



RAN - 2103001103030004



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S. Y. B. Sc. (Sem. - III) Examination

March - 2023

Microbiology (A.T.K.T.)

MB - 301 : Principles of Bacterial Systematics

Time: 1 Hours]

[Total Marks: 50

સૂચના : / Instructions

(1)

નીચે દર્શાવેલ નિશાનીવાળી વિગતો ઉત્તરવહી પર અવશ્ય લખવી.
Fill up strictly the details of signs on your answer book

Name of the Examination:

S. Y. B. Sc. (Sem. - III)

Name of the Subject :

Microbiology (A.T.K.T.) MB - 301 : Principles of Bacterial Systematics

Subject Code No.: **2103001103030004**

Seat No.:

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Student's Signature

- (2) This exam contains 50 multiple choice questions, each worth 1 mark.
(3) All questions are compulsory.

***O.M.R. Sheet ભરવા અંગેની અગત્યની સૂચનાઓ આપેલ
O.M.R. Sheetની પાછળ છાપેલ છે.***

***Important instructions to fillup O.M.R. Sheet
are given on back side of the provided O.M.R. Sheet.***

- Q. 18.** Classical characteristics in taxonomic classification includes:
- Morphological traits
 - Physiological traits
 - Biochemical and ecological traits
 - All of these
- Q. 19.** By which analysis bacterial fatty acid profile are scrutinize and effectively used in biochemical characterization?
- FAME analysis
 - MS
 - DNA-DNA hybridization
 - %G+C content
- Q. 20.** Among which is not an example of ecological characteristics?
- Temperature and pH
 - Oxygen and osmotic pressure
 - %G+C content
 - Habitat preference
- Q. 21.** Among which is a suitable temperature to promote DNA-DNA hybridization between almost identical strands?
- 30 to 50 °C below the T_m
 - 30 to 50 °C above the T_m
 - 10 to 15 °C below the T_m
 - 10 to 15 °C above the T_m
- Q. 22.** In which volume of Bergey's manual of systematic bacteriology detailed classification of "The proteobacteria" is covered.
- Volume 1
 - Volume 2
 - Volume 3
 - Volume 4
- Q. 23.** Archaea occupying a wide variety of ecological niches are placed in the phylum _____.
- Euryarchaeota*
 - Crenarchaeota*
 - Korarchaeota*
 - Lokiarchaeota*
- Q. 24.** Strict anaerobic Archea, whose major metabolic end product is CH_4 is grouped as _____.
- Sulfate reducers archaeal
 - Cell wall less archaea
 - Methanogenic archaea
 - Extremely thermophilic archaea
- Q. 25.** Archaeal Glyoxylate and Methylaspartate pathways driven for which purpose?
- To assimilate Acetylc-CoA
 - To dissimilate Acetylc-CoA
 - To dissimilate Malate
 - To dissimilate pyruvate

- Q. 26.** Extreme halophiles catabolize glucose by which pathway?
 A. Methylaspartate pathway B. Glyoxylate pathway
 C. Glyoxylate pathway D. Entner-Doudoroff pathway
- Q. 27.** Sulfur dependent crenarchaeotes mostly found from _____.
 A. Hot water B. Agricultural soil
 C. Solfatara D. Cold water
- Q. 28.** Which Hyperthermophiles is dubbed as “strain 121”?
 A. *Pyrolobusfumarum* B. *Nanoarchaeumequitans*
 C. *Bacillus megaterium* D. *E. coli*
- Q. 29.** *Sulfolobus* spp. Utilize _____ for nutrient uptake from surrounding environment.
 A. ABC transporters B. TatAC
 C. Potassium transporter D. Ca⁺ transporter
- Q. 30.** The major cell wall component of *Thermoproteus* spp. is _____.
 A. Lipoprotein B. Carbohydrate
 C. Glycolipid D. Glycoprotein
- Q. 31.** Methanotrophic archaea grow in association of _____.
 A. Sulfate- reducing bacteria B. Aerobic ammonia oxidation bacteria
 C. Hyperthermophile bacteria D. Halophilic bacteria
- Q. 32.** The ability of oxidizing methane by anaerobic archaeal lineage is commonly known as _____.
 A. Methanogen B. ANME
 C. Methanobacter D. Sulfate reducers
- Q. 33.** The ANME are mostly found in which habitat?
 A. Sea floor B. Hydrothermal vents
 C. Anoxic seawater column D. All of these
- Q. 34.** The halophilic archaeal cell wall dependent on which chemical constituent?
 A. HCl B. NaCl
 C. MgSO₄ D. CuSO₄

- Q. 35. Which three well explored genera are included in order *Rhizobiales*?
- Rhizobium, Agrobacterium and Brucellaceae*
 - Rhizobium, Rhodospirillum and Brucellaceae*
 - Agrobacterium, Brucellaceae and Rickettsia*
 - Agrobacterium, Brucellaceae and Magnetococcus*
- Q. 36. Among which is the responsible for success of leguminous plants on planet Earth?
- Agrobacterium*
 - Brucella*
 - Rhizobium*
 - Methylosinus*
- Q. 37. Among which microorganism is responsible for Crown gall tumor in plants?
- Rhizobium oryzae*
 - Rhizobium pisi*
 - Brucella abortus*
 - Agrobacterium tumefaciens*
- Q. 38. The member of genus *Brucella* is responsible for _____.
- Photosynthesis
 - Nitrogen fixation
 - Methanogenesis
 - Causing zoonotic disease
- Q. 39. Which genus is a best studied colorless sulfur bacteria?
- Thiobacillus*
 - Nitrosospira*
 - Rhizobium*
 - Methylosinus*
- Q. 40. *Thiobacillus* can sequentially reduce nitrate to nitrogen. This process is known as _____.
- Nitrogen fixation
 - Nitrogen assimilation
 - Denitrification
 - None of these
- Q. 41. Most Members of which order degrade sugars by Embden-Meyerhof pathway?
- Bdellovibrionales*
 - Enterobacteriales*
 - Rhizobiales*
 - Hydrogenophiales*
- Q. 42. Which *Enterobacterial* prominently gives positive results upon Urease test?
- Escherichia*
 - Serratia*
 - Enterobacter*
 - Proteus*
- Q. 43. The _____ prey on other Gram-negative bacteria.
- Bdellovibrionales*
 - Enterobacteriales*
 - Rhizobiales*
 - Hydrogenophiales*

SPACE FOR ROUGH WORK