**Q. P. Code: 31740**

**2 ½ Hours**

**Total Marks: 75**

1. **All** questions are **compulsory.**
2. **All questions** carry **equal** marks.
3. Draw **neat, labelled diagrams** wherever necessary.

Q 1. (a) Name the following: **(any three)** 03

(i) Hormone regulating Basal Metabolic rate

(ii) Hormone causing contraction of pregnant uterus

(iii) Any one goitrogenic substance

(iv) Nonapeptide hormone

(v) Tumours of adrenal medulla

(vi) Catecholamine hormone

Q1. b) Discuss the following: **(any two)** 12

(i) Active form and role of insulin

(ii) Storage, release and transport of thyroid hormones

(iii) Biochemical functions and disorder related to ADH

(iv) Biochemical and physiological functions of adrenalin

Q2. a) Do as directed : **(any three)** 03

(i) Give any one function of Follicle stimulating hormone

(ii) State true or false : Estradiol is the most active form of androgens

(iii) Name the hormone associated with Addison's disease

(iv) Fill the blank : The predominant hormone of the Luteal phase of menstrual cycle is _____

(v) Give one example of a mineralcorticoid

(vi) State the significance of Leydig cells

Q2. b) Give an account of the following: **(any two)** 12

(i) Effect of cortisone on metabolism

(ii) Disorders associated with abnormal adrenocortical function

(iii) Physiological and biochemical functions male sex hormones

(iv) Release and biochemical functions of estrogens

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| Q 3. | (a) | State the role of: **(any three)** | 03 |
| | (i) | Spacer arm | |
| | (ii) | Helium in GC | |
| | (iii) | Gel permeation chromatography | |
| | (iv) | Preparative centrifugation | |
| | (v) | Stationary phase in chromatography | |
| | (vi) | Gradient elution | |
| | (b) | Explain the following: **(any two)** | 12 |
| | (i) | Principle and working of ion exchange chromatography | |
| | (ii) | Types of rotors | |
| | (iii) | Rate-Zonal centrifugation and any two application | |
| | (iv) | Any two detectors used in gas chromatography | |
| Q4. | (a) | Give an example of the following **(any two)** | 02 |
| | (i) | Source of visible light | |
| | (ii) | Hard beta emitter | |
| | (iii) | Type of Geiger Muller counter | |
| | (iv) | Secondary fluor used in liquid scintillator | |
| | (b) | Define **(any one)** | 01 |
| | (i) | Monochromators | |
| | (ii) | Dead time | |
| | (c) | Elaborate on the following **(any two)** | 12 |
| | (i) | Working of solid scintillator | |
| | (ii) | Principle based on which spectrophotometric measurements are performed | |
| | (iii) | Applications of radioisotopes in biology | |
| | (iv) | Different types of monochromators | |

Q5. Write short note on **(any three)** 15

(a) Functions of $T_3$ and $T_4$.

(b) Biochemical role of glucagon

(c) Menstrual cycle

(d) Autoradiography

(e) Applications of HPLC

(f) Double beam spectrophotometer

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