

Model Question of HSC Examination 2020

Biology Second Paper

Subject Code :

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Time — 2 hours 35 minutes Creative Essay Type Full Marks — 50

[N.B. -The figures in the right margin indicate full marks. Read the stems carefully and answer the associated questions. Answer any five questions.]

1. ★

Categories of Animal	Fundamental Characteristics and Specialties
A	Ossiculus exoskeleton with pedicellaries; Ambulacral grooves. No haemal or perihemal system is present.
B	Most adaptable organic forms; Rod-like structure present; Specialized brain forms spinal cord; Endostyle is transformed into thyroid gland.

- a. What are flame cells? 1
- b. Why do we call that birds are glorified reptiles? 2
- c. Describe the general properties of the animals belonging to the category-A. 3
- d. "Animals of category-B are the survivors everywhere"— explain. 4

2. ► Carp fishes are familiar to Bengalis. *Labeo* is the most common carp of our country. It has gills to respire and special hydrostatic organ to float in different levels of water.

- a. What ductus cuvieri? 1

- b. What do you mean by circulus cephalicus? 2
- c. How does the animals respire using the mentioned gills in the stem? Describe. 3
- d. There is a significant role of this special organ to maintain the static balance of fish inside the water— explain in brief. 4

3. ★

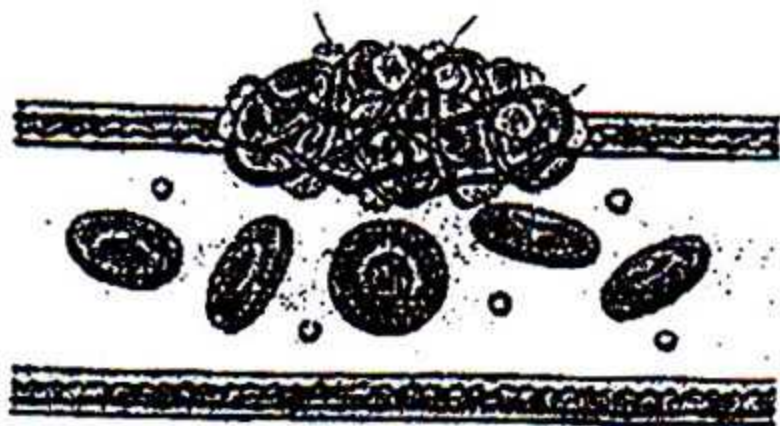


Figure-X

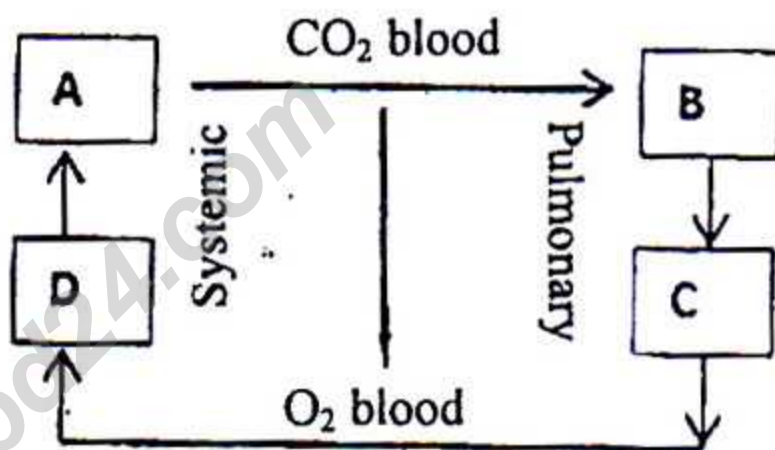


Figure-Y

- a. What is pacemaker? 1
- b. What do you mean by myogenic regulation? 2
- c. Describe the procedures of figure-X. 3
- d. "There is a significant contribution of A, B, C and D in the figure-Y to continue the mechanism"— explain. 4

4. ► There are several pairs of paranasal cavities in our face. When these cavities are filled up with liquid instead of air then infections are seen. These infections are known up rhinosinusitis.

