

ବେନେମ୍ସ୍ of Aliah

Question Booklet No.	Question Booklet Series: B
----------------------	----------------------------

AUAT – 2019 2-Year M.Sc. in Microbiology (40) (TEST BASED ON MCQ)

Full Marks: 100

Duration: 2 Hours

Roll No. of the Candidate: _____

Date of Examination: _____

Name of Examination Centre: _____

Signature of the Candidate: _____

Signature of the Invigilator on
Verification

IMPORTANT INSTRUCTIONS

Candidates should read the below instructions carefully and follow them accordingly.

1. The Question Booklet has paper seal pasted on it. Please do NOT open the Question Booklet until you are asked to do so by the Invigilator.
2. The Candidates must check immediately after breaking the seal that the Question Booklet contains 100 multiple choice questions in two parts (Part – I and Part – II).
3. Answer of questions of Part – I and Part – II both will have to be given on the *OMR Answer Sheet* provided for this purpose. Fill up the necessary fields that are intended for you by writing and/ or shading appropriately. Otherwise the *OMR Answer Sheet* cannot be evaluated and will be liable to be rejected. Question numbers progress from 1 to 100 continuously with alternative answers being shown as (a), (b), (c) and (d) for each question. Record your response by completely darkening the corresponding bubble. While responding, you should consider the best alternative answer and shade only one bubble with **black/ blue ball point pen only**. For each correct response you will be awarded 1 mark. There will be negative marking for wrong responses. For each wrong response, -0.25 will be awarded. Multiple responses against one MCQ will be treated as a wrong response.
4. On leaving the examination hall, candidates must submit the OMR Answer Sheet. They are allowed to keep the Question Booklet with them.
5. OMR answer Sheets will be processed by electronic means. Any untoward/ irrelevant remarks, folding or putting stray notes on the answer sheet, any damage to the answer sheet will lead to the rejection of the same and the sole liability shall remain with the candidate.
6. Rough Work may be done at the end of the Question Booklet.
7. No Candidate will be allowed to leave the examination hall before 60 minutes of the commencement of examination. Candidates leaving the examination hall before conclusions of the examination will not be allowed to take the Question Booklet with them while going outside the examination hall.
8. Use of any Electronic device like Mobile, Programmable Calculator etc. is strictly prohibited.

ରେନେସାଁ of Aliah

(Part I: Core Subject)

1. Which type of *E. coli* strain was chosen to prove the experiment of conjugation?
 - (a) Prototrophs
 - (b) Auxotrophs
 - (c) Polyauxotrophs
 - (d) Autotrophs
2. *Thermus aquaticus* is a common bacterial inhabitant of temperatures of _____.
 - (a) 0–10°C
 - (b) 30–40°C
 - (c) 70–75°C
 - (d) 80–85°C
3. The DNA of phage lambda is _____.
 - (a) Circular both in the virion and in the host cell
 - (b) Circular in the virion and linear in the host cell
 - (c) Linear in the virion and circular in the host cell
 - (d) Linear both in the virion and in the host cell
4. What is microsome?
 - (a) Compartment of Golgi
 - (b) Smaller ribosomes
 - (c) Small ER compartments
 - (d) Small vesicles of fragmented ER
5. Which of the following are features of semiconservative replication?
 - (a) RNA replicates DNA molecule
 - (b) The DNA molecule produced contains two old templates
 - (c) One new DNA helix is formed
 - (d) DNA duplicates itself and the new chain contains old template strand and new complementary strand
6. Origin and maturation of B cells takes place at _____.
 - (a) Spleen
 - (b) Thymus
 - (c) Bone Marrow
 - (d) Lymph nodes
7. Which is the Ig that can cross placenta and provide passive immunity to new born?
 - (a) IgM
 - (b) IgG
 - (c) IgA
 - (d) IgE
8. In order to insert a foreign gene into a plasmid, both must _____.
 - (a) Have identical DNA sequences
 - (b) Originate from the same type of cell
 - (c) Be cut by the same restriction enzyme
 - (d) Be of the same length
9. Which of the following is a symbiotic nitrogen fixing bacteria?
 - (a) *Rhizobium trifolii*
 - (b) *Clostridium pasteurianum*
 - (c) *Azotobacter sp.*
 - (d) *Escherichia coli*
10. At what temperature pasteurization of milk takes place?
 - (a) 63°C
 - (b) 37°C
 - (c) 65°C
 - (d) 45°C
11. What is the unit of absorbance which can be derived from Beer Lambert's law?
 - (a) $L \text{ mol}^{-1} \text{ cm}^{-1}$
 - (b) $L \text{ gm}^{-1} \text{ cm}^{-1}$
 - (c) Cm
 - (d) No unit
12. Poly-beta-hydroxybutyrate (PHB) present in aerobic bacteria can serve as?
 - (a) Acceptor of oxygen
 - (b) A reserve source of phosphate
 - (c) A reserve carbon and energy source
 - (d) Provides buoyancy

