

# Model Question of HSC Examination 2020

## Biology First Paper

Subject Code : 

1	7	8
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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.]*

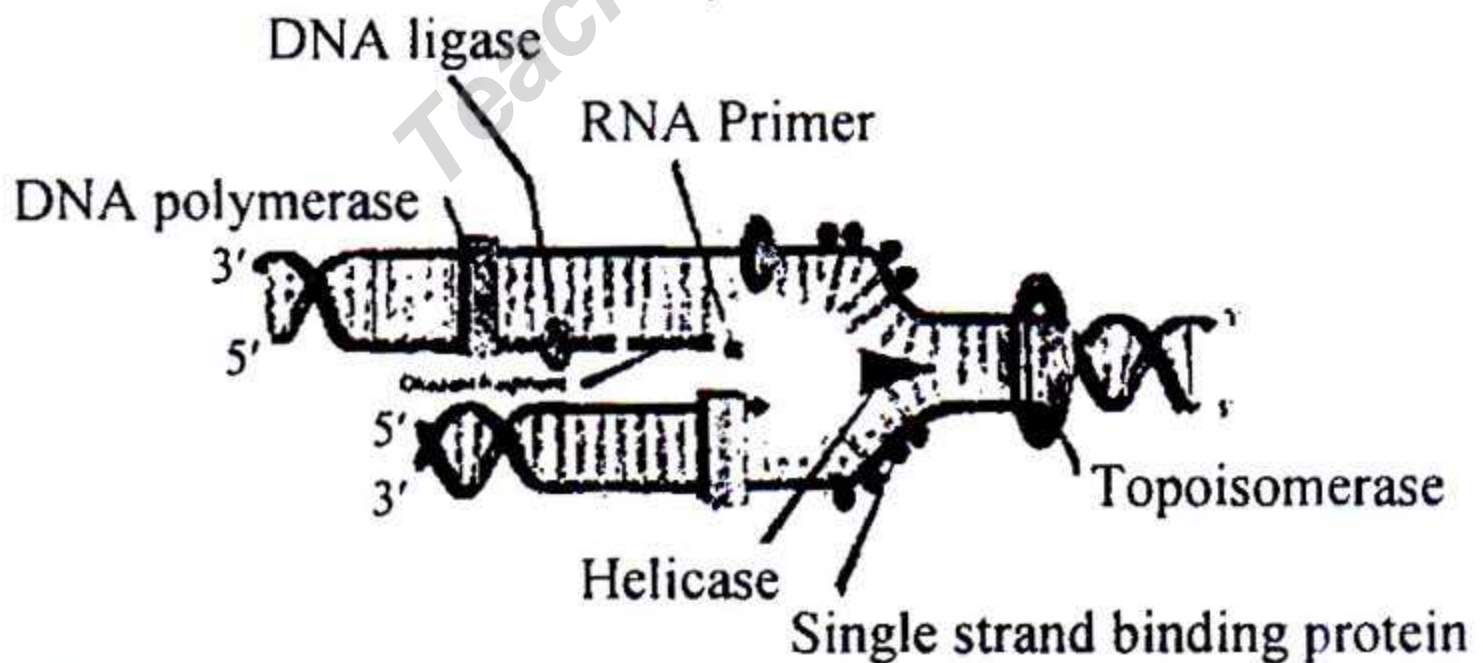
1. **★** Different physiological processes are take place in plant body. Among them with the help of photosynthesis plant produces its own food and by respiration foods are break down and produces lots of  $\text{NADH}_2$ ,  $\text{FADH}_2$ , GTP etc. Later these are helps to produce ATP through ETS.

- a. What is scion? 1
- b. Write down the differences between asexual and sexual reproduction? 2
- c. Prove by an experiment that, in photosynthesis  $\text{O}_2$  is released from  $\text{H}_2\text{O}$ , not from  $\text{CO}_2$ ? 3
- d. How ATP's are formed from  $\text{NADH}_2$ ? Discuss with the help of mentioned system. 4

2. **►** Mr. Alam had been felling some uneasiness for some days. He consulted a doctor who prescribed him Hbs Ag test. He found the result positive.