- a. What is 'Hamburger's reaction?' 1
- b. What is mean by emprohysema? 2

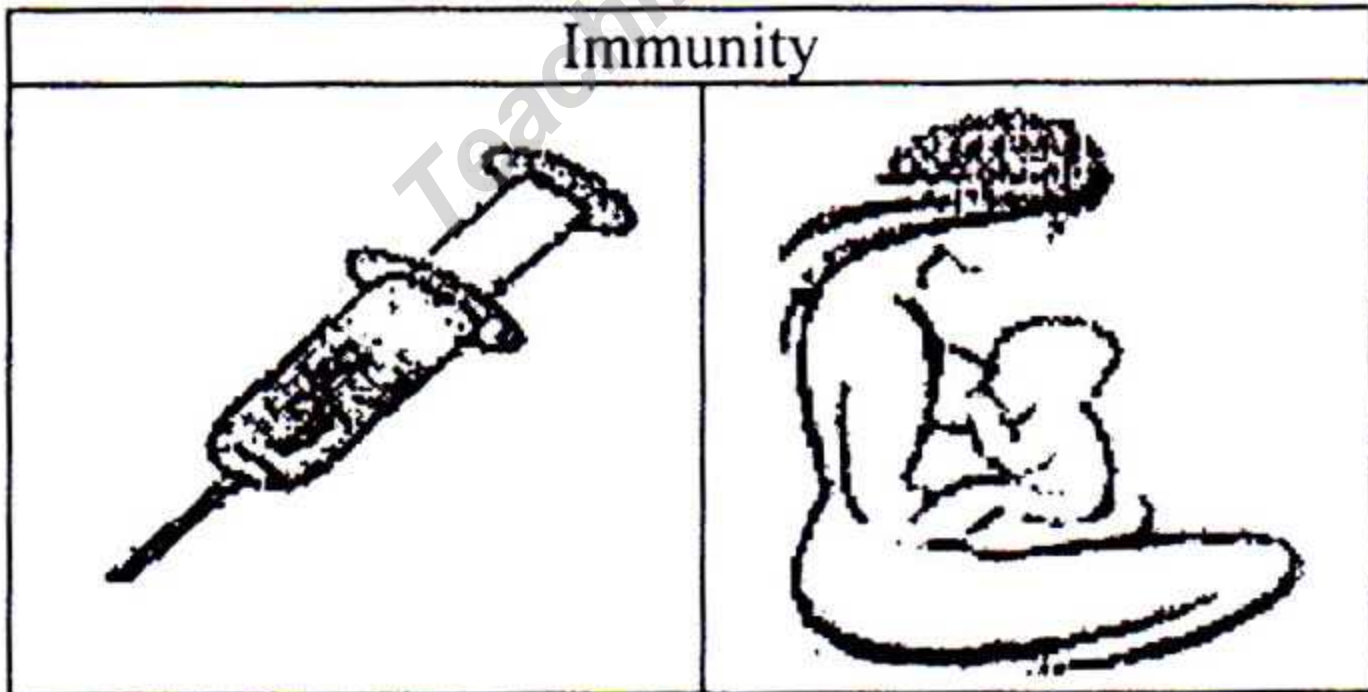
- c. Describe the cavities mentioned in the stem. 3
- d. "The mentioned infections are disruptive for normal living"— explain. 4

5. ►

Number	Category	Origin
IX	Mixed	Medulla Oblongata
X		Medulla Oblongata
XI		Medulla Oblongata

- a. What is thalamus? 1
- b. What do you mean by meninges? 2
- c. Write down the distribution and branches of the mentioned nerves. 3
- d. 'These nerves are same in origin but functionally different'— explain. 4