ରେନେସାଁ of Aliah

13. Bacteria having cluster of flagella at both poles of cells are known as?
- Amphitrichous
 - Peritrichous
 - Lophotrichous
 - Monotrichous
14. Which of the following is responsible for the initiation of RNA polymerase activity?
- Initiation site
 - Promoter region
 - Sigma factor
 - Rho factor
15. The amino acids for protein synthesis is activated by the enzyme _____
- RNA synthetase
 - Aminoacyl-tRNA synthetase
 - tRNA synthetase
 - Aminoacyl-mRNA synthetase
16. Fungi are _____
- Prokaryotic
 - Eukaryotic
 - Prokaryotic and lack chlorophyll
 - Eukaryotic and lack chlorophyll
- রেনেসাঁ of Aliah*
17. The outer membrane of the Gram-negative cell wall is anchored to the underlying peptidoglycan by means of which of the following?
- Brauns Lipoprotein
 - Phospholipids
 - Proteins
 - Lipopolysaccharide
18. Which of the following causes the disease acne vulgaris?
- Staphylococcus epidermidis*
 - Escherichia coli*
 - Pseudomonas vulgaris*
 - Propionibacterium acnes*
19. Syphilis is caused by which of the following organism?
- Treponema pallidum*
 - Treponema pertenue*
 - Treponema endemicum*
 - Treponema carateum*
20. Which of the following compounds are required for growth of saprophytic bacteria and fungi?
- Organic compounds
 - Nitrates
 - Phosphates
 - Mercury
21. Often patients are immune to diseases like chicken pox once infected. This is an example of
- Naturally acquired active immunity
 - Artificially acquired active immunity
 - Naturally acquired passive immunity
 - Artificially acquired passive immunity
22. Nitrogen fixation requires _____
- Dinitrogenase
 - Dinitrogenase reductase
 - Dinitrogenase and Dinitrogenase reductase
 - Dinitrogenase and Denitrogenase
23. Covalent bonding between two molecules requires?
- Electron with opposite spins
 - No effect of spins
 - Electron of the same orbital
 - Electron with same spins
24. The envelope surrounding the nucleocapsid of some animal viruses is made up of which of the following structures?
- Peptidoglycan
 - Lipopolysaccharides
 - Lipoproteins
 - Chitin

