

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 improve the 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, organelles, 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" data-bbox="297 562 1075 1083"> <thead> <tr> <th data-bbox="297 562 686 615">Habitat</th> <th data-bbox="686 562 1075 615">Niche</th> </tr> </thead> <tbody> <tr> <td data-bbox="297 615 686 772">A specific physical space occupied by an organism.</td> <td data-bbox="686 615 1075 772">A functional space occupied by an organism in the same eco-system</td> </tr> <tr> <td data-bbox="297 772 686 930">Same habitat may be shared by many Organisms.</td> <td data-bbox="686 772 1075 930">A single niche is occupied by a single species</td> </tr> <tr> <td data-bbox="297 930 686 1083">Habitat specificity is exhibited by organism.</td> <td data-bbox="686 930 1075 1083">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	Single cell protein		
(a)	The dried cells of microorganisms that are used as protein supplement in human foods or animal feeds are called Single cell proteins.	1	5
	Applications of Single-Cell Protein		
	<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. 	4x1	
	(Any Four)		
20	Millets		
(b)	<ul style="list-style-type: none"> • Definition • Types and Examples 	2 3	5
21	Inheritance of chloroplast		
(a)	<ul style="list-style-type: none"> • Examples • Explanation • Diagram 	1 2 2	5
21	Steps involved in microsporogenesis		
(b)	<ul style="list-style-type: none"> • Steps • Diagram 	4 1	5