

Model Question of HSC Examination 2020

Biology First Paper

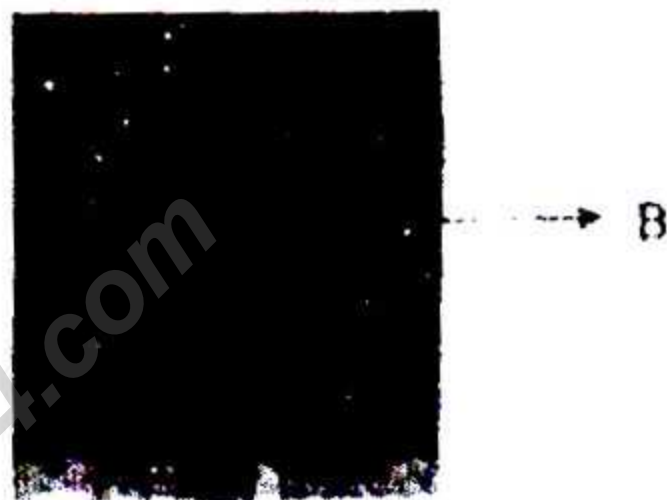
Subject Code :

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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. ►



- What is Gene bank? 1
- Why is ex-situ conservation necessary to conserve the threaten species of Bangladesh? Explain. 2
- Describe the biodiversity of the region of fig.-A on the given stem. 3
- Is the population of fig.-B decreasing gradually from the region indicated in fig.-A? If so, what steps should be taken to conserve the population of fig.-B? Analyze. 4

2. ► Islets of Langerhans → Collection of cells → Technology-X → Insulin

- What is plasmid? 1
- Why is bio-safety protocol necessary to release GMO? Explain. 2
- Explain how you will produce insulin by applying X technology shown on the stem? 3
- "The technology shown on the stem is also helpful to improve a new crop variety"—analyze the statement. 4

3. ★ Jesimin is a student of biology. During her practical class she studied about a plant which leaves are parallel venationed and inflorescence is spikelet type. After that she observed a plant bearing numerous kidney shaped anther.

- a. What is perianth? 1
- b. What is the necessity of mother axis to draw a floral diagram? Explain. 2
- c. How will Jesmin identify the second plant that mentioned on the stem? Explain. 3
- d. Analyze the significance of first plant which resists the soil erosion, cattle firming, food supply and industrial uses in the above stem. 4

4. ► Rafi likes to eat sweet and different oil fried tasty foods.

- a. What is called peptide bond? 1
- b. What is the necessity of enzyme in human body? Explain. 2
- c. Explain the chemical structure of the ingredient of sweet. 3
- d. Analyze the harmful effects of the ingredients of oil fried tasty foods in Rafi's body. 4

5. ► In winter, farmers of Munsigonj observed their potato field that reddish black coloured spots at the edge and front side of the leaves with rotten egg like odour from the infected plants. They also observed some large grey spots with white sticky sap in the leaves in their rice field.

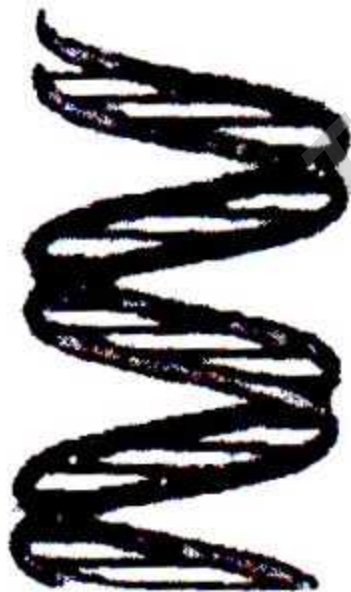
- a. What is rhizomorph? 1
- b. Why is viviparous germination important for halophytic plants? Explain. 2
- c. Explain the control measures with the cause of the disease of potato plants mentioned in the stem. 3
- d. Analyze what steps should be taken by the farmers of Munsigonj to prevent the hazards may come in population life of Bangladesh when the second disease appear in epidemic condition. 4

