is usually high in case of_____lakes.

A) oligotrophic
B) mesotrophic
C) eutrophic
D) both oligo and mesotrophic

41) _____species is most commonly used in copper bioleaching.

A) Salmonella
B) Pseudomonas
C) Thiobacillus
D) Lactobacillus

42) Phytoremediation involves the use of_____for removal of pollutants from the environment.

A) bacteria
B) plant
C) protozoa
D) fungi

43) Hassall's corpuscles are found in_____.

A) Spleen
B) Thymus
C) Bone Marrow
D) Peyer's patches

44) Serum differs from blood as it lacks_____.

A) Albumins
B) Globulins
C) Clotting factors
D) None of these

45) Non serological Pathway which can activate complement is called as_____pathway.

A) Classical
B) Properdin
C) EMP
D) P.A.

46) Type I hypersensitivity involves_____.

A) IgD
B) IgM
C) IgE
D) IgG

47) _____is the cytokines which act as a T-cell growth factor.

A) IL-3
B) IL-2
C) IL-4
D) IL-5

48) _____medium is used for selection of hybrid cells in hybridoma technique.

A) HPRT
B) HAT
C) PEG
D) LJ

49) Interferons are made up of_____.

A) Glycoproteins
B) Lipoproteins
C) Phospholipids
D) Glycolipids

50) _____showed delayed type of hypersensitivity to tuberculin antigens in TB patients.

A) Pasteur
B) Koch
C) Jenner
D) Boudin

51) Cytosolic T-cells_____.

A) Help in B-cell activation
B) Produce cytotoxin
C) Proliferate T-cell
D) Kill the target cell

52) The autoimmune disorder with an elevated anti-thyroglobulin antibody is known as_____.

A) Hashimoto thyroiditis
B) Grave's disease
C) Goodpasture syndrome
D) None of the above

53) When a small dose of antigen gives rise to immunological tolerance, it is called_____.

A) Medium Zone Tolerance
B) Low Zone Tolerance
C) High Zone Tolerance
D) Moderate Zone Tolerance

54) Methods of acquired drug resistance in bacteria include_____.

A) Production of enzyme
B) Expression of efflux pumps
C) Alternation of porin channels
D) All of these

55) Chancre is feature of_____.

A) Primary syphilis
B) Secondary syphilis
C) Tertiary syphilis
D) Latent syphilis

56) The clinical condition caused by *Clostridium perfringens* type C is_____.

A) Gangrenous appendicitis
B) Pseudomembranous colitis
C) Severe necrotizing enteritis
D) Neutropenic colitis

57) The biochemical reaction that helps in the identification of *Mycobacterium tuberculosis* is_____.

A) Niacin test
B) Aryl salfatase test
C) Heat stable catalase test
D) Oxidase test

58) Cholera-red reaction indicates_____property of Vibrios.

A) Nitrate reduction
B) Lactose fermentation
C) Indole production
D) Both nitrate reduction and indole production

59) Cardiolipin antigen of *Treponema pallidum* is_____.

A) Specific antigen
B) Non-specific antigen
C) An extract from non-pathogenic treponemas
D) Used in TPHA test

60) _____of the following is the most constant property associated with virulence of *staphylococcus aureus*.

A) Pigment production
B) Catalase production
C) Coagulase production
D) Mannitol fermentation

61) The common HBV subtype present in southern and eastern parts of India is_____.

A) adw
B) adr
C) ayw
D) ayr

62) Azidothymidine inhibits HIV by blocking_____.

A) reverse transcriptase
B) viral assembly
C) viral attachment
D) increasing immunity of the patient

63) All of the following are the distinguishing properties of *Mycobacterium tuberculosis* except_____.

A) A major respiratory pathogen
B) It is an acid-fast bacteria
C) The cell wall consists of mycolic acid
D) A fast grower and usually easy to grow in artificial media

64) The role of_____is performed by a bacteriophage in transduction.

A) vector
B) donor
C) recipient
D) episome

65) _____cell organelles is absent in prokaryotic cells.

A) Nucleus B) Lysosome

C) Endoplasmic Reticulum D) All of the above

66) The outer membrane of the Gram-negative cell wall is anchored to the underlying peptidoglycan by means of_____.

A) Braun's Lipoprotein B) Phospholipids

C) Proteins D) Lipopolysaccharide

67) _____is the incorrect statement about plasmids.

A) they are circular B) they replicate independently

C) they are transferrable D) they are single stranded

68) Dimer formation occur between_____.

A) A-G B) T-A

C) C-G D) T-T

69) Widal test is an example of_____.

A) agglutination B) precipitation

C) complement fixation D) neutralization

70) Endotoxin produced by gram negative bacteria is present in_____.

