

**NEB - GRADE XII
2079 (2022)**

**Biology
Grade Increment (Supplementary) Examination**

Please complete at first section I (Botany) then section II (Zoology).
Answer of each section should be separate in the same answer sheet.

Candidates are required to give their answers in their own words as far as practicable. The figures in the margin indicate full marks.

Time: 3 hrs.

Full Marks: 75

Attempt all the questions.

Section : I (Botany)**Group 'A'**

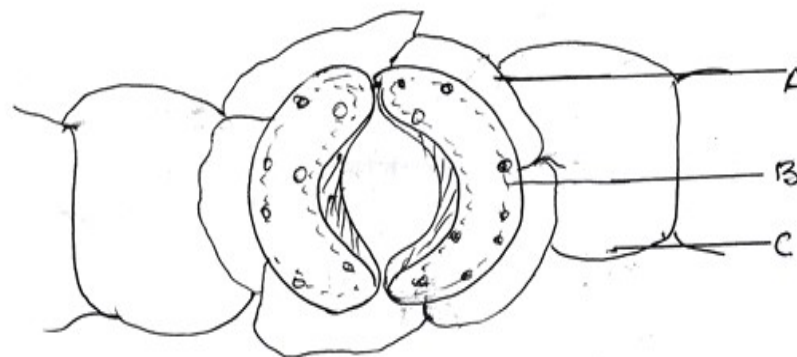
5×1=5

Rewrite the correct options of each questions in your answer sheet.

- Which of the following correctly describes the parents in a test cross ?
A) One individual has the dominant phenotype and the other has the recessive phenotype.
B) Both individuals have the dominant phenotypes
C) Both individuals have the recessive phenotypes
D) One individual has the dominant phenotype and the other has an unknown phenotype
- Which one of the following methods requires two genetically variable individuals to produce the progeny ?
A) Cutting B) Tissue culture
C) Layering D) Bud grafting
- Which one of the following is made up of dead cells ?
A) Collenchyma B) Xylem parenchyma
C) Phellem D) Phloem
- Which of the following plants is used as biofertilizers ?
A) Green manure B) Azolla
C) Spirogyra D) Rhizobium in farmyard manure

(Contd...)

5. In the diagram of stoma, which among the following is the correct sequence indicated as A, B, C ?



- A) A- Guard cell, B- Subsidiary cell, C- Epidermal cell
B) A- Subsidiary cell, B- Epidermal cell, C- Guard cell
C) A- Epidermal Cell, B- Guard cell, C- Subsidiary cell
D) A- Subsidiary cell, B- Guard cell, C- Epidermal cell

Group 'B'

Give short answer to the following questions.

4×4=16

- Why is secondary growth occur in dicots not in monocots ? Elaborate the activities of vascular cambium up to the formation of cambial ring with necessary diagrams. 1+3
 - Explain the structure and function of tRNA with necessary diagram. 3+1
- Or
- What are plant growth hormones ? Write the physiological functions of gibberellins. 1+3
- With a neat diagram, explain the development of seven-celled and eight-nucleate female gametophyte of angiosperms. 1+3
 - Biotechnology can be helpful in the field of medicine and achieving sustainable agriculture. Put your views on this statement with the help of suitable examples. 3+1

Group 'C'

Give long answers to the following questions.

2×8=16

- Why did Mendel choose garden pea for his experiment ? How did he make sure that the plants were true breeding ? Briefly describe a monohybrid cross between homozygous round and wrinkled seeds in garden pea through two generations using a cross chart and draw conclusion. 3+1+4

(Contd...)

(3)

2021'A'

OR

Why does red-green colour blindness occur more in males than in females and which kind of genetic inheritance is involved ? Briefly describe it with illustrations and draw conclusion. 3+5

11. How does oxidative phosphorylation differ from photophosphorylation ? What are the chemical changes that occur in a pyruvic acid molecule before entering into mitochondrion ? Describe the process of Tricarboxylic acid cycle through the line diagram only. 1+2+5

Section : II (Zoology)

Group 'A'

Rewrite the correct options of each questions in your answer sheet. 6x1=6

12. Dense connective tissue contains tendons and ligaments. If the tendons connect muscles to bones, which structures are connected by ligaments ?
 A) Fibres to bones B) Bones to bones
 C) Cartilages to bones D) Cartilages to cartilages
13. In organ transplantation, a healthy organ is donated to a needy person. What would be the type of transplantation between two genetically different persons?
 A) Isograft B) Allograft
 C) Heterograft D) Autograft
14. What does a mesolecithal egg of frog contain ?
 A) Moderate amount of albumen
 B) Moderate amount of yolk
 C) Small amount of yolk
 D) Large amount of yolk
15. "Drinking and driving do not go together". What could happen if driver drinks ?
 A) Affect judgement B) Affect sugar level
 C) Affect liver D) Affect body weight
16. When the food is taken into the stomach, the food gets partially digested. Which of the following enzyme is released in the stomach ?
 A) HCl B) Trypsinogen
 C) Pepsinogen D) Amylase
17. Which organ of the male reproductive system releases male sex-hormones ?
 A) Urethra B) Testis
 C) Vasa deferens D) Ejaculatory duct

(Contd...)

2021'A'

(4)

Group 'B'

Give short answer of the following questions. 4x4=16

18. Compare and contrast the striated muscle fibre and cardiac muscle fibres. 2+2
19. How would you define the term blastula ? Write the event of blastulation in the development of frog. 1+3

OR

What is amniocentesis ? Write its procedure. Mention its misuse. 1+2+1

20. Study the given diagram of renal corpuscle and answer the following questions. 1+1+2



- a) Label A and B
 b) Write any two differences between A and B
 c) Identify the event shown in the diagram.

21. How are the young people get involved in the drug addiction ? Highlight the effects shown on human health. 2+2

Group 'C'

Give long answer of the following questions. 2x8=16

22. Tuberculosis is more dangerous disease. Explain Why ? Mention its causative agent and mode of transmission. "Prevention is better the cure" justify this statement. 2+1+3+2
23. Brain receives all the sensations of the body. With labelled diagram, explain how are the impulses carried through a nerve fibre. What would happen if a person suffers from Na^+ and K^+ imbalance ? 2+4+2

OR

Draw a labelled diagram of a human eye. State and explain its parts and their functions. What would happen to the shape of lens when an object is placed at far distance or closer to the eyes. 2+3+2+1

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