

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION DECEMBER 2019
(Third Semester)

Branch - MICROBIOLOGY

MICROBIAL PHYSIOLOGY AND METABOLISM

Three Hours

Maximum: 75 Marks

SECTION-A (10 Marks)

Answer ALL questions

ALL questions carry EQUAL marks (10 x 1 = 10)

- 1 Which one of the following process utilizes Phospho Euol Pyruvate?
(i) translocation (ii) active transport
(iii) osmosis (iv) diffusion
 - 2 The inability of an organism to synthesize a particular organic compound is known as
(i) prototroph (ii) lithotroph
(iii) auxotroph (iv) organotroph
 - 3 Nocodazole is used in biological research for ____ culture.
(i) batch (ii) synchronous
(iii) continuous (iv) fed-batch
 - 4 ____ is an organism that grow at 50°C and above.
(i) thermophile (ii) hyper thermophilic
(iii) psychrophile (iv) mesophile
 - 5 Citric acid cycle occurs in ____ of the mitochondria,
(i) matrix (ii) cytoplasm
(iii) inner membrane (iv) outer membrane
 - 6 ____ acts as a terminal electron acceptor of methanogenesis.
(i) O₂ (ii) N₂
(iii) CO₂ (iv) SO₂
 - 7 For peptidoglycan synthesis ____ donates an aminogroup to sugar,
(i) cysteine (ii) glutamine
(iii) cystine (iv) serine
 - 8 Salvage pathway is involved in the biosynthesis of ____ .
(i) Pyrimidine (ii) fatty acid
(iii) glutamate (iv) Purine
 - 9 In homolactic acid fermentation one molecule of glucose is converted to
(i) two (ii) three
(iii) four (iv) one
- The major gluconeogenic precursor is
(i) lactate (ii) propionate
(iii) fumerate (iv) acetate

Cont...

SECTION - B (35 Marks)

Answer **ALL** Questions

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

- 11 a Narrate the process of active transport with suitable example.
OR
b Describe in brief about group Translocation and add a note on its mechanism.
- 12 a Give an account on the process of sporogenesis in Bacillus sps.
OR
b Describe the process of batch culture and add a note on its advantages.
- 13 a What is ED pathway? Explain the reactions in detail.
OR
b Narrate in brief about the HMP pathway and add a note on its energetics.
- 14 a Elucidate the biosynthesis of fatty acids with reference to specific example.
OR
b Summarise the biosynthetic pathway of peptidoglycan.
- 15 a Outline the process of butanol fermentation and add a note on its uses.
OR
b Summarise about the process of lactic acid fermentation.

SECTION - C (30 Marks)

Answer any **THREE** Questions

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

- 16 Explain in detail about the nutritional classification of microorganisms with suitable example.
- 17 Discuss in detail about the various factors affecting microbial growth.
- 18 Briefly explain the process of photosynthesis with suitable reactions.
- 19 What are Pyrimidines? Write its biosynthetic pathway in detail.
- 20 Discuss about the process of anaerobic respiration with suitable example.

Z-Z-Z

END