

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. \_\_\_\_\_  
[83]

SARDAR PATEL UNIVERSITY  
M.Sc. (IV-SEMESTER) Examination  
SATURDAY, 30<sup>th</sup> March, 2019  
10:00 to 1:00 pm  
M.Sc. Biotechnology  
PS04EBIT27: 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 hydroxylase
  - d) Dopa hydroxylase
- 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
- Explain the role of aquaporins
  - In which endocrine organ would you find magnocellular and parvocellular neurons? Enlist the hormones secreted by these neurons.
  - Explain the endocrinology involved in development of 'Cushing syndrome'?
  - What is 'Wolff-Chaikoff' effect?
  - State major points of difference between bone modelling and bone remodelling
  - What is insulin resistance?
  - Enlist the enzymes involved in steroid hormone synthesis and metabolism.
  - Enlist any three hormones of placenta and discuss their endocrine function.
  - 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
- Hypoparathyroidism Vs Hyperparathyroidism
  - 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
- Diabetes mellitus
  - 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