

Medical Sciences: IAS Mains: 2003

Paper-I

Section A

1. Attempt any THREE of the following in not more than 200 words each:
 - a. Describe broncho-pulmonary segments of lungs. Mention their clinical importance (20).
 - b. Describe the development of Kidney. Mention the anomalies associated with it (20).
 - c. What are the different mechanisms for regulation of body temperature? Why in summer, when humidity of air increases the person feels more uncomfortable (20)?
 - d. Explain the biochemical role of vitamins in the prevention of megaloblastic anaemia. State their dietary sources (20).
2. Answer the following questions
 - a. Trace the pathway of pain and thermal sensations with the help of a diagram (20).
 - b. What are the general features of parasympathetic division of autonomic nervous system. Why is it known as 'anabolic division' (20)?
 - c. Describe the formation of placenta and its anomalies. State the functions of the placenta (20).
3. Answer the following questions
 - a. What is the normal percentage of reticulocytes in blood? Mention the conditions in which reticulocyte count increases, giving reasons (20).
 - b. Enumerate the hormones secreted by thyroid gland. What is the mechanism of thyroid enlargement in iodine deficiency in diet (20)?
 - c. What changes take place in the ovary, uterus, vagina and breast during a menstrual cycle (20)?
4. Answer the following questions
 - a. State the salient features of human DNA. Outline the steps involved in the synthesis of eukaryotic DNA. Mention the major goals of human genome project (20).
 - b. What is cardiac output? What are the factors affecting it (20)?
 - c. Explain with the aid of flow chart, how metabolic pathways are integrated in starvation (20).