

2016

PHYSIOLOGY - PAPER-II

Time Allowed : 3 Hours

Full Marks : 200

If the questions attempted are in excess of the prescribed number, only the questions attempted first up to the prescribed number shall be valued and the remaining ones ignored.

Answers may be written either in English or in Bengali but all answers must be in one and the same language.

GROUP-A

Answer any six questions.

1. a) Define Wallerian degeneration. 4
- b) Describe the process of degeneration in peripheral nervous tissue. 14
- c) Name the cells and their specific regions of involvement in the process of regeneration. 2
2. a) Define synaptic plasticity. 2
- b) Explain the basis of hippocampal long term potentiation. 14
- c) What is long term depression. 4
3. a) Outline the Mechanisms of heat loss in mammals. 8
- b) Discuss the process of non-shivering thermogenesis. 12
4. a) Briefly over view the Mechanism of ovulation. 10
- b) Elaborate the role of various hormones in the regulation of human menstrual cycle. 10
5. a) Define accommodation. 2
- b) Discuss the Mechanism underlying the phenomenon of accommodation. 8
- c) Schematically illustrate the neural pathway of accommodation reflex. 10
6. a) Enlist the causes and symptoms of various diseases associated with adreno-cortical dysfunctions. 10
- b) Summarize the physiological actions of glucocorticoids. 10
7. a) Name the various gaseous air pollutants with their sources. 8
- b) Give an account of various occupational diseases caused by air pollutants. 4
- c) What are the preventive measures to reduce air pollution ? 8

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| 8. a) | How is BMI estimated ?                        | 4 |
| b)    | How is BMI interpreted ?                      | 8 |
| c)    | What are the significances of BMI assessment. | 8 |

GROUP-B

Answer any four questions.

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| 9. a)  | Draw and describe the ultrastructure of neuro-muscular junction.  | 8   |
| b)     | Schematically mention the mechanism of neuro-muscular transmission.   | 12  |
| 10. a) | Classify reflexes with examples.  | 10  |
| b)     | What is reaction time ?   | 4   |
| c)     | Outline the principle of reciprocal innervation.  | 6   |
| 11. a) | Discuss the morphological peculiarities and associated hormonal secretions of anterior pituitary.   | 12  |
| b)     | Review the physiological actions of growth hormone.   | 8   |
| 12. a) | What is decibel ?   | 4   |
| b)     | Define endocochlear potential.  | 4   |
| c)     | Illustrate with suitable diagram the mechanism of transmission of sound through the auditory apparatus.                                   | 12  |
| 13.    | Write short notes on <u>any four</u> of the following :-  |     |
| a)     | Neural basis of REM sleep.  |     |
| b)     | Safety challenges of mass immunization.   |     |
| c)     | Hypothyroidism.   |     |
| d)     | VO <sub>2</sub> max   |     |
| e)     | Health hazards of water pollution.  | 5x4 |
| 14. a) | Draw a labeled diagram of vertical section of human skin. Mention the functions of skin.  | 5+5 |
| b)     | Draw the histological structure of testis illustrating the various spermatogenic cells. Mention the Secretory functions of Sertoli Cells. | 7+3 |