

2021
ZOOLOGY
[HONOURS]
Paper : IX

Full Marks : 80

Time : 4 Hours

*The figures in the right-hand margin indicate marks.**Candidates are required to give their answers in their own words as far as practicable.*1. Answer any **seven** questions of the following:

1×7=7

- a) Define 'mordant'.
- b) What is Periodic Acid Schiff?
- c) Name one animal with macrolecithal egg.
- d) What is Pyrexia?
- e) Give one example of non-coagulant primary fixative.
- f) What is glomerular filtration rate?
- g) What is Z-line?
- h) What is acromegaly?
- i) What are mineralocorticoids?
- j) What is Area Opaca?

*[Turn over]*2. Answer any **six** questions of the following:

2×6=12

- a) What do you mean by extra embryonic membrane? Give example.
- b) State the function of Henle's loop.
- c) What is the significance of using 'graded alcohol' in dehydration during staining?
- d) What is stain? Give one example of 'natural stain'.
- e) What is depolarization and repolarization of nerve?
- f) What is H-zone?
- g) Name one peptide and one steroid hormone with their originating organ.
- h) What is spermiogenesis?

3. Answer any **three** questions of the following:

7×3=21

- a) i) What is non-deciduous placenta? Give example.
- ii) Write a short note on function of placenta. (2+1)+4
- b) i) What is morphogenetic movement?
- ii) State the differences between Epiboly and Emboly.
- iii) Write a short note on fate map of chick.

1+2+4

- c) i) Define hormone.
 ii) State the differences between peptide and steroid hormones.
 iii) Mention the cause and symptom of Cushing's disease. 1+2+(2+2)
- d) i) What is carbon-dioxide dissociation curve?
 ii) Describe 'chloride Shift'. 2+5
- e) Describe the role of Troponin and Ca⁺ in muscle contraction. 3½+3½

4. Answer any **four** questions of the following:

$$10 \times 4 = 40$$

- a) i) Write down the histological structure and function of mammalian Islets of Langerhans.
 ii) Name the layers forming Adrenal Cortex in mammals. (4+3)+3
- b) i) What is Schiff's reagent?
 ii) Why are stains taken up into the tissues?
 iii) Write a note on in-situ hybridization technique. 2+3+5
- c) i) What is Thermotaxis?
 ii) Describe the mechanism of thermogenesis in mammals.

- iii) Write down the factor affecting body temperature in mammals.
 iv) What is the role of hypothalamus in mammalian heat regulation? 2+3+3+2

- d) i) What is renal plasma flow?
 ii) Write down the factors affecting Glomerular Filtration Rate.
 iii) Describe the counter current mechanism in mammalian urine formation. 2+3+5

- e) i) What is resting potential?
 ii) Write down the differences between Negative after-potential and Positive after-potential.
 iii) What is 'Local circuit theory' of nerve impulse propagation?
 iv) Write a note on 'Saltatory Conduction'. 2+2+2+4
- f) i) Describe the phases of menstrual cycle.
 ii) Write down the neuro-endocrine control of menstrual cycle.
 iii) What is Estrous Cycle? 4+4+2