VIDYASAGAR UNIVERSITY
MIDNAPORE

COMMON ENTRANCE TEST FOR PG ADMISSION, 2019

Question Booklet No. 2417651 Full Marks : 200

Subject: MICROBIOLOGY **Question Booklet Series: A**

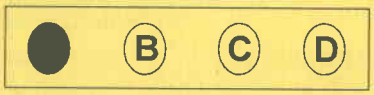
Subject Code No.: 24

Answer all the questions. Each question has the same weightage.

Read the following instructions carefully before you start answering.

INSTRUCTIONS

1. The question Booklet is printed in four Series e.g. (A), (B), (C) and (D). The candidate has to indicate the Series of the question booklet in the space provided in the OMR Answer Sheet . For example, if the candidate gets Series (A) booklet, he / she has to indicate on the front side of the OMR Answer Sheet with Black ink ball point pen only as indicated below:



2. There are 50 questions inside this question booklet. Immediately after you have been instructed to open this question booklet, ensure that any page / question is not missing / not printed / torn /repeated. In case you find any defect anywhere in the question booklet, immediately get it replaced by the Invigilator.

3. Each question carries 4 marks. 1(one) mark will be deducted for each wrong answer(negative marking).

4. Write your Form No and put signature in the space provided.

5. Before answering, write down the necessary information on the OMR Answer Sheet as per your Application Form and Admit Card in the specific space provided.

6. With each question you will find 4 possible answers marked by the letters A, B, C & D. Read each question carefully and find out which answer, according to you, is correct / most appropriate / best. Indicate your answer by darkening the appropriate circle completely in the OMR Answer Sheet corresponding to the question. For marking answers, use black ink ball pen only. If 'B' is the correct answer in a case, mark as below:

7. Do not fold or make any stray marks on the OMR Answer Sheet.

8. You can use the blank space of the last page for rough work. Do not tear it off from the Question Booklet.

9. After the examination has been over, you must submit OMR Answer Sheet to the Invigilator.

10. OMR Answer Sheet is designed for computer evaluation. If you do not follow the instructions given above and shown in the OMR Answer Sheet, it may make evaluation by computer difficult. Any resultant loss to the candidate on the above account shall be of the candidate only.

11. No candidate shall be allowed to use Mobile phone. Log tables or Calculator of any description in the examination hall / room.

1. Acid fast staining of Gram positive mycobacterium is due to
   (A) Presence of dipicolinic acid in the cell wall
   (B) Presence of mycolic acid in the cell wall
   (C) Presence of teichoic acid in the cell wall
   (D) Presence of diaminopimelic acid in the cell wall

2. A bacterial culture had an initial cell density of 10^3 cells/ml. In 6 hrs the cell density reached 10^6 cells/ml. Given the formula for the number of generations, $n=(\log_{10} N_t - \log_{10} N_0)/0.301$. The number of generations (n) will be -
   (A) 3 (B) 10 (C) 15 (D) 20

3. A bacterium of doubling time of 10 minutes fills a cylindrical vessel completely in 3 hrs. How much time will it take to fill half of the vessel?
   (A) 80 minutes (B) 90 minutes (C) 150 minutes (D) 170 minutes

4. Chemolithotrophs are those bacteria which can utilize
   (A) Inorganic material as the energy source
   (B) Light as the energy source
   (C) Organic compound as the electron source
   (D) Crude oil as carbon source

5. Which of the following is a prokaryotic organism
   (A) Virus (B) Mold (C) Yeast (D) Bacteria

6. Which organism, uses light as the source of energy
   (A) Aspergillus (B) Saccharomyces (C) Paramecium (D) Cyanobacteria

7. Gram negative bacterial cell wall is consisting of
   (A) Techoic acid (B) Cholesterol (C) Tubulins (D) Lipo-polysacharide

8. The total number of ATP produced through EMP pathway
   (A) 1 (B) 2 (C) 8 (D) 38

9. The group of bacteria that don't have cell walls are the
   (A) Archaebacteria (B) Mycobacteria
   (C) Mycoplasma (D) Both (A) and (B)

10. VAM is an organism responsible for
    (A) Nitrogen fixation (B) Nitrification (C) Decomposition (D) Phosphate solubilization

11. Which is the most effective process for sterilization?
    (A) Dry heat (B) Refrigeration (C) Filtration (D) Moist heat

12. Which of the following sequence has helped in identifying bacteria?
    (A) 16 S RNA sequence (B) 18 S RNA sequence
    (C) Shine-Dalgarno sequence (D) Amino acid sequence

13. Which of the following statements is most likely explanation for the rapid spread of drug resistant bacterial strain
    (A) Drug induced mutation that produces resistant strain
    (B) Genetic variability that results from increased recombination of homologous chromosome during meiosis
    (C) Plasmid mediated exchange of resistant genes
    (D) Gene conversion that results in the evolution of resistance genes

14. Analysis of mean in a group of sample is detected the
    (A) Highest value (B) Frequently occurring value (C) Average value (D) None of these

15. In an $F^+ \times F^-$ cross
(A) The F+ cell becomes an Hfr cell
(B) The F- cell becomes Hfr cell
(C) The F+ cell becomes F- cell
(D) The F- cell becomes F+ cell

16. BOD value indicates
(A) Inorganic matter loads in water
(B) Particulate matter loads in water
(C) Microbial loads in water
(D) All of these

17. Match the following

	Name of the bacteria		Mode of action
1.	*Corynebacterium diptheriae*	P.	Block release of acetylcholine
2.	*Clostridium tetani*	Q.	Binds to Class II MHC protein
3.	*Clostridium botulinum*	R.	Inactivates EF-2 by ADP ribosylation
4.	*Staphylococcus aureus*	S.	Blocks release of the inhibitory neurotransmitter glycine