6. ►



Vaccination-A

Maternal antibodies B

- a. What is IgG? 1
- b. Why is the immunological memory important? 2

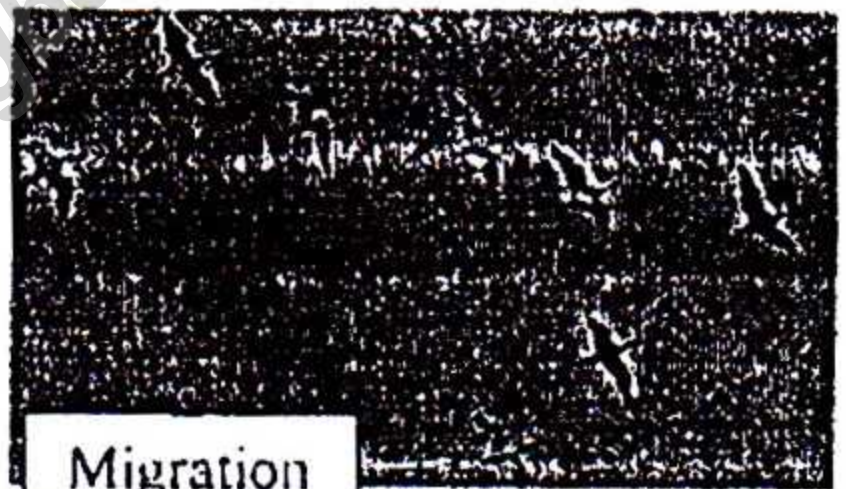
- c. Describe the functional procedures of A. 3
- d. "Fundamental immune response depends on B"— explain. 4
7. ► A person with brown eye and red-brown hair marries the woman who has blue eye and black hair. They have two sons now. One of them possesses brown eye and red-brown hair while the other one possesses blue eye and black hair. In case of human being the brown eye and black hair are dominant and the rest of the traits of these sons are recessive.
- a. What is erythroblastosis foetalis? 1
- b. What do you mean by bleeder's disease? 2
- c. Describe the Mendel's law that can explain this genetics. 3
- d. Make a statement on the genetics of these sons for getting the traits of their parents. 4

8. ★



Playing

Figure- 1



Migration

Figure-2

- a. What is "*Archaeopteryx*"? 1
- b. What is meant by 'survival of the fittest'? 2
- c. Make a difference in between of these two behaviors of animals mentioned above. 3
- d. "These behaviors are the surviving strategies of animals"— explain your opinion. 4

Biology Second Paper

Creative Multiple Choice Questions

Marks — 25

Time — 25 minutes

[N.B.—Answer all the questions. Each question carries one mark. Block fully, with a ball-point pen, the circle of the letter that stands for the correct/best answer in the "Answer Sheet" for Multiple Choice Questions Examination. use a ball point pen. Each question carries 1 mark.]

1. Which discipline deals with animal behavior?

- (a) Entomology (b) Ecology
(c) Ethology (d) Ethnozoology

2. In which class is the 'amoecete' larva found?

- (a) Ascidiacea
(b) Larvacea
(c) Cephalaspidonorphil
(d) Myxini

3. In case of Actinopterygii—

- i. Bony endoskeleton
ii. Ectothermic
iii. Diphycercal caudal fin

Which one is correct?

- (a) i & ii (b) i & iii
(c) ii & iii (d) i, ii & iii

4. Where does the coeliac artery circulate blood?

- (a) Stomach and liver
(b) Pancreas and liver
(c) Pancreas and kidney
(d) Liver and intestine

5. Which one is correct according to the function?

- (a) Prothrombin $\xrightarrow{\text{Fibrin} + \text{Ca}^{2-}}$ Thrombin
(b) Prothrombin $\xrightarrow{\text{Thromboplastin} + \text{Ca}^{2+}}$ Thrombin
(c) Hemostatic plug $\xrightarrow{\text{Fibrin}}$ Fibrinogen
(d) Pibrin net $\xrightarrow{\text{Factor-XIII}}$ Fibrin

6. Where do you find 'circulus cephalicus'?

- (a) Air bladder of *Labeo*
(b) Reproductive system of *Labeo*
(c) Venous system of *Labeo*
(d) Arterial system of *Labeo*

7. Which blood group belongs to "Bombay Phenotype"?

- (a) A (b) B

- (c) AB (d) O

8. Which one of the following ratios is the deviation of Mendel's 1st law?

- (a) 13:3 (b) 9:7
(c) 12:1 (d) 3:1

Read the stem attentively and answer the following two questions.