6. ★ $12\text{H}_2\text{O} + 6\text{CO}_2$ (Light & Chlorophyll) \longrightarrow X + $6\text{H}_2\text{O}$ + Y

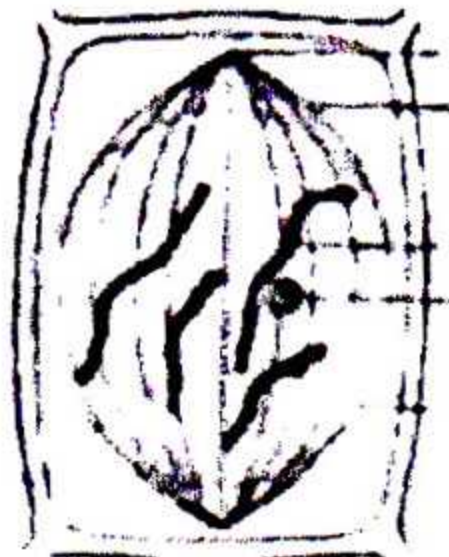
- a. What is totipotency? 1

- b. Explain the causes of occurring photorespiration in C_3 plants. 2
- c. Explain the process of production of 'X' in the leaf of wheat plant in Bangladesh? 3
- d. With explanation mention the source of 'Y' and analyze its significance for animal being. 4
7. ► Rashed has been suffering from fever with violent shivering for 10 days. After observation, doctor told him about the infection of specific parasite causing anemia and violent shivering with fever in his body. The doctor also said him that a man can get rid of the parasite of this disease in many ways excepting the advice of a doctor?
- a. What is viroid? 1
- b. Explain the importance of palmella stage for regeneration of *Ulothrix*. 2
- c. Explain the causes of anemia in Rashed's body. 3
- d. With suitable logic analyze the doctor's statement that stated in the last line of the stem. 4

8. ★



X



Y

- a. What is double fertilization? 1
- b. Explain the apospory in *Hieracium* plant. 2
- c. How does fig. 'X' contributes in the function of fig. 'Y'? 3
- d. Explain the importance of fig. Y in growth and development of plant body. 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. Which of the following plant belongs to mangrove forest?

- (a) Dipterocarpus turbinatus
- (b) Sterculia vilosa
- (c) Albizia procera
- (d) Acrosticchum aureum

2. ★ When is the breeding season of true gavia?

- (a) April–May
- (b) June–September
- (c) July–October
- (d) November–January

3. In which zoo-geographical region Bangladesh Belongs to—

- (a) Australian
- (b) Ethiopian
- (c) Palearctic
- (d) Oriental

4. What type of protein is present in the yolk of egg?

- (a) Albumin
- (b) Globulin
- (c) Glutelin
- (d) Prolamin

5. How many molecules of ATP are produced from one molecule of pyruvic acid?

- (a) 10
- (b) 12
- (c) 14
- (d) 15

6. ★ The ground tissue of leaf is called—

- (a) Stele
- (b) Starch sheath
- (c) Mesophyll
- (d) Cortex

7. In a lichen thallus, fungi play role in

- i. Absorption of water and mineral salts
- ii. Helps in reproduction
- iii. Forms rhizine

Which of the following is correct?

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

8. ★ Which of the following organism is known as the stone mushroom?

- (a) *Centraria islandica*
- (b) *Letharia vulpina*

(c) *Cladonia rangiferina*

(d) *Endocarpon miniatum*

Observe the following stem and answer the question no. 9 and 10

mRNA → Histone

9. The above process takes place in—

- (a) Nucleus
- (b) Ribosome
- (c) Mitochondria
- (d) Cytoplasm

10. The applicable statement for the above-mentioned process is—

- i. The process is pre-requisite for DNA transcription.
- ii. The process is controlled by genetic code
- iii. The process is necessary for expressing the characters

Which one is correct?