(A) 1-R, 2-P, 3-Q, 4-S (B) 1-P, 2-Q, 3-R, 4-S (C) 1-S, 2-R, 3-P, 4-Q (D) 1-R, 2-S, 3-P, 4-Q

18. The genome of HIV virus is
(A) DNA (B) DNA-RNA hybrid (C) RNA (D) Fragmented DNA

19. Optical density (OD) value of a solution is depending on
(A) Concentration (B) Depth (C) Concentration and depth (D) Volume

20. Macrophage is belonging to
(A) Lymphocyte (B) Neutrophil (C) Monocyte (D) Eosinophil

21. Interferons
(A) Activate B cells to make virus specific antibodies
(B) Are TH2 cytokines
(C) Are virus proteins that interfere with activation of cytotoxic T cells
(D) Inhibit virus replication by infected cells

22. Which is not a reducing sugar
(A) Lactose (B) Maltose (C) Arabinose (D) Sucrose

23. Individuals exposed to small pox virus are immune to same disease due to
(A) Presence of larger quantities of antibodies
(B) Presence of long lived memory cells
(C) Healthy lifestyle
(D) Generation of antigen specific macrophages

24. Haptens
(A) Require carrier molecules to be immunogenic
(B) React with specific antibodies when homologous carriers are not employed
(C) Interact with specific antibody, even if the haptens are monovalent
(D) All of the above

25. Which of the following is / are effective food preservation technique
(A) Drying (B) Refrigeration (C) Salting (D) All of these

26. Lactic acid fermentation process in demonstrated by-
(A) Antony van Leeuwenhoek
(B) Louis Pasteur
(C) Robert Koch
(D) Joseph Lister

27. Prions are-
(A) Disease causing element made by carbohydrate
(B) Disease causing element made by protein
(C) Disease causing element made by lipid
(D) Disease causing element made by glyco-lipid

28. Down stream processing of an industrial product is associated with
(A) Solvent extraction (B) Centrifugation (C) Distillation (D) All of the above

29. Fermented food refers to
(A) Food containing microbes
(B) Food without microbes
(C) Microbes as food
(D) Microbes / starter based prepared food

30. Which of the following is combination of beneficial and pathogenic yeast, respectively
(A) Saccharomyces and Candida
(B) Candida and Saccharomyces
(C) Cryptococcus neoformans and Saccharomyces
(D) Cryptococcus neoformans and Candida

31. Which of the following microorganism was approved by NASA by as space food
(A) Lactobacillus (B) Agaricus (C) Spirulina (D) Saccharomyces

32. Probiotics are
(A) Lactic acid producing bacteria
(B) Beneficial to health
(C) Immuno-stimulatory
(D) All of the above

33. Which of the following is both selective and differential media?
(A) Nutrient agar (B) Czapek Dox agar (C) Mac-Conkey agar (D) Muller Hington agar

34. The chemical composition of agar is
(A) Carbohydrate (B) Protein (C) gluten (D) glycolipid

35. The maximum magnification of ---------- can be achieved by scanning electron microscope
(A) 2000x (B) 200000x (C) 10000000x (D) 20000000000x

36. The role of Gram's iodine in Gram staining is-
(A) Staining reagent (B) Mordant (C) Decolorizing agent (D) Denaturing agent

37. Protoplast is-
(A) Living plant or bacterial cell whose cell wall has been removed
(B) Living plant or bacterial cell whose cell membrane has been removed
(C) Non-living plant or bacterial cell whose cell wall has been removed
(D) Non-living plant or bacterial cell whose cell membrane has been removed

38. Which of the following is the indirect method of measurement of bacterial growth in laboratory
(A) Measurement of cell mass
(B) Turbidometry
(C) Both A and B
(D) Colony count

39. Organism that can tolerate high atmospheric pressure is called
(A) Osmophiles (B) Xerophiles (C) Halophiles (D) Piezophiles

40. Which of the following is not a polysaccharides
(A) Dextrin (B) Chitin (C) Pectin (D) Xylan

41. After reacting with ninhydrin reagent amino acid produces Ruhemann's purple except in the case of-
(A) Histidine (B) Proline (C) Glycine (D) Alanine

42. Which type of RNA is most abundant in the cell?
(A) m-RNA (B) t-RNA (C) r-RNA (D) hn-RNA

43. A nucleoside is composed of-
(A) Phosphate + ribose
(B) Base + phosphate
(C) Base + ribose
(D) Base + phosphate + ribose

44. Which of the following fatty acid have maximum unsaturation
(A) Linoleic acid (B) Linolenic acid (C) Stearic acid (D) Arachidonic acid

45. Which one of the following enzyme is allosteric enzyme
(A) Hexokinase
(B) Phosphofructokinase
(C) Pyruvate kinase
(D) Glucokinase

46. The basis of calculation of 1 NADH = 3 ATP and 1 $FADH_2$ = 2 ATP associated with
(A) Energy content in these molecules
(B) Energy released by these molecules
(C) H-ion flux during ETC followed by ATP synthesis
(D) None of these

47. Which of the following bacteria is nitrogen fixer
(A) Azotobacter (B) Pseudomonas (C) Clostridium (D) All of these

48. Which of the following is associated with the secondary wastewater treatment
(A) Activated Sludge (B) Oxidation Pond (C) Trickling filter (D) All of the above

49. Blue-white selection method is carried out for screening of recombinant when ------- vector is used
(A) pBR322 (B) pUC19 (C) Ti-plasmid (D) Phasemid

50. A point mutation that replaces a purine with another purine, or a pyrimidine with another pyramidine
(A) Nonsense mutation
(B) Silent mutation
(C) Transition
(D) Transversion