[Time: 3 Hours]   **[Marks:100]**

Please check whether you have got the right question paper.

N.B: 1. All questions are compulsory and carry equal marks.
          2. Figures to the right indicate full marks.
          3. Illustrate with neat labelled diagrams wherever necessary.
          4. Answer the question in proper order.

Q.1   Attempt **any two**:   **20**
a) Describe the general characteristics of Cephalochordata with a suitable example.
b) Explain the general characters of Subphylum Vertebrata.
c) Trace the origin of chordates to Echinoderm ancestry.

Q.2   Attempt **any two**:   **20**
a) Classify and describe the characteristic features of Superclass Pisces.
b) Explain the salient features of class Amphibia and add a note on tailless amphibian.
c) Classify and describe *Ichthyophis*.

Q.3   Attempt **any two**:   **20**
a) With a help of a suitable example highlight the features of pouched mammals and primates.
b) Give an account of general characters of class Aves.
c) Describe the characteristic features of class Reptilia and explain characters of one example.

Q.4   Explain the following with reference to shark (**Any two**):   **20**
a) Digestive system
b) Female Urinogenital system
c) Appendicular skeleton

Q.5   Write short note on (**any four**):   **20**
a) Class Larvacea
b) *Amphiuma*
c) Class Placodermi
d) *Sloth*
e) *Sphenodon*
f) Economic importance of shark.

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Q.P.Code: 52207

[Time: $2\frac{1}{2}$ Hours]   [Marks:75]

Please check whether you have got the right question paper.

N.B: 1. All questions are compulsory.
        2. Figures to the right indicate full marks.
        3. Draw neat labelled diagrams wherever necessary.
        4. Write answers in order.

Q.1   Describe the following:
a) Salient features of Urochordata   **07**
                            OR
a) Phylogeny of Cephalochordata   **07**

b) Metamorphosis in Ascidia   **08**
                            OR
b) General characteristics of chaetognatha   **08**

Q.2   Explain the following:
a) General characters of tailed amphibians   **07**
                            OR
a) general features of Class: Osteichthyes   **07**

b) Skates and Rays   **08**
                            OR
b) Salient features of limb-less amphibians   **08**

Q.3   Describe the following:
a) General characters of class: Aves. Add a note on Jungle fowl   **07**
                            OR
a) General characters of aquatic mammals with suitable example   **07**

b) General characters of class: Reptilia. Add a note on Extinct reptiles   **08**
                            OR
b) Salient features of toothless mammals with suitable example   **08**

Q.4   Explain the following:
a) Habit, habitat, distribution and external characters of shark   **07**
                            OR
a) Pelvic girdles in shark   **07**

b) Urinogenital system in male shark   **08**
                            OR
b) VII and IX cranial nerves in shark   **08**

Q.5 Write short note on:
   a) General characters of Cephalochordata **04**
   OR
   a) Sagitta **04**

   b) Neoteny in Amphibia **04**
   OR
   b) Lamprey **04**

   c) Sphenodon **04**
   OR
   c) Wading birds **04**

   d) Economic importances of shark **03**
   OR
   d) Classification of shark **03**

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Time: 3 Hrs   **Marks: 100**

N.B.
1. All questions are compulsory
2. All questions carry equal marks.
3. Draw neat and labelled diagrams wherever necessary.
4. Figures to the right indicate full marks.
5. Answer question in proper order.

Q.1	**Answer the following: (Any Two) :**	**20**
a)	Explain genetic causes of Huntington's disease and enlist its symptoms.	
b)	Describe the effects of non ionizing radiations on DNA.	
c)	Describe the mechanism of photoreactivation.	

Q.2	**Describe the following: (Any Two) :**	**20**
a)	DNA polymerases used in recombinant DNA technology.	
b)	Construction of genomic-DNA and cDNA libraries.	
c)	Methodology of Southern blotting.	

Q.3	**Answer the following: (Any Two) :**	**20**
a)	Describe the chromosomal aberrations involved in Robertsonian disorders.	
b)	Briefly describe genetic disorders associated with breast cancer.	
c)	Discuss methodology and applications of amniocentesis.	

Q.4	**Explain the following: (Any Two) :**	**20**
a)	NCBI.	
b)	Protein sequence databases.	
c)	Types of sequence alignments.	

Q.5	**Write short notes on: (Any Four) :**	**20**
a)	Leucine zipper motifs in regulatory proteins.	
b)	Use of T4 DNA ligase in gene cloning.	
c)	Prader Willi syndrome.	
d)	Metabolomics.	
e)	Tautomeric shifts.	
f)	Intercalating agents.	

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