

2013

M.Sc.

1st Semester Examination

HUMAN PHYSIOLOGY

PAPER—PHY-104

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—07

Answer all questions.

1. Discuss the different neural mechanisms of sensory coding. 5

Or

What are neurotrophins? Write on various types of neurotrophin discovered sofar. 1+4

(Turn Over)

2. Describe the mechano-chemical changes during skeletal muscle contraction mentioning the role of accessory muscle proteins.

5

Or

What is latch-bridge mechanism of smooth muscle contraction? Discuss the molecular mechanism of smooth muscle contraction.

1+4

3. (a) What is myotatic reflex? Mention its significance.
 (b) What is vestibulo-ocular reflex? What do you understand by caloric testing of vestibular function?
 2+(2+1)

Or

- (a) Discuss the role of dopamine in modulation of basal ganglia circuits and how does it help to explain different manifestations of basal ganglia disorders.
 (b) What are medium spiny neurones?

4+1

4. (a) Discuss the molecular components of synaptic vesicles.
 (b) Describe the structure of gap-junction channel.

2+3

Or

- (a) Briefly describe the mechanism of neuromodulation at the synapse.
- (b) What are small molecule transmitter substance? Give examples and mention their precursors.

4+1

Unit—08

Answer all questions.

1. (a) Mention the three components homeostatic regulation. State the positive and negative feedback mechanism in homeostasis.

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

Or

- (b) State critically how calcium and phosphate homeostasis is accomplished in our body.

5

2. (a) Describe briefly the role of AVP and aquaporins on water permeability of renal collecting duct.

State the special role of urea in urine concentrating mechanism.

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

Or

- (b) What is GALT? Mention three basic populations where GALT is distributed. What is microfold cell?

1+3+1

3. (a) (i) Describe the biochemical mechanism of action of low molecular weight heparin (LMWH) during anticoagulation.

- (ii) What do you mean by recombinant tissue plasminogen activators?

3+2

- (b) (i) How are platelet plugs formed during hemostasis?

- (ii) Describe the role of fibroblast or monocyte during coagulation.

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

4. (a) Elaborate the enzyme mediated defence mechanisms to maintain the redox homeostasis in our body.

5

- (b) "Redox-mediated mechanisms can modify interacting proteins and stability of signaling proteins" — explain it.

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