Five Year Integrated M.Sc. Examination, 2019

Semester - II

Course: LS-1-2-1

(Cellular Organization)

Time: Three Hours **Full Marks: 60**

Questions are of value as indicated in the margin.
Answer ***Question No.1*** and ***any two*** from the ***Question No. 2 to 4***
and another ***three*** from ***Question No. 5 to 9***.

1. Answer ***any ten*** questions of the following: 2x10=20
   a) What is the selective and differential criterion in mannitol salt agar?
   b) What are the membrane potentials of living cells?
   c) What are the different phases of cell cycle?
   d) Explain the different factors responsible for diffusion rate.
   e) Describe the functions of plasma membrane.
   f) Explain the three Forms of Transport across the Membrane.
   g) Describe symporter and antiporter.
   h) What is attenuation with regard to trp operon?
   i) What are the different types of ATP-dependent proton pump?
   j) What are telomeres?
   k) Explain euchromatin and heterochromatin.
   l) What are microtubules?

2. Describe Halophilic adaptation. 5

3. Write short notes on anaerobic microorganisms. 5

4. Describe the four types of chromosomes based upon the position of the centromere in humans. 5

5. Briefly write down the different stages of meiotic cell division with suitable diagrams. 10

6. What are the four phases of growth observed when a bacterium is grown in a closed batch culture? What is diauxic growth curve? 10

7. What are the different types of mediated transport? How the mediated transport can be differentiated from non-mediated transport? 10

8. Describe lac operon. Explain its functionality with respect to the different combinatorial presence of glucose and/or lactose in the environment. 10

9. Why the sodium-potassium transport mechanism is called a pump? Explain Na+/K+ pump with a schematic diagram. 10

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