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

11. Chromosome dancing is seen at which stage of karyokinesis?

- (a) Prophase
- (b) Pro-metaphase
- (c) Metaphase
- (d) Anaphase

12. The grains of cereals is called—

- (a) Drupe
- (b) Berry
- (c) Schizocarp
- (d) Caryopsis

13. Which is the example of micro-nutrient?

- (a) Boron
- (b) Potassium
- (c) Phosphorus
- (d) Sulphur

Read the following stem and answer to the questions no 14 and 15

Rimon saw a plant on the breaking wall of his school whose leaves are compound and stem modified into rhizome. This plant does not produce any flower.

14. ★ Which type of vascular bundle is present the plant that Rimon seen?

- (a) Lepto-centric
- (b) Hadro-centric
- (c) Radial
- (d) Bi-collateral

15. ★ The characteristics that possess the plant discussed on the stem be—
 i. non seeded plant
 ii. Embryo is formed
 iii. Clear heteromorphic alternation of generation

Which one is correct?

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

16. ★ Which of the following is a emerging virus?

- (a) Ebola virus (b) Flavi virus
 (c) Adeno virus (d) Polioma virus

17. Which is the causal agent of papaya ring spot disease?

- (a) PRV (b) HAV
 (c) HCV (d) M₁₃

18. Which is the main process of multiplication of bacteria?

- (a) Binary fission (b) Budding
 (c) Transformtion (d) Conjugation

19. Which of the following is correct in case of the life cycle of Malaria parasite?

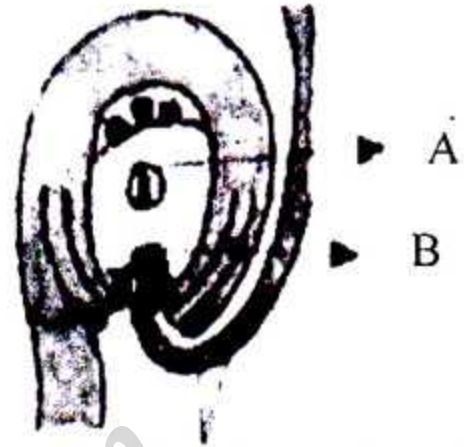
- (a) Human body → schizogony → Gametogenesis → Fertilization → Sporogony → Sporozoites
 (b) Human body → Gametogenesis → schizogony → Fertilization → Sporogony → Sporozoites
 (c) Human body → schizogony → Fertilization → Gametogenesis → Sporogony → Sporozoites
 (d) Mosquito body → Schizogony → Gametogenesis → Sporogony → Fertilization → Sporozoites

20. ★ Imon and Sumon are sons of Mr. Fazlu. They attain the characteristics from both of their parents. Which stage of the following cell division is

responsible for the variation in them?

- (a) Metaphase (b) Pachytene
 (c) Zygotene (d) Anaphase-1

Notice the following stem and answer to the questions no. 21 and 22.



21. After fertilization what does 'B' turn into?

- (a) Fruit (b) Seed
 (c) endosperm (d) Embryo

22. What will be the function of 'A' after the modification of post fertilization?

- (a) Helps to the formation of embryo
 (b) Storage of starch, lipid and protein
 (c) Helps in seed germination
 (d) Nourishing the seeds

23. ★ Transgenic organisms carry the transgene in—

- (a) Every cell (b) Gametes only
 (c) Somatic cells only
 (d) The cell that originally gets in

24. What is the function of restriction enzyme?

- (a) DNA replication (b) Cut of DNA
 (c) Joining of DNA (d) Use digestion

25. ★ What is the normal level of cholesterol in human body?

- (a) 0.5–0.15% (b) 0.15–1.5%
 (c) 0.15–1.20% (d) 1.20–2.5%

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