By the help of tricuspid and bicuspid valves blood enters into right and left ventricles respectively

9. Which of the followings will take place for considering the stem?

- (a) Diastole of atriums
(b) Diastole of ventricles
(c) Systole of atriums
(d) Systole of ventricles

10. When will the mentioned valves be closed?

- i. Systole of atriums
ii. Systole of ventricles
iii. Diastole of atriums

Which one is correct?

- (a) i & ii (b) i & iii
(c) ii & iii (d) i, ii & iii

11. Which of the following effects can be seen for 'CO' of cigarette?

- (a) Sinusitis (b) Bronchitis
(c) Meningitis (d) Mastoiditis

12. In case of "Bellini's duct"—

- i. Forming by collecting duct
ii. Nephron origin
iii. Neuron mediated

Which one is correct?

- (a) i & ii (b) i & iii
(c) ii & iii (d) i, ii & iii

13. Where do you find the podocyte?

- (a) Efferent arteries
(b) Afferent arteries
(c) Glomerular epithelium
(d) Glomeruler endothelium

14. What is the average weight of cerebellum?

- (a) 100gm (b) 150gm
(c) 200gm (d) 250gm

15. Which antibody is related to allergy?

- (a) IgA (b) IgM
(c) IgO (d) IgE

Notice the stem attentively and answer the following two questions.



16. Which of the followings is indicated by A?

- (a) Ventricle of hypothalamus
(b) Ventricle of thalamus
(c) Ventricle of cerebrum
(d) Ventricle of Medulla

17. In case of the figure—

- i. Filled up with CSF
ii. Enlargement with age
iii. 'Foramen of Monoro' is a connector

Which one is correct?

- (a) i & ii (b) i & iii
(c) ii & iii (d) i, ii & iii

18. A color-blind man married a normal woman. What is the phenotype of the followings below?

- i. carrier daughter
ii. Normal son
iii. Color-blind son

Which one is correct?

- (a) i & ii (b) i & iii
(c) ii & iii (d) i, ii & iii

19. Honey bee will swarm when—

- i. the queen becomes sterile
ii. insufficient habitaiton in hive
iii. they need to flee

Which one is correct?

- (a) i & ii (b) j & iii
(c) ii & iii (d) i, ii & iii

20. Which of the following structures can work as the hydrostatic skeleton in annelids?

- (a) Haemocoel (b) Coelenetron
(c) Cnidocil (d) Coelom

21. Which cranial nerve conducts "gag reflex"?

- (a) Auditory (b) Vagus
(c) Spinal accessories
(d) Glossopharyngeal

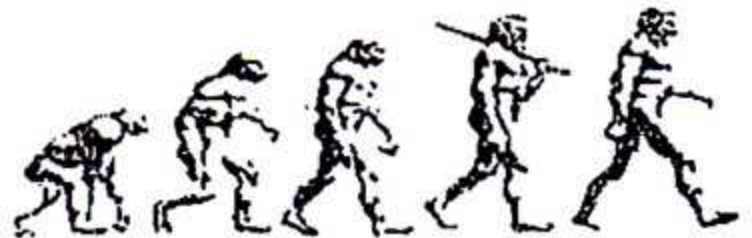
22. What is leukopenia?

- (a) Decreasing number of WBC
(b) Increasing number of WBC
(c) Decreasing number of RBC
(d) Increasing number of RBC

23. Which one of the followings is include second line immune defense in human?

- (a) Antibody (b) Fever
(c) Cereumen (d) Saliva

Notice the stem attentively and answer the following two questions.



24. What does the figure indicate?

- (a) Adaptation (b) Morphology
(c) Paleontology (d) Evolution

25. In case of the consequence of the mentioned ideology—

- i. Gradual changing of the morphology
ii. Adaptation of the fittest characters
iii. Survival to avoid extinction

Which one is correct?

- (a) i & ii (b) i & iii
(c) ii & iii (d) i, ii & iii

Ans.

1	(c)	2	(c)	3	*	4	(a)	5	(b)	6	(d)	7	(d)	8	(c)	9	(c)	10	(c)	11	(b)	12	(a)	13	(d)
14	(b)	15	(d)	16	(b)	17	(b)	18	(a)	19	(d)	20	(d)	21	(d)	22	(a)	23	(b)	24	(d)	25	(d)		