

MARKING SCHEME
Senior Secondary School Compartment Examination TERM-II, 2022
BIOLOGY (Subject Code — 044)
[Paper Code — 57/B/6]

Maximum Marks : 35

Q. No.	EXPECTED ANSWER / VALUE POINTS	Marks
SECTION – ‘A’		
1.	<ul style="list-style-type: none"> • Exaggerated response of the immune system to certain antigens present in the environment • Histamine, Serotonin 	1
		½, ½
		2
2.	(a) <ul style="list-style-type: none"> • <i>Trichoderma polysporum</i> • used as an immunosuppressant in organ transplant patient <p style="text-align: center;">OR</p> (b) <ul style="list-style-type: none"> • It produces acids that coagulates and partially digest milk protein. • It increases Vitamin B₁₂. 	1
		1
		1
		1
		2
3.	(a) <i>Papaver somniferum</i> (b) drop in academic performance, unexplained absence from school / college, lack of interest in personal hygiene, withdrawal, isolation, depression, fatigue, aggressive, rebellious behaviour, deteriorating relationship with family and friends, loss of interest in hobbies, change in sleeping and eating habits, fluctuations in weight, appetite. (or any other symptom of drug abuse) (any two)	1
		½ × 2
		2
4.	<ul style="list-style-type: none"> • <i>Anabaena / Nostoc / Oscillatoria</i> <p style="text-align: center;"><i>(or any other correct example)</i></p> <ul style="list-style-type: none"> • fix atmospheric nitrogen, acts as biofertiliser, add organic matter to the soil, increases soil fertility, reduces dependence on chemical fertilisers, replenish the soil nutrients <p style="text-align: right;"><i>(any two)</i></p>	1
		½ + ½
		2
5.	<ul style="list-style-type: none"> • Snail enter aestivation, to avoid summer related problems (heat and dessication) • Zooplankton enter diapause, a stage of suspended development 	½ + ½
		½ + ½
		2

6.	(a) Evolution of the flower and its pollinator are tightly linked with one another. Fig species can be pollinated only by its 'partner' wasp species and no other species. The female wasp pollinates the fig inflorescence while searching for suitable egg laying sites. In return, they get food for developing wasp larvae. <i>(any other suitable example)</i>	1						
	OR							
	(b)							
	<table border="1"> <thead> <tr> <th>Eurythermal</th> <th>Stenothermal</th> </tr> </thead> <tbody> <tr> <td>Organisms can tolerate and thrive in a wide range of temperatures.</td> <td>Organisms are restricted to a narrow range of temperatures.</td> </tr> <tr> <td>e.g. mammals / human / cow or any other suitable example</td> <td>e.g. penguins / snowleopard or any other suitable example</td> </tr> </tbody> </table>	Eurythermal	Stenothermal	Organisms can tolerate and thrive in a wide range of temperatures.	Organisms are restricted to a narrow range of temperatures.	e.g. mammals / human / cow or any other suitable example	e.g. penguins / snowleopard or any other suitable example	 $\frac{1}{2} + \frac{1}{2}$ $\frac{1}{2} + \frac{1}{2}$
Eurythermal	Stenothermal							
Organisms can tolerate and thrive in a wide range of temperatures.	Organisms are restricted to a narrow range of temperatures.							
e.g. mammals / human / cow or any other suitable example	e.g. penguins / snowleopard or any other suitable example							
		2						
SECTION – 'B'								
7.	(a) (i) Cancer (ii) Neoplastic cells / tumor cells / mass of proliferating cells grow very rapidly, invading and damaging the surrounding normal tissues, cells sloughed from such tumour reach distant sites through blood, and start forming new tumor there.	1 $\frac{1}{2} \times 4$						
	OR							
	(b) Principle of vaccination <ul style="list-style-type: none"> – Based on the memory of the immune system – Inactivated / weakened pathogen are introduced into the body – Antibodies are produced against the antigen – Memory B and T – cells are formed, that recognize the pathogen on subsequent exposure 	1 $\frac{1}{2}$ $\frac{1}{2}$ 1						
		3						
8.	(a) Transmission of HIV – sexual contact with infected person, by transfusion of contaminated blood and blood products, by sharing infected needles as in the case of intravenous drug abusers, from infected mother to her child through placenta <i>(any three)</i> <i>($\frac{1}{2}$ mark to be deducted if infected / contaminated not mentioned)</i>	$\frac{1}{2} \times 3$						
	(b) person becomes immunodeficient, due to decrease in the number of helper T lymphocytes, person suffers from bouts of fever / diarrhoea / weight loss / unable to protect himself / herself against minor infections.	$\frac{1}{2} \times 3$						
		3						

9.	<ul style="list-style-type: none"> – Identification of DNA with desirable genes – Introduction of the identified DNA into the host – Maintenance of introduced DNA in the host and transfer of the DNA to its progeny 	1 × 3
		3
10.	<ul style="list-style-type: none"> – More evolutionary time for species diversification. – relatively more constant environment / less seasonal and more predictable environment. – receive more solar energy which contributes to greater productivity. 	1 × 3
		3
11.	(a) Regions with very high levels of species richness, high degree of endemism (b) Biosphere reserves, national parks, sanctuaries, sacred grooves <p style="text-align: right;"><i>(any two)</i></p>	1 + 1 ½ + ½
		3
12.	<ul style="list-style-type: none"> – Technique for DNA Separation-Agarose Gel electrophoresis – Technique for DNA Isolation -Elution – DNA fragments are separated by agarose gel electrophoresis. Negatively charged DNA molecules move towards the anode / positive electrode under the influence of an electric field through an agarose medium, DNA fragments separate according to their size / molecular weight (smaller size fragments move farther), DNA fragments are stained with ethidium bromide followed by UV radiations, separated DNA bands are cut out from agarose gel and extracted from gel by elution. 	½ ½
		½ × 4 3
SECTION – ‘C’		
13.	(a) (i) Increases yield, pest resistant crops reduce the use of chemical pesticides, prevent early exhaustion of fertility of soil, environment friendly approach, can create tailor made plants <p style="text-align: right;"><i>(any two)</i></p> (ii) <i>Bacillus thuringiensis</i> (iii) Bt gene is isolated from <i>Bacillus thuringiensis</i> , and ligated into the T-DNA of disarmed Ti plasmid of <i>Agrobacterium tumefaciens</i> . Cotton plant is infected with <i>Agrobacterium tumefaciens</i> so that Bt gene is delivered into the cotton plant, Bt protein exist as inactive prototoxin, and when ingested by insect it is converted into active form due to alkaline pH of insect gut, and create pores that finally cause swelling and lysis and finally death of insect. <p style="text-align: center;">OR</p> (b) (i) <ul style="list-style-type: none"> • Transgenic animals • Transgenic rabbits, pigs, sheeps, cows, fish, any other correct example. <p style="text-align: right;"><i>(any two)</i></p>	½ + ½
		1 ½ + ½ ½ × 4 ½ ½ + ½

	<p>(ii) Produces human protein enriched milk (alpha – lactalbumin) / nutritionally more balanced milk for human babies than natural cow milk.</p>	1/2
	<p>(iii)</p> <ul style="list-style-type: none"> • Testing safety of vaccine • Testing toxicity of chemical / drugs • Study of diseases 	1 × 3
		5

* * *



collegedunia.com

India's largest Student Review Platform