

B.Sc. 6th Semester (Honours) Examination, 2023 (CBCS)

Subject : Zoology

Course : CC-XIII

(Developmental Biology)

Time: 2 Hours

Full Marks: 40

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

Group – A

1. Answer *any five* questions of the following:

2×5=10

- (a) What is follicular atresia?
- (b) Where does the allantois derive from?
- (c) What do you mean by placental barrier?
- (d) State the source and function of 'uterine milk'.
- (e) What is epimorphic regeneration?
- (f) Write the significance of sertoli-sertoli junctional complex.
- (g) Mention basic steps involved in the process of 'in-vitro' fertilization.
- (h) During which stage of foetal development are teratogens most harmful?

Group – B

2. Answer *any two* of the following questions:

5×2=10

- (a) Give a brief account of different types of eggs in accordance to distribution of yolk with examples for each. 5
- (b) What is blastodisc? Represent the formation of primitive streak in chick with proper diagram. 1+4
- (c) What is the relationship between organizer and competence? Discuss briefly the role of organizer in embryonic development with suitable example. 2+3
- (d) What is amniocentesis? Does it help to detect genders? Mention the limitations of amniocentesis. 2+1+2

Group – C

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

10×2=20

- (a) Discuss briefly primary neurulation and secondary neurulation during the development of brain in vertebrates with proper diagram. State the role of N-cadherin in brain development. 8+2

B.Sc. 6th Semester (Honours) Examination, 2023 (CBCS)

Subject : Zoology

Course : CC-XIV

(Evolutionary Biology)

Time: 2 Hours

Full Marks: 40

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*Candidates are required to give their answers in their own words
as far as practicable.*

Group – A

1. Answer *any five* questions of the following: 2×5=10
- (a) Explain 'chemogeny'.
 - (b) Mention the steps involved in the process of evolution of eukaryotic cells from prokaryotic cells.
 - (c) Mention the different Eras of Phanerozoic Eon.
 - (d) Distinguish between microevolution and macroevolution with suitable examples.
 - (e) Differentiate between symplesiomorphy and synapomorphy.
 - (f) What is 'ring species'? Give example.
 - (g) What do you mean by evolutionary intermediacy?
 - (h) What do you mean by 'polytypic species'?

Group – B

2. Answer *any two* of the following questions: 5×2=10
- (a) If all of the Hardy-Weinberg assumptions are met, allele frequencies stay constant and genotype frequencies are in Hardy-Weinberg proportion. Which of the H-W assumption, when violated, allows allele frequencies to change but leaves the genotype frequencies in H-W proportion? Which of the assumptions when violated does not change allele frequencies but causes a deviation from H-W proportions? Explain each case. 2.5+2.5
 - (b) Who proposed the Modern Synthetic Theory of evolution? Briefly describe different types of natural selection as explained in the synthetic theory. 1+4
 - (c) What is the first evidence of bipedalism? Describe briefly about the major adaptations for bipedalism. 1+4
 - (d) Differentiate between background extinction and mass extinction with suitable examples. 5

Please Turn Over

B.Sc. 6th Semester (Honours) Examination, 2023 (CBCS)

Subject : Zoology

Course : DSE-4

(Endocrinology)

Time: 2 Hours

Full Marks: 40

The figures in the margin indicate full marks.

*Candidates are required to give their answers in their own words
as far as practicable.*

Group-A

1. Answer *any five* questions of the following:

2×5=10

- (a) State two enteric neurohormones and the cells releasing them.
- (b) State the causes and symptoms of acromegaly.
- (c) What is the underlying cause of Addison's disease? What are its symptoms?
- (d) What is the significance of the ovarian cycle?
- (e) What are the sources of relaxin hormone and state its function?
- (f) Name four hormones that promote a sense of well-being in our minds.
- (g) Mention the secretions of parvocellular neurosecretory cells.
- (h) Name two commonly used radioisotopes used in RIA.

