

SC

Note: Answer to all questions (including multiple choice questions) should be written in the provided answer book only. For MCQ, do write both correct option(s) as well as answers.

SEAT No. _____

[82]

SARDAR PATEL UNIVERSITY
M.Sc. (IV-SEMESTER) Examination
SATURDAY, 30th March, 2019
10:00 to 1:00 pm
M.Sc. Biochemistry
PS04EBIC27: ENDOCRINOLOGY

No. of Printed Pages : 2

TOTAL MARKS: 70

Q.1 Tick mark / select the correct answer for the following. (Only correct option against given question number needs to be written in provided answer book) (08 Marks)

- 1) These are lipid soluble hormones derived from cholesterol.
 - a) Steroids
 - b) Thyroid hormones
 - c) Nitric Oxide
 - d) Amine hormones

- 2) What is a major difference in the action of a water-soluble hormone versus a lipid soluble hormone?
 - a) Lipid soluble hormones bind to cell surface receptors
 - b) How the mRNA is transcribed
 - c) The use of a second messenger
 - d) Only one type needs a hormone receptor

- 3) One of the following helps in bone remodeling
 - a) Osteoblasts
 - b) Osteoclasts
 - c) Osteocytes
 - d) Chondrocytes

- 4) _____ facilitates tyrosine conversion to L-Dopa
 - a) Dopa decarboxylase
 - b) Tyrosine decarboxylase
 - c) Tyrosine hydroxalase
 - d) Dopa hydroxalase

- 5) Which hormone is secreted in response to decreases in blood glucose concentration?
 - a) Glucagon
 - b) Insulin
 - c) Luteinizing hormone
 - d) Parathyroid hormone

- 6) Addison's disease is best marked by:
 - a) It involves the overproduction of cortisol and aldosterone by adrenal cortex
 - b) It is a long term endocrine disorder in which the adrenal glands do not produce enough steroid hormone
 - c) It involves the overproduction of androgens by the adrenal medulla
 - d) It involves the underproduction of androgens by the adrenal medulla

- 7) These cells secrete testosterone.
 - a) Leydig cell
 - b) Sertoli cells
 - c) Spermatogenic cells
 - d) Oogonia

- 8) The surge in one of the following hormone signals that ovulation is about to start.
 - a) FSH
 - b) GnRH
 - c) LH
 - d) HCG

(1)

(P.T.O)

- Q.2** Answer any seven from the following: 14
- a) Explain the role of aquaporins
 - b) In which endocrine organ would you find magnocellular and parvicellular neurons? Enlist the hormones secreted by these neurons.
 - c) Explain the endocrinology involved in development of 'Cushing syndrome'?
 - d) What is 'Wolff-Chaikoff' effect?
 - e) State major points of difference between bone modelling and bone remodelling
 - f) State the effect of insulin on carbohydrate and lipid metabolism.
 - g) Enlist the enzymes involved in steroid hormone synthesis and metabolism.
 - h) Enlist any three hormones of placenta and discuss their endocrine function.
 - i) Explain the key steps of testosterone biosynthesis with the help of a flow chart.
- Q.3** (A) What is homeostasis? Explain how hormones can control their own release through feedback regulation. 6
- (B) Enlist the hypothalamic neuropeptides and briefly discuss the hormones of anterior and posterior pituitary gland. 6
- OR**
- (B) Enlist the different classes of hormones. Mention the role of G protein coupled receptors in signal transduction mechanism. 6
- Q.4** (A) Describe the distribution of iodine and the mechanism of thyroid hormone concentration in the thyroid gland. 6
- (B) Provide detailed account of the cellular effects of PTH and Vitamin D. 6
- OR**
- (B) Write short notes on: 6
- (i) Hypoparathyroidism Vs Hyperparathyroidism
 - (ii) Calcium homeostasis
- Q.5** (A) Illustrate the anatomical zones of the adrenal gland. How the mineralocorticoid synthesis and release maintains fluid and electrolyte balance? 6
- (B) List the principal target organs for insulin and glucagon action and their major physiologic effects. 6
- OR**
- (B) Write a short note on: 6
- (i) Diabetes mellitus (ii) Glucose transporters
- Q.6** (A) Enlist the male gonadal hormones and discuss their specific actions. 6
- (B) Explain the regulation of mammary gland development during puberty, pregnancy, and lactation, and explain the mechanisms that control milk production and secretion. 6
- OR**
- (B) Give diagrammatic overview of menstrual cycle with special emphasis to hormonal changes occurring during the different phases of menstrual cycle. Add a note on any two female contraceptive (birth control) methods. 6

— X —
 (2)