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PG (NEW) CBCS
M.Sc. Semester-II Examination, 2020
ZOOLOGY
PAPER: ZOO 202

Full Marks: 20**Time: 1 Hours**

The figures in the right-hand margin indicate full marks. Candidates are required to give their answers in their own words as far as practicable.

GROUP-A**(Marks: 10)****(Biophysics)****1. Answer one question of the following:**

- a. Elaborate the biological significance of pH with special reference to protein ionization and DNA replication. How do freshwater teleosts overcome osmotic swelling in a river and marine teleosts overcome osmotic shrinkage in a sea? 5+ (2.5 + 2.5)
- b. Explain the relevance of the laws of thermodynamics to biological systems. Give an account of energy capture and transfer in living cells with reference to a high-energy compound of your choice. 5+ 5
- c. Compare the properties of lyophilic and lyophobic colloidal solutions. Describe the structural design and functioning of the electron gun of a TEM. 5+5
- d. Describe an experiment by which the fluidity of plasma membrane can be proved. Discuss the biophysical mechanism behind the origin of laminar and turbulent flow inside blood vessels. 5+5

GROUP-B**(Marks: 10)****(Biochemistry)****2. Answer one question of the following:**

- a. Write the structural differences between the α helix and β pleated sheet. What are the steps involved in urea cycle? Write short notes on ammonotelism. 3+5+2
- b. What do you mean by Michaelis-Menton equation? How do we determine K_m value? What is the effect of temperature on enzyme activity? What is isozyme? 2+4+3+1

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c. How do you distinguish saturated fatty acid from unsaturated fatty acid? Write down the process of β oxidation of Palmitic acid. How many ATPs are formed by this process?

2+6+2

d. What is the main source of glucose carbons for gluconeogenesis? Write down the process of gluconeogenesis from pyruvate. How much ATP is needed for gluconeogenesis?

1+8+1