25. *EcoRI* falls under which type of restriction endonuclease?
- Type I
 - Type II
 - Type III
 - Type IV
26. The correct order of taxonomic groups from higher to lower rank is?
- Kingdom–Order–Class–Family
 - Order–Class–Division–Family–Genus–Species
 - Kingdom–Order–Division–Family–Class–Genus–Species
 - Kingdom–Division–Class–Order–Family–Genus–Species
27. In chromatography, which of the following can the mobile phase be made of?
- Solid or liquid
 - Liquid or gas
 - Gas only
 - Liquid only
- রেনেসাঁ of Aliah*
28. Both DNA gel electrophoresis and SDS-PAGE of proteins are similar because
- In both cases molecules migrate to the anode
 - Both techniques rely on a constant charge to mass ratio
 - Both techniques utilize the sieving properties of gels
 - All of the above
29. The reduction of sulphates and sulphites to hydrogen sulphide is done by which group of bacteria?
- Aerobic sulfate-reducing bacteria
 - Photosynthetic sulphur bacteria
 - Anaerobic sulphate-reducing bacteria
 - Heterotrophic bacteria
30. Which among the following possesses endoflagella?
- Spirillum volutans*
 - Corynebacterium diphtheriae*
 - Streptomyces sp.*
 - Treponema pallidum*
31. Which among the following are not used as raw materials for alcohol production?
- Corn
 - Molasses
 - Grapes
 - Whey
32. Any substance that promotes phagocytosis of antigens by binding to them are called as
- Opsonins
 - Phagocytes
 - Macrophages
 - Interleukins
33. Lipopolysaccharide in cell walls is characteristic of?
- Gram-positive bacteria
 - Gram-negative bacteria
 - Fungi
 - Algae
34. Which of the following inhibits cell wall synthesis?
- Nalidixic acid
 - Tetracycline
 - Trimethoprim
 - Vancomycin
35. Xylulose-5-phosphate is an intermediate in _____
- Glycolysis
 - Pentose Phosphate Pathway
 - Entner-Doudoroff Pathway
 - Fermentation
36. Which of the following substances will not stimulate an immune response unless they are bound to a larger molecule?
- Antigen
 - Virus
 - Hapten
 - Miligen

37. Fungi are sensitive to which of the following antibiotics?
- Griseofulvin
 - Penicillins
 - Chloramphenicol
 - Tetracyclines
38. In Griffith's experiment which of the following strains of pneumococci was isolated from dead mice?
- Live rough cells
 - Dead rough cells
 - Live smooth cells
 - Dead smooth cells
39. From which of the following animal was the material isolated which was used for the vaccination for the first time?
- Cow
 - Cat
 - Pig
 - Goat
- রেনেসাঁ of Aliah*
40. Which of the following enzyme removes the RNA primer with its 5' to 3' nuclease activity?
- DNA polymerase I
 - DNA polymerase II
 - DNA polymerase III
 - RNA polymerase
41. Which type of toxin is tetanus toxin?
- Enterotoxin
 - Neurotoxin
 - Cytotoxin
 - Endotoxin
42. Which of the following microbe is used in the production of blue cheese?
- Streptococcus thermophilus*
 - Lactobacillus bulgaricus*
 - Penicillium roqueforti*
 - Rhizopus stolonifer*
43. Which of the following is used to grow bacterial culture continuously?
- Petroff-Hausser chamber
 - Hemostat
 - Coulter-Counter
 - Chemostat
44. Coding regions of eukaryotic genes are called
- Introns
 - Exons
 - Hexons
 - Operons
45. Which type of strains are used in vaccines?
- Virulent
 - Avirulent
 - Non-pathogenic
 - Attenuated
46. Trickling filter is used in which of the following wastewater treatment processes?
- Primary treatment
 - Secondary treatment
 - Tertiary treatment
 - Final treatment
47. Which of the following intermediates of TCA cycle act as amino acid precursors?
- Oxaloacetic acid
 - Succinic acid
 - Citric acid
 - Acetyl CoA
48. Agar is obtained from _____
- Red algae
 - Brown algae
 - Blue-green algae
 - Green algae
49. What does a viral DNA becomes after being associated with the bacterial chromosome?
- Gene
 - Prophage
 - Plasmid
 - Plaque

