

**PHYSIOLOGY**

**PAPER – IV**

PHY/D/13/36/IV

Time : 3 hours  
Max. Marks : 100

**Important instructions:**

- Attempt all questions in order.
- Each question carries 10 marks.
- Read the question carefully and answer to the point neatly and legibly.
- Do not leave any blank pages between two answers.
- Indicate the question number correctly for the answer in the margin space.
- Answer all the parts of a single question together.
- Start the answer to a question on a fresh page or leave adequate space between two answers.
- Draw table/diagrams/flowcharts wherever appropriate.

1. Describe and classify cell adhesion molecules. Discuss their role during embryogenesis. 7+3
2. Describe and classify growth factors. Discuss the mechanism of action of any one. Add a note on its clinical application. (3+1)+4+2
3. Describe the strength – duration curve and the factors affecting it. How is it obtained? Enumerate the parameters of clinical significance. 5+3+2
4. What is Reynold's number? List the factors affecting it. Correlate its increase with turbulence giving examples. 2+4+4
5. Describe thyroid hormone synthesis. Explain Wolff-Chaikoff effect. 5+5
6. Describe the microanatomy of testes. Discuss the process of spermatogenesis. Mention the role of various components of genital tract in the composition of semen. 3+5+2
7. What is electromyography? Describe its clinical utility. 3+7
8. Compare and contrast the refractory periods noted in various excitable tissues. Give reasons for differences. 5+5
9. State the Poiseuille-Hagen formula for flow in blood vessels. Discuss the influence of hematocrit and blood viscosity on blood flow. 5+5
10. Discuss the physical properties of sound stimulus. Describe the bio-physical basis of loudness of sound. 5+5

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