

2016

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) Mention the general features of nuclear receptor ligands.
- (b) Elaborate the structural basis of nuclear receptor ligand binding and cofactor recruitment. 2+3

Or

- (a) Discuss the biosynthesis of TRH describing the structural organization of human TRH gene.
- (b) "TRH is a potent PRF." – justify it. $2\frac{1}{2}+2\frac{1}{2}$

(Turn Over)

2. (a) Describe the structural characteristics of lactotrophs.
 (b) Discuss how vasopressin produces antidiuresis in presence of aquaporins. 2+3

Or

- (a) How prolactin secretion is regulated?
 (b) Write a note on 'Ligand-dependent' and 'Ligand-independent' dimerization of prolactin receptor.

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

3. (a) Critically describe the cellular uptake and intracellular binding of thyroid hormones.
 (b) Discuss briefly the role of deiodinases in the metabolic effects of thyroid hormones. $2\frac{1}{2}+2\frac{1}{2}$

Or

- (a) Schematically describe the pathway of adrenal steroidogenesis.
 (b) Mention the anti-inflammatory role of corticoids.

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

4. (a) Describe the signaling of parathyroid calcium-sensing receptor.
 (b) How calcium reabsorption is stimulated in kidney by the parathyroid hormone? $2\frac{1}{2}+2\frac{1}{2}$

Or

- (a) State the regulation of the number of parathyroid cells in parathyroid gland.
- (b) Discuss how the process of phosphate transport is inhibited in kidney. 2+3

(Unit—38)

Answer all questions from the following :

1. (a) What do you mean by "chromosomal sex" and "gonadal sex" ?
- (b) State the role of different transcription factors in sex development. 1+4

Or

- (a) What is gonadotrophin independent phase of folliculogenesis ?
- (b) Mention the cytokines those facilitate in folliculogenesis.
- (c) What is spermatogenetic dynamics ? 2+2+1
2. (a) Briefly write the role of feto-placental unit in the maintainance of pregnancy.
- (b) Write the condition and criteria of pregnancy at unknown location (PUL). 2+3

Or

- (a) Describe briefly the molecular basis of implantation.
- (b) State briefly the role of prostaglandins in parturition.
- (c) Briefly explain the role of hormones on endometriosis.

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

3. (a) Mention the different approaches for contraception ?
(b) Write the mechanism of action of combined hormonal contraceptives. 2+3

Or

- (a) Discuss the relationship of oxidative stress and apoptosis in male reproductive system.
(b) What is leukocytospermia ? 4+1
4. (a) How melatonin critically regulate the sperm count and menstruation cycle ?
(b) Write the importance of epidermal growth factor (EGF) for neonatal development. 3+2

Or

- (a) "Melatonin plays a major role on breast cancer treatment" – How ?
(b) Briefly discuss the weekly development of respiratory lumen of neonate. 2+3
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