50. The site of aerobic respiration in eukaryotic cells is _____
- Peroxisome
 - Plastid
 - Mitochondria
 - Cilia
51. Resolving power of a microscope is a function of—
- Wavelength of light used
 - Numerical aperture of lens system
 - Refractive index
 - Wavelength of light used and numerical aperture of lens system
52. Isolation of pure culture refers to —
- Separation of a single colony
 - Introduction of inoculum
 - Purification of culture
 - To grow microorganisms on a surface
53. If proteins are separated according to their electrophoretic mobility then the type of electrophoresis is—
- SDS PAGE
 - Affinity Electrophoresis
 - Electro focusing
 - Free flow electrophoresis
- রেনেসাঁ of Aliah*
54. Which of the following is not a function of Reverse Transcriptase?
- Synthesis of DNA from an RNA template
 - Synthesis of DNA from a DNA template
 - Synthesis of RNA from a DNA template
 - Digestion of the RNA strand from an RNA : DNA hybrid
55. Which of the following immune cells are most effective in destroying intracellular pathogens?
- T helper cells
 - B cells
 - T cytolytic cells
 - Macrophages
56. The coliform group of bacteria includes all the _____ bacilli
- Aerobic
 - Anaerobic
 - Aerobic, non-sporulating
 - Aerobic, Gram-negative, non-sporulating
57. Prosthecae helps in —
- Motility
 - Nutrient absorption and attachment to surfaces
 - Human infection
 - Protection from environment
58. The GasPak system is suitable for which of the following?
- Aerobic bacteria
 - Anaerobic bacteria
 - Facultatively anaerobic bacteria
 - Microaerophilic bacteria
59. Which of the following inhibits protein synthesis by combining with the 50S ribosomal subunit?
- Penicillin
 - Tetracycline
 - Streptomycin
 - Chloramphenicol
60. UV rays cause
- Deletion of pyrimidines
 - Substitution of purine for pyrimidine
 - Dimerization of pyrimidines
 - Crosslinking of purine with pyrimidine
61. Which of the following enzyme has highest processivity?
- DNA polymerase I
 - DNA polymerase II
 - DNA polymerase III
 - RNA polymerase

62. What is the correct order of staining reagents in Gram-Staining? _____
- Crystal violet, alcohol, iodine solution, safranin
 - Crystal violet, iodine solution, alcohol, safranin
 - Crystal violet, safranin, alcohol, iodine solution
 - Iodine solution, crystal violet, alcohol, safranin
63. Which of the following role is performed by a bacteriophage in transduction? _____
- Vector
 - Donor *রেনেসাঁ of Aliah*
 - Recipient
 - Episome
64. Which of the following acts as chemical reductant in bacterial photosynthesis? _____
- Oxygen
 - Water
 - Hydrogen sulphide
 - Ammonia
65. When parasitic protozoa parasitize other protozoan it is known as _____
- Parasitism
 - Mutualism
 - Hyperparasitism
 - Hypoparasitism
66. In the classification of bacteria according to shape, which among the following refer to cuboidal arrangement of bacterial cells? _____
- Tetrads
 - Staphylococci
 - Sarcinae
 - Streptococci *রেনেসাঁ of Aliah*
67. Scrapie is a chronic disease of which of the following animals? _____
- Sheep
 - Mouse
 - Monkey
 - Cow
68. Leishmania organism are transmitted to humans by _____
- Sandflies
 - Tsetse flies
 - Mosquitoes
 - Bugs
69. Which of the following type of spoilage occurs in fresh meat? _____
- Souring
 - Greening
 - Putrefaction
 - Moldy
70. Which drug is used to cure influenza caused by type A strains? _____
- Penicillin
 - Amantadine
 - Ampicillin
 - Tetracycline
71. NAG and NAM of peptidoglycan layer is linked by _____
- Alpha-(1,4) glycosidic linkage
 - Beta-(1,4) glycosidic linkage
 - Alpha-(1,6) glycosidic linkage
 - Beta-(1,6) glycosidic linkage
72. Translation of viral mRNA into proteins takes place in the _____
- Host cell nucleus
 - Host cell cytoplasm
 - Viral nucleus
 - Viral cytoplasm
73. An expression vector
- Always contains an origin of replication
 - Usually contains a gene that confers antibiotic resistance to the bacterial host
 - Always contains DNA segments for the regulation of mRNA production
 - All of the above

7

7

7

7

81

82

83.

Y

74. Glycolysis can occur in ———

- (a) Aerobic cells
- (b) Anaerobic cells
- (c) Both aerobic and anaerobic cells
- (d) Neither aerobic and anaerobic cells

75. Cell walls of diatoms are impregnated with ———

- (a) Chitin
- (b) Cellulose
- (c) Starch
- (d) Silica

76. Which of the following pathway is common for oxidation of carbohydrates, lipids and amino acids?

- (a) Calvin cycle
- (b) Electron transport chain
- (c) TCA cycle
- (d) Pentose phosphate pathway

