

M.SC. (INST.SC.) 1ST YEAR 2ND SEMESTER, 2017

Subject: BIOLOGY - II

Time: TWO HOURS

Full Marks: 50

Paper - X

The figures in the margin indicate full marks

Answer any three of the following questions

Two marks have been allotted for general proficiency

1. What do you mean by stem cells? Write down a schematic diagram of production of blood cells from precursor stem cells. Name the different site of RBC production on embryonic stage, last month of gestation and after birth. Describe the characteristic features of different types of leukocytes (WBCs) present on human blood. [2+5+3+6]
2. What are the components of Human circulatory system? Name the major branches of the systemic circulation. Describe briefly the anatomy of the human heart and blood flow through it. [4+5+7]
3. What is resting membrane potential? Describe the phases of pacemaker potential and mention the role of different ion channels. What do you mean by automaticity of heart and sinus rhythm? [3+ 9+4]
- 4 Name the divisions of the human nervous system. Mention the function of different lobes of cerebrum. What is corpus callosum ? [5+8+3]
5. Briefly discuss the significance of the differences in O₂ binding properties of hemoglobin and myoglobin to the biological functions. Describe the effect of pH on the O₂ binding of hemoglobin and myoglobin. What are T-state and R-state of hemoglobin? How does a person can adapt at high altitude? [4+6+2+4]