Group-B

Answer *any two* questions of the following:

2×5=10

- (a) Discuss the structure and position of pineal gland. Add a note on transport of thyroid hormone. 3+2
- (b) What are positive and negative feedback mechanisms? Explain citing suitable examples. 5
- (c) Elucidate the signalling mechanism in case of peptide hormone receptors. 5
- (d) Discuss the neuronal regulation of let down of milk. Mention the functions of the hormone secreted by the beta cells of the pancreas. 3+2

Please Turn Over

B.Sc. 6th Semester (Honours) Examination, 2023 (CBCS)**Subject : Zoology****Course : DSE-4 (OR)****(Reproductive Biology)****Time: 2 Hours****Full Marks: 40***The figures in the margin indicate full marks.**Candidates are required to give their answers in their own words
as far as practicable.***Group-A**

1. Answer *any five* questions of the following: 2×5=10
- (a) What are teratogens? Give an example.
 - (b) Name two steroid and two glycoprotein hormones.
 - (c) What is 'cumulus oophorus'?
 - (d) How is Graves disease different from simple goitre?
 - (e) Write down the general composition of birth control pill.
 - (f) What is 'pap smear test'?
 - (g) Name the hormones secreted by 'zona fasciculata' and 'zona reticularis'.
 - (h) What would happen—
 - (i) if two sperms fertilize the same egg cell?
 - (ii) if two sperms fertilize two egg cells?

Group-B

2. Answer *any two* questions of the following: 5×2=10
- (a) Which accessory structures contribute to the composition of semen? What are the functions of each structure? 2+3
 - (b) Give a schematic representation of control of male reproductive function by hormones from the hypothalamus, anterior lobe of the pituitary gland, and the testes. 5
 - (c) Mention the name of precursor for all steroid hormones in human. What event in the uterine cycle occurs when the levels of oestrogens and progesterone decrease? 1+4
 - (d) Define menopause. What are the physiological and hormonal changes that accompany this event? 1+4

B.Sc. 6th Semester (General) Examination, 2023 (CBCS)

Subject : Zoology

Course : DSE-1B

(Immunology)

Time: 2 Hours

Full Marks: 40

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

দক্ষিণ প্রান্তস্থ সংখ্যাগুলি পূর্ণমান নির্দেশক।
পরীক্ষার্থীদের যথাসম্ভব নিজের ভাষায় উত্তর দিতে হবে।

Group-A

বিভাগ-ক

Answer any five questions from the following:

2×5=10

যে কোনো পাঁচটি প্রশ্নের উত্তর দাও :

- Write the scientific names of a pathogenic bacterium and a pathogenic parasite.
রোগ সৃষ্টিকারী একটি ব্যাকটেরিয়া ও একটি পরজীবীর বৈজ্ঞানিক নাম লেখো।
- Mention the salient features of innate immunity.
Innate immunity-র প্রধান বৈশিষ্ট্যগুলি উল্লেখ করো।
- 'All immunogens are antigens, but all antigens are not immunogens'— justify.
'সমস্ত ইমিউনোজেন অ্যান্টিজেন, তবে সমস্ত অ্যান্টিজেন ইমিউনোজেন নয়'— যৌক্তিকতা বিচার করো।
- Explain 'Delayed-Type Hypersensitivity'.
'Delayed-Type Hypersensitivity' ব্যাখ্যা করো।
- Why is Type 1 Diabetes considered as an autoimmune disorder?
কেন Type 1 Diabetes-কে একটি autoimmune disorder হিসাবে বিবেচনা করা হয়?
- Differentiate between primary and secondary immunodeficiencies.
পার্থক্য নিরূপণ করো: primary এবং secondary immunodeficiencies।
- Define hapten. Give an example.
Hapten-এর সংজ্ঞা দাও। একটি উদাহরণ দাও।
- What is opsonization?
Opsonization বলতে কী বোঝো?

Please Turn Over