

DIRECTORATE OF GOVERNMENT EXAMINATION
HIGHER SECONDARY SECOND YEAR EXAMINATION - MARCH 2024
BIO – BOTANY ANSWER KEY

Note: 1. Answers written only in BLACK or BLUE should be evaluated

2. Choose the correct answer and written and write the option code with corresponding answer.

Maximum Marks:35

SECTION - A

Answer all the questions.

8×1=8

Q. No	Option	A Type	Q. No.	Option	B Type
1	(b)	Dobson	1	(d)	400 – 700 nm
2	(d)	Dominant epistasis	2	(d)	(1)-(iv), (2)-(iii), (3)-(i), (4)-(ii)
3	(a)	10	3	(c)	Brazil
4	(d)	(A) is correct, (R) is wrong	4	(d)	Dominant epistasis
5	(d)	400 – 700 nm	5	(b)	Dobson
6	(d)	(1)-(iv), (2)-(iii), (3)-(i), (4)-(ii)	6	(d)	(A) is correct, (R) is wrong
7	(c)	Brazil	7	(c)	Confer resistance to antibiotics
8	(c)	Confer resistance to antibiotics	8	(a)	10

SECTION - B

Answer any Four questions.

4x2=8

Q. No	Answer	Marks	Total Marks
9	Names of the scientists – Rediscovered Mendelism <ul style="list-style-type: none"> • Hugo de Vries • Carl Correns • Erich von Tschermak <p style="text-align: right;">(Any Two)</p>	1+1	2

10	<p>Phytoremediation</p> <p>The plants Rice and Eichhornia can be used to remove cadmium from contaminated soil, and this make suitable for cultivation is known as Phytoremediation.</p> <p style="text-align: center;">(or)</p> <p>Use of plants to bring about remediation of environmental pollutants</p>		2
11	<p>Enzymes – Required for Genetic engineering</p> <ul style="list-style-type: none"> • Restriction enzymes • DNA ligase • Alkaline phosphatase. <p style="text-align: right;">(Any Two)</p>	1+1	2
12	<p>Embryoids</p> <ul style="list-style-type: none"> • The callus cells undergoes differentiation and produces somatic embryos, known as Embryoids. <p style="text-align: center;">(or)</p> <ul style="list-style-type: none"> • Somatic embryogenesis is the formation of embryos from the callus tissue directly and these embryos are called Embryoids <p style="text-align: right;">(Any One)</p>		2
13	<p>The pyramid of energy is always upright</p> <p>The bottom of the pyramid of energy is occupied by the producers. There is a gradual decrease in energy transfer at successive tropic levels from producers to the upper levels.</p>		2
14	<p>Microbial inoculants – Soil fertility</p> <ul style="list-style-type: none"> • Efficient in fixing nitrogen • solubilising phosphate • Decomposing cellulose. • They are designed to improvethe soil fertility, • plant growth • Increase the number and biological activity of beneficial microorganisms in the soil. <p style="text-align: right;">(Any Two)</p>		2

SECTION – C

Answer any three questions. Question No. 19 is compulsory.

3x3 =9

Q. No	Answer	Marks	Total Marks
15	<p>Genetic Map</p> <p>The diagrammatic representation of position of genes and related distances between the adjacent genes is called genetic mapping.</p> <p>Uses :</p> <ul style="list-style-type: none"> • It is used to determine gene order, identify the locus of a gene and calculate the distances between genes. • It is useful in predicting results of dihybrid and trihybrid crosses. • It allows the geneticists to understand the overall genetic complexity of particular organism. <p style="text-align: right;">(Any Two)</p>	1 2	3

16	<p>Cryopreservation.</p> <p>Cryopreservation (-196°C)</p> <p>Cryopreservation also known as cryoconservation is a process by which process by which protoplast, cells, tissues, organells, organs, Pollen grains extracellular matrix, enzymes. Subjected to preservation by cooking to very low temperature of -196°C using liquid nitrogen.</p>		3								
17	<p>Habitat and Niche</p> <table border="1"> <thead> <tr> <th>Habitat</th> <th>Niche</th> </tr> </thead> <tbody> <tr> <td>A specific physical space occupied by an organism.</td> <td>A functional space occupied by an organism in the same eco-system</td> </tr> <tr> <td>Same habitat may be shared by many Organisms.</td> <td>A single niche is occupied by a single species</td> </tr> <tr> <td>Habitat specificity is exhibited by organism.</td> <td>Organisms may change their niche with time and season</td> </tr> </tbody> </table>	Habitat	Niche	A specific physical space occupied by an organism.	A functional space occupied by an organism in the same eco-system	Same habitat may be shared by many Organisms.	A single niche is occupied by a single species	Habitat specificity is exhibited by organism.	Organisms may change their niche with time and season	1 1 1	3
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18	<p>Forest help – maintain the climate</p> <ul style="list-style-type: none"> • Increasing Rainfall and O₂ level. • Reducing CO₂ from atmosphere and increasing air quality. • Reducing global warming and controlling climate changes. • Increasing ozone level. • Increasing soil fertility. <p style="text-align: right;">(Any Three or Related Points)</p>		3								
19	<p>Structure of ovule</p> <p>Diagram – 2</p> <p>Parts - 1</p>		3								

SECTION – 4

Answer all the questions.

2x5 = 10

Q. No	Answer	Marks	Total Marks
20 (a)	<p>Single cell protein</p> <p>The dried cells of microorganisms that are used as protein supplement in human foods or animal feeds are called Single cell proteins.</p> <p>Applications of Single-Cell Protein</p> <ul style="list-style-type: none"> • It is used as protein supplement. • It is used in cosmetics products for healthy hair and skin. • It is used as the excellent source of proteins for feeding cattle, birds, fishes etc. • It is used in industries like paper processing, leather processing as foam stabilizers. • It is used in food industry as aroma carriers, vitamin carrier, emulsifying agents to improve the nutritive value of baked products, in soups, in ready-to-serve-meals, in diet recipes. <p style="text-align: right;">(Any Four)</p>	1 4×1	5
20 (b)	<p>Millets</p> <ul style="list-style-type: none"> • Definition • Types and Examples 	2 3	5
21 (a)	<p>Inheritance of chloroplast</p> <ul style="list-style-type: none"> • Examples • Explanation • Diagram 	1 2 2	5
21 (b)	<p>Steps involved in microsporogenesis</p> <ul style="list-style-type: none"> • Steps • Diagram 	4 1	5