

**2020**

**BIOCHEMISTRY — HONOURS**

**Paper : CC-12**

**Full Marks : 50**

*The figures in the margin indicate full marks.*

*Candidates are required to give their answers in their own words  
as far as practicable.*

1. Answer **any five** questions from the following : 2×5
  - (a) Write down the structure of T3 and T4.
  - (b) What is GFR?
  - (c) What is fibrinolytic system?
  - (d) Mention the function of POMC.
  - (e) What is an autocrine gland? Give an example.
  - (f) What is feedback control of a hormone?
  - (g) What is half-life of a hormone?
  - (h) What is a second messenger? Give an example.
  - (i) What is the function of glucagon in human body?
  - (j) What is the difference between diabetes mellitus and diabetes insipidus?
  
2. Answer **any two** questions :
  - (a) (i) How are the thyroid hormones synthesized?  
(ii) How does 'NO' produce its effect as second messenger? 3+2
  - (b) (i) What is the role of prostacyclin and thromboxane in blood coagulation?  
(ii) How is Nucleic acid digested in the stomach?  
(iii) Name the enzymes involved in this process. 2+2+1
  - (c) Write down one important function of each of the following pituitary hormones : 1×5
    - (i) TSH (ii) FSH (iii) GH (iv) LH (v) Prolactin.
  - (d) Which organ maintains acid-base balance of human body and how? 1+4

Answer **any three** questions taking at least **one** from **each Unit**.

### Unit - I

3. (a) What is meant by thermal homeostasis?  
 (b) How does Renin-Angiotensin system work to raise blood pressure?  
 (c) What is the cause of nephrogenic Diabetes Insipidus? 3+4+3
4. (a) Discuss the main steps in the digestion of proteins in the digestive tract.  
 (b) Define  
     (i) Tidal volume, (ii) Residual volume and (iii) Vital capacity.  
 (c) What is the role of vitamin K in blood clotting? 4+(1½×3)+1½

### Unit - II

5. (a) How is epinephrine synthesized? Write down the pathway.  
 (b) Describe the Hypothalamic-pituitary-gonadal axis.  
 (c) How is blood glucose concentration maintained? 3+4+3
6. (a) Write down the causes of each of the following disorders :  
     (i) Gigantism  
     (ii) Acromegaly  
     (iii) Dwarfism.  
 (b) How many different ways a body respond to stress condition? (2×3)+4

### Unit - III

7. (a) Write down the roles of adiponectin cholecystokinin and leptin.  
 (b) Name three GI tract hormones and write at least one function of each.  
 (c) Schematically explain the phospholipase C signalling pathway. 3+3+4
8. (a) Write down the role of cAMP, cGMP, IP<sub>3</sub> in the process of signal transduction citing one example for each.  
 (b) Write down three functions of thyroid hormones. Define (i) Hashimoto's disease and (ii) Graves' disease. (2×3)+(2+2)
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