

Shahjalal University of Science and Technology, Sylhet
Department of Biochemistry and molecular biology
 B.Sc. (Hons) 3rd Year 1st Semester Examination, 2013
Course No. BMB 326, Course name: Endocrinology
 Credit 3, Total marks: 70, Time: 3 hrs.

Instructions:

- Marks for the each question are same
- Answer any two (2) from of each part

Part- A

1. a) Write down the classification of hormones based on mechanism of action.
Give an example from each group. 4
- b) Write down the general features of group I hormones. 2.5
- c) Describe the mechanism of action of group I hormones with a diagram. 6
- d) Phosphatidylinositolide metabolism affects Ca^{2+} dependent hormone action, discuss briefly with a diagram. 5
2. a) Briefly discuss the physiologic and biochemical actions of growth hormones. 5
- b) Write down the functions of the following hormones (any three): $3 \times 1.5 = 4.5$
 - i) Follicle stimulating hormone (FSH)
 - ii) Thyroid- stimulating hormone (TSH)
 - iii) Oxitocin
 - iv) Adrenocorticotrophic hormone (ACTH)
- c) Describe the model of iodide metabolism in the thyroid follicle with a diagram. 5
- d) Briefly discuss the role of thyroid hormones in the pathophysiology of thyroid disorders. 3
3. a) Describe the subcellular compartmentalization of glucocorticoid biosynthesis. 5
- b) Explain with an illustration that- the renin-angiotensin-aldosterone system regulate the blood pressure. 5
- c) "Glucocorticoid hormones regulate gene expression"- Discuss briefly. 4.5
- d) Write down the function of catecholamines. 3

Part-B

4. a) Write down the function of gonadal sex hormones. 3.5
- b) Show the pathway of testosterone biosynthesis from cholesterol with structures. 6
- c) Draw a graph showing the level of following hormone during normal pregnancy. 4
 - i) Human chorionic gonadotropin (hCG)
 - ii) Human chorionic somatomammotropin (hCS)
 - iii) Pregnenediol
 - iv) Estriol.
- d) Discuss the role of hCG and estrogen during pregnancy. $2+2=4$
5. a) What are the pancreatic hormones? Write down the functions of them. 3
- b) Briefly describe the biosynthesis of insulin. 4
- c) What is C-peptide? Write down the importance of C-peptide. 2.5
- d) Diagrammatically discuss the accelerated lipolysis during severe insulin deficiency. 5
- e) Write down the location and major function of the following hormones: 3
 - i) Gastrin, ii) Cholecystokinin, iii) Somatostatin.
6. a) List the stimulatory and inhibitory hormones for adenylyl cyclase action. 4
- b) Write short note on Calmodulin. 4
- c) Give a flowchart of catecholamine biosynthesis with their structure. 4.5
- d) Discuss the diversified effects of glucocorticoid hormones. 5