A) Peptidoglycan B) Lipopolysaccharide

C) Teichoic acid D) Inner membrane

71) Sulphur oxidizing bacteria is_____.

A) Alcaligenes B) Pseudomonas

C) Thiobacillus D) None of these

72) Streptococcus forms causes_____type of infections.

A) Fever B) Zoonotic

C) Pyogenic D) None of these

73) In autoclave, the principle involved is_____.

A) Dry heat
B) Moist heat
C) Steam under pressure
D) Both (B) and (C)

74) _____is a trace element for bacteria.

A) Mg^{+2}
B) Na^{+}
C) Ca^{+2}
D) Mn^{+2}

75) In bacteria, the increase in population is in the_____manner.

A) Geometric progression
B) Multiplication
C) Doubling
D) None of these

76) Double stranded RNA is seen in_____.

A) Reo virus
B) Rhabdo virus
C) Parvo virus
D) Retro virus

77) Causative agent of anthrax was discovered by_____.

A) Robert Koch
B) Edward Jenner
C) Joseph Lister
D) Louis Pasteur

78) One cistron one polypeptide hypothesis was developed by_____.

A) Beadle and Tatum
B) Ochoa
C) Lederberg
D) Delbruck

79) _____is resolving power of compound microscope.

A) 2 mm
B) 0.2 mm
C) 0.2 μm
D) 2 μm

80) In Preparatory phase of glycolysis consumes_____molecules for glucose degradation.

A) GTP
B) ATP
C) $NADH_2$
D) None of these

81) Microbial inhibition spectrum of antibiotics is determined by_____technique.

A) Crowded plate
B) Simple plate
C) Minute colony
D) Giant colony

82) Chemoreceptors are involved in_____process.

A) chemotaxis
B) phototaxis
C) aerotaxis
D) magnetotaxis

83) Peptidoglycan is made up of_____.

A) N-acetylglucosamine
B) N-acetylmuramic acid
C) N-acetylglucosamine, N-acetylmuramic acid
D) N-acetylglucosamine, N-acetylmuramic acid, amino acids

84) _____is a phenomenon that converts nitrogen into oxides of nitrogen.

A) Greenhouse effect
B) Lightening
C) Raining
D) Oceans

85) _____cycle is a sedimentary type of biogeochemical cycle.

A) Carbon
B) Nitrogen
C) Phosphorus
D) Oxygen

86) _____is an example of non-symbiotic nitrogen fixer.

A) Azotobacter
B) Trichoderma
C) Rhizobium
D) Aspergillus

87) _____is opportunistic avirulent plant symbiont.

A) Lichen
B) Trichoderma
C) Azotobacter
D) Aspergillus

88) _____test is important for confirmation of rhizobial isolate.

A) Ceiling B) Labelling

C) Plating D) Nodulation

89) The enzymes which are produced by the cell in response to the presence of particular substrate or a related substance is called as_____enzymes.

A) inducible B) constitutive

C) intracellular D) extracellular

90) _____enzymes do not follow M-M equation.

A) Allosteric B) Isoenzymes

C) Ribozymes D) Non regulatory

91) In ion-exchange chromatography proteins are separated on the basis of their_____character.

A) Molecular size B) Molecular weight

C) Electrical charge D) Solubility

92) Major enzyme involved in Glyoxylate pathway is_____.

A) Isocitrate dehydrogenase B) Isocitrate lyase

C) Isocitrate decarboxylase D) Aldolase

93) The____method is most widely used method for enzyme assay.

A) Turbidometric assay B) Chemical assay

C) Spectrophotometric assay D) Bioassay

94) GOGAT system is related with____assimilation.

A) carbon B) nitrogen

C) sulfur D) hydrogen

95) Conversion of messages carried by m-RNA into amino acid sequence is called as_____.

A) Replication
B) Translation
C) Transcription
D) Transversion

96) In enzyme classification, the first digit of enzyme commission number indicates_____of enzyme.

A) class
B) subclass
C) sub-sub class
D) serial number

97) The primary acceptor of CO_2 in carbon assimilation is____.

A) Ribulose monophosphate
B) Ribulose 1, 5 diphosphate
C) Ribose 1 phosphate
D) Ribose 1, 5 diphosphate

98) When initial velocity is half the maximum velocity, Km is equal to____.

A) [ES]
B) [ET]
C) [S]
D) [E]

99) _____color of the soil is due to presence of iron sulfide and manganese oxides.

A) Black
B) White
C) Yellow
D) Red

100) A type of symbiosis in which both species are unaffected is called_____.

A) Negative Association
B) Positive Association
C) Neutral Association
D) Ammensalism

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Rough Work