

C.U.SHAH UNIVERSITY

Summer Examination-2019

Subject Name: Microbial Energetics

Subject Code: 5SC02MIE1

Branch: M.Sc. (Microbiology)

Semester: 2

Date: 25/04/2019

Time: 02:30 To 05:30

Marks: 70

Instructions:

- (1) Use of Programmable calculator and any other electronic instrument is prohibited.
 - (2) Instructions written on main answer book are strictly to be obeyed.
 - (3) Draw neat diagrams and figures (if necessary) at right places.
 - (4) Assume suitable data if needed.
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SECTION – I

Q-1 Attempt the following questions (07)

- a. Define depolarization
- b. Name any two double membranous cell organelle
- c. Give the structure of any one purine
- d. Name any two essential fatty acids
- e. The signal sequence responsible for retrieval of protein to ER is.....
- f. Proteins with SKL sequences are destined to.....
- g. Name the site of Glycosylation

Q-2 Attempt all questions (14)

- a) Discuss Post-translational translocation across ER membrane (7)
- b) Discuss the Nuclear Protein transport in detail (7)

OR

Q-2 Attempt all questions (14)

- a) Discuss the following disorders due to purine metabolism: (7)
 - i) Gout
 - ii) Lesch-Nyhan Syndrome
 - iii) SCID
- b) Discuss the following mechanism of fatty acid synthesis: (7)
 - i) Dietary Regulation
 - ii) Hormonal Regulation
 - iii) Allosteric Regulation

Q-3 Attempt all questions (14)

- a) Discuss the various phases of Action Potential across a membrane (7)
- b) Compare electrical synapse and chemical synapse (4)
- c) What is Saltatory Conduction? (3)

OR

Q-3 a) Define Endocytosis. Discuss Receptor-mediated endocytosis (7)



- b) Discuss the assembly and disassembly of COPII (4)
c) Compare N-Linked Glycosylation and V-Linked Glycosylation (3)

SECTION – II

- Q-4 Attempt the Following questions (07)**
- a. Write the full form of DAG
 - b. Define Quorum sensing
 - c. Write full form of AHL
 - d. Define endocrine signaling
 - e. What is the role of GAP in signaling
 - f. What is the function of enzyme Phosphatase?
 - g. Name any two HSPs in bacteria
- Q-5 Attempt all questions (14)**
- a) Discuss different behaviors due to quorum sensing. Also explain the role of quorum sensing in bioluminescence (7)
 - b) Glucagon is responsible for Glycogen breakdown in liver. Explain the signaling mechanism involved for it. (7)
- OR**
- Q-5**
- a) Discuss the various mechanism which maintains low Calcium level in cell (7)
 - b) Discuss HKAR mediated bacterial chemotaxis behaviour (7)
- Q-6 Attempt all questions (14)**
- a) Discuss Smad signaling pathway (7)
 - b) Explain the activation and inactivation of Ras in RTK signaling (7)
- OR**
- Q-6 Attempt all Questions**
- a) Draw a well labeled structure of Neuron. Give the classification of neurons based on polarity (7)
 - b) Give the classes of MDR efflux pumps. How cystic fibrosis affects the lungs? (7)