- a. What is super rice? 1

- b. What is erythropoietin and write its function? 2
- c. Identify the symptoms of Mr. Alam's disease. 3
- d. What will be the possible cause of that disease and how a person can prevent him from it? Analyze. 4
3. ► A– sexual reproduction      B– Artificial breeding
- a. What is photosynthesis? 1
- b. Mention the differences between light phase and dark phase of photosynthesis? 2
- c. Find out the role of above process 'B' in agriculture with example. 3
- d. For above process 'A' in plant, how gametes are comes in contact to each other? Analyse? 4
4. ►



- a. What is prophage? 1
- b. Write down the differences between viroid and prion? 2

- c. Find out the role of above labeled part in mentioned process. 3
- d. Analyze the physical structure of an organelle where the above process is happen. 4
5. ► A– tissue culture B– Recombinant DNA technology
- a. What is restriction enzyme? 1
- b. Why dehydration is seen in cholera affected person? 2
- c. Find out the advantage and disadvantage of above two processes. 3
- d. Analyze the role of above two processes for producing a transgenic plant. 4

6. ★



Fig-A

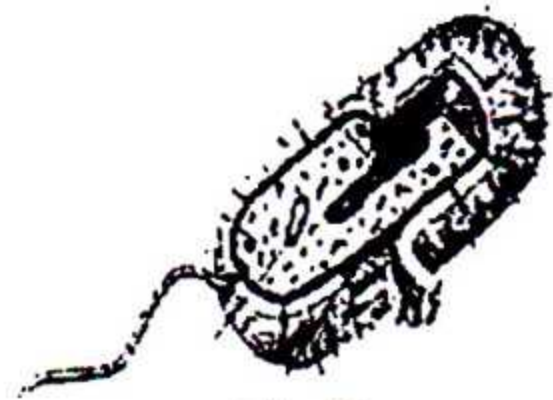


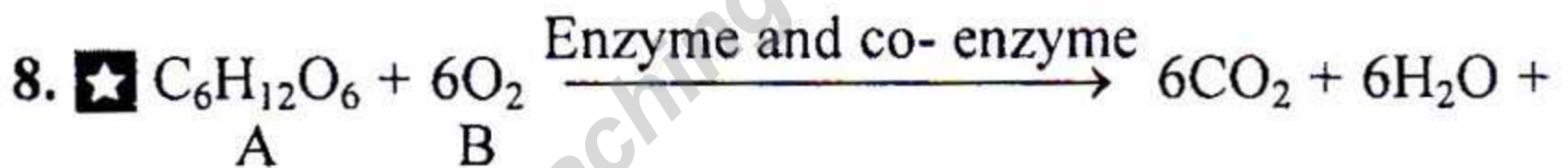
Fig-B

- a. What is nucleosome? 1
- b. What differences are present in semi conservative and dispersive replication? 2

- c. Why organism 'A' is called connecting link between non-living and living things? Explain. 3
- d. How organism 'A' helps in genetic recombination of organism 'B'? Analyze. 4

7. ► A– Monocot stem      B– Dicot stem

- a. What is fermentation? 1
- b. Write down the differences between photosystem I and II. 2
- c. Draw a well labeled diagram of mentioned part 'A'. 3
- d. Analyze the structural differences between above part A and B. 4



38 ATP

- a. What is bundle cap? 1
- b. Write down the differences between plate and mass meristematic tissue. 2
- c. If 'B' is absent, then what change will come? Explain. 3
- d. Show a diagrammatic presentation of the first stage of above process. 4

# Biology First 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. Main component of middle lamella is—

- (a) Cellulose (b) hemi cellulose  
(c) pectin (d) suberin

2. Who demonstrated that in DNA, A = T and G = C is equal?

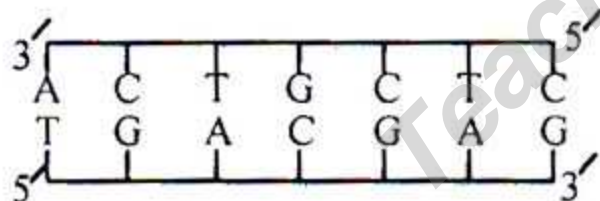
- (a) Griffith  
(b) Meselson and Stahl  
(c) Hershey and Chase  
(d) Chargaff

3. Nucleotide arrangement in DNA can be seen by—

- (a) Light microscope  
(b) Electron microscope  
(c) X-ray crystallography  
(d) Ultracentrifuge

4. The initiator AUG in prokaryotes codes for—

- (a) Valine  
(b) Formyl methioine  
(c) Phenyl alanine  
(d) Tyrosine



5. How many hydrogen bonds will present in above part of nucleic acid?

- (a) 14 (b) 16  
(c) 17 (d) 18

6. Who crystallized and isolated viruses for the first time?

- (a) W.M. Stanely  
(b) M.W. Baijerinck  
(c) F.C. Bawden  
(d) D. Ivanowski

7. The cell walls of bacteria can be easily destroyed by the enzyme known as—

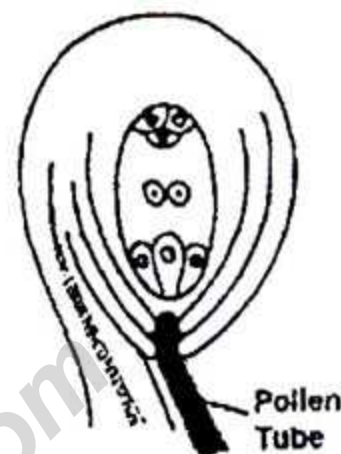
- (a) Lipase (b) Pectinase  
(c) peroxidase (d) Lysozyme

