



DE-2927

B. Sc. (Microbiology) (Sem. I) Examination

March / April – 2016

MB-02 : Cell Structure & Function in Bacteria

Time : 2 Hours]

[Total Marks : 50

સૂચના/Instructions :

(1)

નીચે દર્શાવેલ નિશાનીવાળી વિગતો ઉત્તરવહી પર અવશ્ય લખવી. Fillup strictly the details of signs on your answer book.	Seat No. :
Name of the Examination :	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
<input type="text" value="B. Sc. (Microbiology) (Sem. I)"/>	<input type="text" value="Student's Signature"/>
Name of the Subject :	
<input type="text" value="MB-02 : Cell Structure & Function in Bacteria"/>	
Subject Code No. : <input type="text" value="2"/> <input type="text" value="9"/> <input type="text" value="2"/> <input type="text" value="7"/> Section No. (1, 2,.....) : <input type="text" value="Nil"/>	

- (2) પ્રશ્ન પત્રમાં કુલ ૫૦ પ્રશ્નો છે, બધાજ ફરજિયાત છે. દરેક પ્રશ્નનો (૧) એક ગુણ છે.
There are 50 questions each question carries (1) mark and all are compulsory.
- (3) દરેક પ્રશ્નનો કાળજીપૂર્વક અભ્યાસ કરી સાચો વિકલ્પ પસંદ કરો.
Read the question carefully before selecting the correct option.

***O.M.R. Sheet ભરવા અંગેની અગત્યની સૂચનાઓ આપેલ
O.M.R. Sheet-ની પાછળ છાપેલ છે.
Important instructions to fillup O.M.R. Sheet
is given on back side of the provided O.M.R. Sheet.***

- 1 State the diameter of largest prokaryotic bacteria.
 (A) 800 μm , Cyanobacteria (B) 500 μm , Thiobacillus
 (C) 750 μm , Thiomargarita (D) 600 μm , Epulopiscium
- 2 The membrane that separates the cytoplasm of cell from its environment is :
 (A) Cytoplasmic membrane (B) Golgi body
 (C) Nuclear membrane (D) Mitochondrial membrane
- 3 Peptidoglycan is a characteristic constitute of the cell wall of :
 (A) Archaeobacteria and Eukaryotes
 (B) None of above
 (C) Bacteria and Cyanobacteria
 (D) Bacteria and Unicellular eukaryotes
- 4 Where is MS ring present in flagella ?
 (A) Cytoplasm (B) Outer membrane
 (C) Cytoplasmic membrane (D) Periplasm
- 5 What do you mean by peritrichous arrangement of flagella ?
 (A) Flagella present on both the poles of cell
 (B) Single flagella present at a single pole
 (C) Flagella present at a single pole
 (D) Flagella present all over bacterial surface
- 6 State the synonym of protoplast :
 (A) Neoplast (B) Schizoplast
 (C) Spheroplast (D) Mesoplast
- 7 Archeal and bacterial cell wall lacks :
 (A) N-acetylglucosamine and DAP
 (B) N-acetylglucosamine and lysine
 (C) N-acetylmuramic acid and DAP
 (D) N-acetylmuramic acid and lysine
- 8 Mutation in bacteria act as :
 (A) Raw material of reproduction
 (B) Raw material of germination
 (C) Raw material of evolution
 (D) Raw material of sporulation
- 9 Endospores are highly resistant to :
 (A) Radiations (B) All of these
 (C) Heat (D) Harsh chemicals
- 10 Some bacteria lack flagella but are still able to move across solid surfaces. This process is called :
 (A) Rotation (B) Glistening
 (C) Swimming (D) Gliding