77. Which type of force drives the flagellar motion?

- (a) Protonmotive force
- (b) ATP driven
- (c) Protonmotive and ATP driven
- (d) No protonmotive nor ATP driven

78. The following codon is known as termination codon

- (a) UAA
- (b) UAG
- (c) UGA
- (d) All the above

79. In which of the following phase, sister chromatids move towards opposite poles?

- (a) Telophase
- (b) Anaphase
- (c) Prophase
- (d) Metaphase

80. The organisms which can use reduced inorganic compounds as electron donors are known as ———

- (a) Chemotrophs
- (b) Organotrophs
- (c) Lithotrophs
- (d) Phototrophs

রেনেসাঁ of Aliah

(Part II: General Knowledge, General English & Islamic History and Culture)

81. Kobe Bryant is ——— basketball player.

- (a) the
- (b) a
- (c) no article
- (d) Either (a), or (b)

82. How important is Zakat in Islam?

- (a) Zakat is so important that it forms the Third Pillar of Islam
- (b) Zakat is not so important in Islam
- (c) Zakat is just a minor responsibility
- (d) None of the above

83. Longest river in 'Asia' is

- (a) Mahaveli of Srilanka
- (b) Ganga of India
- (c) Yangtze of China
- (d) Huang-He of China

84. In which month was the Qur'an revealed?

- (a) Rabi-ul-Awwal
- (b) Muharram
- (c) Shaaban
- (d) Ramadan

85. Harun al-Rashid belonged to which dynasty?

- (a) Umayyad
- (b) Abbasid
- (c) Fatimid
- (d) None of the above

86. Salat al-Janazah is –

- (a) Islamic funeral prayer
- (b) a collective obligation upon Muslims
- (c) performed in congregation to seek pardon for the deceased and all dead Muslims
- (d) all of the above

in

ype

ed by

place

tion

; antibi-

the reg-

87. Choose the correct phrasal verb to complete the sentence:

The lease of our premises has —— and we have to vacate it.

- (a) run out
- (b) run off
- (c) run over
- (d) run down

88. Musa (AS) : ? :: Muhammad (PBUH) : Rasulullah

- (a) Kalimullah
- (b) Khalilullah
- (c) Ruhullah
- (d) Zabiullah

89. CCI has penalised which sports authority in November 2017?

- (a) BAI
- (b) BCCI
- (c) ICCI
- (d) SAI

রেনেসাঁ of Aliah

90. What is the currency of Austria?

- (a) Krone
- (b) Franc
- (c) Dollar
- (d) Euro

91. Choose the correct option that can be substituted for "A poem of lamentation occasioned by someone's death"

- (a) prologue
- (b) elegy
- (c) lyric
- (d) comedy

92. What is the Night Salah (Prayers) during the month of Ramadan called?

- (a) Ishraq Salah
- (b) Taraweeh Salah
- (c) Fard Salah
- (d) There are no special Night Prayers

93. What is the state of purity in which all pilgrims enter Makkah for Hajj called?

- (a) Adhaan
- (b) Ihram
- (c) Istikhara
- (d) Ababa

94. The last chapter in the Holy Qur'an is

- (a) Surah Alaq
- (b) Surah Naas
- (c) Surah Fatihah
- (d) Surah Ikhlas

95. Which of the following is part of Muslim belief?

- (a) The Day of Judgment
- (b) The Afterlife
- (c) Prophecy
- (d) All of the above

96. Headquarter of 'World Bank' is located in

- (a) Geneva, Switzerland
- (b) Washington DC, United States
- (c) Berlin, Germany
- (d) Brussels, Belgium

97. Pick out the word opposite in meaning to "Ephemeral":

- (a) Passing
- (b) Sensuous
- (c) Permanent
- (d) Distasteful

98. What are doing —— coming Sunday ?

- (a) to
- (b) in
- (c) on
- (d) from

99. The Qur'an forbids all of the following EXCEPT

- (a) gambling.
- (b) earning interest on lending money.
- (c) drinking alcoholic beverages.
- (d) making profits through business

100. Which city is known as the 'gateway of India'?

- (a) Delhi
- (b) Mumbai
- (c) Chennai
- (d) Kolkata

বেনেসাঁ[ঁ] of Aliak