

PSG COLLEGE OF ARTS & SCIENCE  
(AUTONOMOUS)

MSc DEGREE EXAMINATION MAY 2019  
(Second Semester)

Branch - **BIOCHEMISTRY**

**MICROBIAL BIOCHEMISTRY**

Time: Three Hours

Maximum: 75 Marks

**SECTION-A (10 Marks)**

Answer **ALL** questions

**ALL** questions carry **EQUAL** marks (10x1 = 10)

- 1 In the pentose phosphate pathway, the major products are  
(i) Ribulose and NADPH (ii) Ribulose and NADH  
(iii) Ribulose and NAD<sup>+</sup> (iv) Ribulose and ATP
- 2 The key regulatory enzyme of fatty acid synthesis is  
(i) Acyl CoA synthetase (ii) Acetyl CoA carboxylase  
(iii) Keto acyl synthase (iv) Thioesterase
- 3 Very ions chain fatty acids are oxidized in  
(i) Mitochondria (ii) Cytoplasm (iii) Peroxisomes (iv) Lysosomes
- 4 NADPH required for the fatty acid synthesis can be generated from  
(i) HMP pathway (ii) Glycolysis  
(iii) TCA cycle (iv) All the above
- 5 Teichoic acid is present in the cell wall of  
(i) Gram positive bacterial (ii) Gram negative bacteria  
(iii) Mycoplasma (iv) All bacteria
- 6 Which of the following ETC components accepts only one electron  
(i) Oxygen (ii) FMN  
(iii) FAD (iv) Cyto chrome b
- 7 Which of the following amino acids is considered as both ketogenic and glucogenic  
(i) Valine (ii) Tryptophan  
(iii) Lysine (iv) None of these
- 8 A person with phenyl ketonuria can not convert  
(i) Phenylalanine to tyrosine (ii) Phenylalanine to isoleucine  
(iii) Phenol into ketones (iv) Phenylalanine to lysine
- 9 Which of the operation does not come under upstream processing  
(i) Media preparation (ii) Inoculum development  
(iii) Effluent treatment (iv) Storage of raw material
- 10 The most widely used chemical for protoplast fusion, as fusogens is  
(i) Manitol (ii) Mannol  
(iii) Serbitol (iv) Polyethylene glycol

**Cont...**

**SECTION - B (35 Marks)**

Answer **ALL** Questions

**ALL** Questions Carry **EQUAL** Marks (5 x 7 = 35)

- 11 a Discuss the anaplerotic process.  
OR  
b Describe the HMP pathway - Mention its uses.
- 12 a Describe the reactions involved in oxidation of fatty acids.  
OR  
b Enumerate the biosynthesis of Beta - Carotene.
- 13 a Explain the structure and synthesis of teichoic acid and lipoteichoic acid.  
OR  
b Discuss photosynthetic pigments and apparatus in photosynthetic bacteria.
- 14 a Describe the microbial degradation of lignocellulose.  
OR  
b Elaborate the aromatic amino acid synthesis pathway .
- 15 a Discuss in detail about protoplast fusion.  
OR  
b Explain the bacterial polysaccharides.

**SECTION - C (30 Marks!)**

Answer any **THREE** Questions

**ALL** Questions Carry **EQUAL** Marks (3 x 10 = 30)

- 16 Enumerate the interrelationship between EMP, HMP and ED pathways.
- 17 Explain the biosynthesis of straight and branchend chain fatty acids.
- 18 Describe in detail about photophosphorylation.
- 19 Describe the pyrimidine biosynthesis pathway.
- 20 What is downstream processing? Explain the extra cellular extraction procedures.

**Z-Z-Z**

END