- 11 Name the hapanoids present in the membrane of prokaryotes :
- (A) C₃₀ hapanoidmonoploptene
 - (B) C₂₁ hapanoiddiploptene
 - (C) C₃₀ hapanoiddiploptene
 - (D) C₂₁ hapanoidmonoploptene
- 12 When cocci divide in random or multiple planes. It generates an irregular shape which occurs in organisms belonging to the genus :
- (A) Streptobacilli
 - (B) Sarcina
 - (C) Streptococcus
 - (D) Staphylococcus
- 13 Sugars present in the cell wall are linked by :
- (A) α -1,6 glycosidic linkage
 - (B) β -1,6 glycosidic linkage
 - (C) α -1,4 glycosidic linkage
 - (D) β -1,4 glycosidic linkage
- 14 The enzyme that is responsible for destroying the cell wall of Gram positive bacteria is :
- (A) Lysozyme
 - (B) Chitinase
 - (C) Pectinase
 - (D) Protease
- 15 The nature of cytoplasmic membrane that remains exposed to the external environment is :
- (A) Hydrostatic
 - (B) Both Hydrophilic and Hydrostatic
 - (C) Hydrophobic
 - (D) Hydrophilic

- 16 _____ Proteins function as a motor switch, reversing the direction of rotation of the flagella in response to intracellular signals :
- (A) flagellin
 - (B) Cap
 - (C) Mot
 - (D) Fli
- 17 Full form of PHB :
- (A) Para hydroxyl butyrate
 - (B) Poly hydroxyl butyrate
 - (C) Poly beta hydroxyl butyrate
 - (D) Poly beta hydroxyl butyrate
- 18 What is the outer membrane in Gram negative bacteria known as ?
- (A) Technic acid
 - (B) Polysaccharides
 - (C) Peptidoglycan
 - (D) Lipopolysaccharide
- 19 What is shape of Magnetosomes ?
- (A) Rectangle
 - (B) All of these
 - (C) Spike
 - (D) Square
- 20 Which protein is present for the formation of filament of flagella ?
- (A) keratin
 - (B) Collagen
 - (C) flagellin
 - (D) fillin

- 21 Name the spiral shape bacteria found in nature :
- (A) Spirochetes (B) Bacillus
(C) Streptococcus (D) Staphylococcus
- 22 Membrane proteins function as :
- (A) Permeases
(B) All of these
(C) Transport proteins
(D) Carrier molecules
- 23 Where are flagellin molecules synthesized ?
- (A) Cell wall (B) Cell membrane
(C) Periplasm (D) Cytoplasm
- 24 Which of the following chemical is thought to be responsible for resistance of endospores ?
- (A) Dipicolinic acid
(B) Both Calcium and Dipicolinic acid
(C) Dipicric acid
(D) Calcium
- 25 State the major lipids of Archaea :
- (A) Diplopanoids (B) Chaparons
(C) Glycerol diethers (D) Plopanoids
- 26 Glycoprotein containing glutamic acid as a sole source of amino acid is found in which organism ?
- (A) Methanococcus (B) Natronococcus
(C) Methanogens (D) Methanosarcina
- 27 Most proteins are present in which area of Gram positive cell ?
- (A) Peptidoglycan layer
(B) Outer layer
(C) Cytoplasmic membrane
(D) Cytoplasm
- 28 The time taken for sporulation in *Bacillus subtilis* is :
- (A) 6 hours (B) 5 hours
(C) 8 hours (D) 10 hours
- 29 Flagellar revolution per second is :
- (A) 200 (B) 600
(C) 400 (D) 300
- 30 Prokaryotes show motility by :
- (A) Sex pilus (B) Flagella
(C) Pili (D) Fimbriae

