2015

M.Sc.

4th Semester Examination

HUMAN PHYSIOLOGY

PAPER—PHY-401

Full Marks : 40

Time : 2 Hours

The figures in the right-hand margin indicate full marks.

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

Illustrate the answers wherever necessary.

(Unit—37)

Answer all questions from the following :

1. (a) How is target gene recognition occur by nuclear receptors ?

(b) What is receptor dimerization ? 3+2

Or

(a) Describe diagramatically the synthesis of GHRH from GHRH gene.

(b) State critically the regulation of hypothalamic-pituitary-growth hormone axis. 2+3

(Turn Over)

2. (a) Describe the role of transription factors in the development of human anterior pituitary gland and its cell lineage.

(b) What are pituitary stem cells ? $3\frac{1}{2}+1\frac{1}{2}$

Or

(a) State briefly how synthesis, secretion and transport of vasopressin is coordinated ?

(b) Discuss graphically the relationship of osmolality, volume, pressure with plasma vasopressin level.

$2\frac{1}{2}+2\frac{1}{2}$

3. (a) What is TBG ?

(b) Briefly discuss the role of thyroglobulin (Tg) in thyroid hormone synthesis.

(c) Mention the name of the major transcriptional activation domain of thyroid hormone receptor (TR) with suitable diagram.

1+2+2

Or

(a) How does Cushing's syndrome affect metabolism of our body ?

(b) Breifly state the long term response of glucocorticoids during stressful condition.

(c) "Excess aldosterone causes hypokalemia and muscle weakness" — Why ? 2+2+1

4. (a) Describe the regulation of parathyroid hormone gene.

   (b) Discuss the stromal cell control of osteoclastogenesis and osteoclast activity by parathyroid hormone.

$2\frac{1}{2}+2\frac{1}{2}$

Or

   (a) What is self tolerance ? Discuss the peripheral T and B cell tolerance mechanism.

   (b) Mention the names of organ specific autoimmune diseases. $(1+1\frac{1}{2}+1\frac{1}{2})+1$

(Unit—38)

Answer all questions from the following :

1. (a) Mention three major components of sex development.

   (b) What is bipotential gonad ? Elaborate the genetic regulation of gonadal development. 1+(1+3)

Or

   (a) What is spermatogoniogenesis ?

   (b) Discuss the intrinsic and extrinsic regulation of spermatogenesis. 2+(2+1)

2. (a) What is cervical ripening or cervical softening ?

   (b) Discuss the endocrinology of parturation in humans.

2+3

Or

(a) "Infertility is closely related to endometriosis". Justify it.

(b) Write the sign and symptoms of ectopic pregnancy

(c) Mention the diagnostic methods of ectopic pregnancy 2+2+1

3. (a) What are progesteron-only oral contraceptives? Mention the demerits of its use.

(b) What do you know about "Intrauterine devices"? (2+1)+2

Or

(a) Where in the reproductive organs can ROS be generated?

(b) Describe the effect of oxidative stress on sperm motility and spermatozoa DNA. 1+2+2

4. (a) Discuss shortly the functional changes of cardio-vascular system with special emphasis on ductus venosus and liver circulation.

(b) How growth factors are responsible for neonatal development?

(c) Write the physiological importance of chromium during embryonic growth. 2+2+1

Or

(a) Describe the effects of melatonin on reproductive functions.

(b) Write the antigonadal role of melatonin. 3+2