8. What type of bacteria has single or cluster of flagella at both poles?

- (a) Monotrichous (b) Peritrichous  
(c) Amphitrichous (d) Lophotrichous

9. Unit of capsid formed by—

- (a) Carbohydrates (b) Lipids  
(c) Amino acids (d) Glycerol



10. What type of fusion is going to be happening in the mentioned stem?

- (a) Porogamy (b) Mesogamy  
(c) Chalazogamy (d) plasmogamy

11. Photosynthetic pigments are located on the—

- (a) Inner membrane  
(b) Thylakoid membrane  
(c) Thylakoid lumen  
(d) Outer membrane

12. ★ During photosynthesis in stroma — is oxidized and — is reduced

- (a) CO<sub>2</sub> and H<sub>2</sub>O  
(b) H<sub>2</sub>O and CO<sub>2</sub>  
(c) H<sub>2</sub>O and NADP  
(d) NADPH<sub>2</sub> and CO<sub>2</sub>

13. Unidirectional flow of e<sup>-</sup> in non-cyclic photo phosphorylation is —

- (a) PS II  $\xrightarrow{e^-}$  PS I  $\xrightarrow{e^-}$  NADP  $\xrightarrow{e^-}$  water  
(b) Water  $\xrightarrow{e^-}$  PSII  $\xrightarrow{e^-}$  PS I  $\xrightarrow{e^-}$  NADP  
(c) PS I  $\xrightarrow{e^-}$  NADP  $\xrightarrow{e^-}$  water  $\xrightarrow{e^-}$  PS II  
(d) Water  $\xrightarrow{e^-}$  PS I  $\xrightarrow{e^-}$  PS II  $\xrightarrow{e^-}$  NADP

14. If RQ is more than 1, then what will be the respiratory substrate?

- (a) carbohydrate (b) protein  
(c) Fat (d) Organic acid

15. Which enzyme helps to form pyruvic acid from malic acid?

- (a) carboxylase (b) de carboxylase  
(c) dehydrogenase (d) kinase

16. The term 'totipotency' refers to the capacity of a—

- (a) cell to generate whole plant  
(b) bud to generate whole plant  
(c) seed to germinate  
(d) cell to enlarge in size

17. ★ Which of the following is a restriction endo nuclease?

- i. Eco RI  
ii. DNA lygase  
iii. Bam HL

Which one is correct?

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

18. Who discovered DNA sequencing method?

- (a) C.H. Best  
(b) Yen Wilhmut  
(c) John Macleod  
(d) Frederick Sanger

19. Parthenogenesis is formation of

- (a) Embryo without fertilization  
(b) Embryo from Pollen sac  
(c) Embryo from ovary  
(d) Fruit without fertilization

20. Identifying characters of a monocot root are—

- i. There is no cuticle layer  
ii. Vascular bundles are exarch  
iii. Hypodermis absent

Which one is correct?

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

21. Which one of the following is mismatched?

- (a) ground tissue—photosynthesis  
(b) vascular tissue—storage  
(c) dermal tissue—covering of plant body  
(d) ground tissue—storage

22. ★ The outermost and innermost wall layers of microsporangium in an another are respectively—

- (a) Endothecium and tapetum  
(b) Epidermis and endodermis  
(c) Epidermis and middle layer  
(d) Epidermis and tapetum

23. In a fertilized embryo sac, the haploid, diploid and triploid structures are—

- (a) synergid, endosperm and zygote  
(b) Synergid, zygote and endosperm  
(c) Antipodal, synergid and endosperm  
(d) Synergid, antipodal and endosperm

List-1

(Structure before fertilization)

- A. Funiculus.  
B. Hilum  
C. Zygote  
D. Inner integument

List-2

(Structure after fertilization)

- I. Hilum  
ii. Tegmen  
iii. Testa  
iv. Stalk of seed  
V. Embryo

24. Study the above table and select the most correct option given below.

- (a) A-V, B-I, C-II, D-IV  
(b) A-III, B-IV, C-I, D-V  
(c) A-IV, B-I, C-V, D-II  
(d) A-IV, B-V, C-III, D-II

25. ★ Which one is applicable for control the blight disease of paddy plant?

- i. Destruction of diseased plants, crop residue and weeds by burning  
ii. Stop the excessive use of nitrogen  
iii. Use of virus free seedlings

Which one is correct?

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

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

8. \* N.B. : Correct Ans is (c), (d).