- 31 What is/are the unusual shapes of bacteria ?
(A) Filamentous bacteria
(B) All of these
(C) Tightly coiled shaped
(D) Appendaged bacteria
- 32 Bacteria can easily adopt to new environment because of their :
(A) Moderate size
(B) Mega size
(C) Small size
(D) Large size
- 33 Membrane is stabilized with ions like _____ and _____ forming ionic bonds with negative charge on the phospholipids.
(A) Mg^{2+} , Cl^{2-}
(B) Mn^{2+} , Ca^{2+}
(C) Mg^{2+} , Ca^{2+}
(D) Co^{2+} , Mn^{2+}
- 34 Carbon storage polymers are :
(A) Both PHB and Glycogen
(B) None of these
(C) PHB
(D) Glycogen
- 35 Which layer of spore contains peptidoglycan in its composition ?
(A) Exosporium
(B) Core wall
(C) Spore wall
(D) Cortex
- 36 What is the average diameter of bacterial flagellum ?
(A) 300 μm
(B) 30 μm
(C) 20 μm
(D) 200 μm
- 37 Which generic term is commonly used to describe polymers made up of C_4 - C_{18} carbons ?
(A) Polyhydroxyacetates
(B) Polyhydroxyalkanoates
(C) Polytrihydroxyalkalies
(D) Polydihydroxyalkanoates

- 38 Molecules which freely penetrates the membrane:
- (A) Sugars
 - (B) None of these
 - (C) NaCl
 - (D) H₂O
- 39 Name two sugar derivatives used in formation of peptidoglycan layer :
- (A) N-acetylglucosamine & N-acetylgalactoseamine
 - (B) N-acetylglucosamine & N-acetylmuramic acid
 - (C) N-acetylgalactoseamine & N-acetylmuramic acid
 - (D) N-acetylgalactosamine & N-acetylmuramic acid
- 40 Habitat of *Epulospiscium fishelsoni* is found in :
- (A) Surgeon fish
 - (B) All of these
 - (C) Shark fish
 - (D) Whales
- 41 How do bacteria sense presence of Attractant or Repellent ?
- (A) Chemoreceptors present on cell surface.
 - (B) Chemosignals present on capsule.
 - (C) Photoreceptors present on flagella.
 - (D) Chemolipids on the cell wall.
- 42 Which kind of unusual taxis is observed in some gliding Cyanobacteria ?
- (A) Phototaxis
 - (B) Magnatotaxis
 - (C) Hydrotaxis
 - (D) Chemotaxis
- 43 What is the function of Calcium dipicolinic acid complex ?
- (A) Both (C) and (D)
 - (B) Formation of four layers of spores.
 - (C) Reduces water availability within spores.
 - (D) Intercalates with DNA and stabilizes it.
- 44 Microorganism accumulate inorganic phosphate in form of :
- (A) Organic phosphate
 - (B) None of these
 - (C) Metaphosphate
 - (D) Polymetaphosphate

- 45 Which of the following are the examples of coma, spiral, cocci and rod shaped bacteria respectively ?
- (A) Vibrio, Spirochete, Streptococcus, Bacillus
 - (B) Vibrio, Bacillus, Streptococcus, Staphylococcus
 - (C) Vibrio, Bacillus, Streptococcus, Spirochete
 - (D) Bacillus, Vibrio, Streptococcus, Spirochete
- 46 The metabolic rate of cell is :
- (A) Directly proportional to cube of its size
 - (B) Inversely proportional to the size of cell
 - (C) Inversely proportional to the square of its size
 - (D) Directly proportional to its size
- 47 Which one is not an Endospore forming bacteria ?
- (A) Bacillus
 - (B) Staphylococcus
 - (C) Clostridium
 - (D) Corynebacterium
- 48 Which organelle is responsible for providing buoyancy to cells floating in water ecosystem ?
- (A) Gas vesicles
 - (B) Carboxysomes
 - (C) PHB granules
 - (D) Magnetosomes
- 49 Gas vesicles are intracellular gas filled structures composed of :
- (A) Proteins
 - (B) Mineral
 - (C) Carbohydrates
 - (D) Lipids
- 50 Which material is produced by Cyanobacteria to exhibit gliding motility ?
- (A) Lipoidal slime
 - (B) Amino acid slime
 - (C) Protein slime
 - (D) Polysaccharide slime

