

INDIAN SCHOOL AL WADI AL KABIR
REHEARSAL- II (2023-2024)
MARKING SCHEME-CLASS12 BIO

SECTION A		
Sl. No.	QUESTION	MK S
1	The microsporangia develop and becomes the b) Pollen sacs	1
2	Phenylketonuria is an a) Autosomal recessive trait	1
3	The possibility of a recessive trait being expressed in the offspring after a test cross? b) 50%	1
4	Which of the following is not true for apomixis? c) It is a form of sexual reproduction that mimics asexual reproduction.	1
5	Arun thinks that identifying the exact mRNA sequence from the protein sequence is difficult. Is he correct and why? b) Yes, as the genetic code is degenerate.	1
6	c) Commensalism	1
7	Rauwolfia vomitoria a medicinal plant growing in different Himalayan ranges, shows diversity at which level. c) Genetic diversity	1
8	Cyclosporin A, which act as an immunosuppressive agent, is produced from b) Trichoderma polysporum	1
9	169 a)	1
10	In EcoRI, the letter 'R' represents b) The strain of the prokaryotic cell from which the restriction enzyme is isolated.	1
11	The given picture illustrates which phenomenon b) Adaptive radiation	1
12	c) Autoradiography.	1
13	C	1
14	A	1
15	B	1
16	B	1
SECTION B		
17	a) Amniocentesis b) procedure -amniotic fluid is taken to analyse the developing fetal cells & dissolved	0.5 1

	substances, based on the chromosomal pattern + any one merit	0.5
18	Pg.26 fig.2.8c	0.5X 4
19	a) Marshall Nirenberg's contribution -cell free system of protein synthesis b) Severo Ochoa enzyme -polynucleotide phosphorylase + polymerising RNA with defined sequences in a template independent manner.	0.5 1.5
20	Human protein-alpha-1-antitrypsin used to cure emphysema + transgenic cow Rosie-human alpha-lactalbumin for human babies.	1+1
21	Pg.199 fig. 11.4 OR Pg.197 fig.11.2	2
SECTION C		
22	a) i) Ex-albuminous-no residual endosperm as it is completely consumed during embryo development. ii) Dormancy-general metabolic activity of the embryo slows down. b) Any two advantages of seeds to the angiosperms.	1 1 1
23	Cistron-segment of DNA coding for a polypeptide + any two difference OR Polymerization of amino acids to form a polypeptide. Steps Aminoacylation of tRNA Initiation Elongation Termination	1+2 1 0.5 0.5 0.5 0.5
24	a) Purple stems and yellow fruits. 3/16 b) Green stems and red fruits.3/16 c) Purple stems and red fruits.9/16	1 1 1
25	a) Darwinism-Natural Selection & Branching descent b) Hardy-Weinberg equilibrium,-sum total of all allelic frequency is 1 any three factors that effect this principle.	1 0.5 1.5
26	microbes used as Biofertilizer's- microbes increase nutrient quality of the soil without the use of chemicals -main source-bacteria, fungi and cyanobacteria -eg-roots of leguminous plants & rhizobium-fix atmospheric nitrogen. -Free living bacteria that fix nitrogen-Azospirillum & Azotobacter -Mycorrhiza-fungal association with plants-absorbs phosphorus from the soil. -Cyanobacteria-fix nitrogen eg Anabaena, Nostoc in paddy fields + -add organic content to the soil	0.5X 6
27	a) normal cells lose the property of contact inhibition and turn to cancer cells. b) malignant tumour-metastasis and why-tumour cells get sloughed and reach distant sites through blood and start new tumour there c) any three methods used in the detection of cancer.	0.5 1 1.5
28	Gause's Competitive Exclusion Principle	1

	-one evidence that proves this principle-warblers- behavioral differences in foraging activities. -Inverted pyramid	1 1
SECTION D		
29	a) species richness & high degree of endemism b) sacred groves-Stretch of forest that are set aside and all the trees and wildlife are venerated within to give total protection. c) in-situ program brief explanation + two examples. OR major cause of biodiversity loss-Habitat loss & fragmentation	1 1 0.5 1.5 2
30	a) Rhino viruses + site of infection-nasal passage b) covid- 19 (SARS-CoV-2) + major public concern-pandemic c) intermediate host-acts as a vector of a parasite till it becomes mature. the two-intermediate host of the human liver fluke-snail & a fish OR two host of the malarial parasite-female anopheles mosquito+ mammals (humans) primary host- female anopheles mosquito-fertilisation & sporozoites	1 1 1+1 1+1
SECTION E		
31	a) cell membrane- hydrophobic & plasmid DNA-hydrophilic b) competent – wash the bacterial cells with Ca ²⁺ ions and heat shock treatment c) any three methods used to introduce alien DNA into the host cell. OR a) elution step- ethidium Bromide added and DNA fragments seen under UV light as orange bands, then cut from the gel. b) Explanation of insertional inactivation	1 1 1+1 +1 2 3
32	DNA helix packed in prokaryotes and Eukaryotes OR a) criteria of a genetic material- replicate + stability + mutate +express as mendelian characters (any 3) b) stability and mutates slowly c) List the three types of RNA and their specific functions.	2 3 1.5 1 1.5
33	a) hormone crucial in parturition- Oxytocin and its role -fetal ejection b) only single sperm enters the ovum-zona pellucida layer induces changes in the membrane that blocks the entry of additional sperms. c) corpus luteum – secretes large amount of progesterone required for maintenance of endometrium -required for implantation- required for pregnancy and in the absence of fertilization, is active only for 10-12 days- corpus luteum degenerates for endometrium lining to disintegrate leading to menstruation.	1 1 2

	d) breastfeeding – colostrum – rich in antibodies. OR a) venereal diseases- Sexually transmitted disease + any two bacterial VD (Chlamydia, gonorrhea, syphilis) b) HIV-AIDS, Genital Herpes, Hepatitis-B (any two) VD's any two prevention methods. c) Lactational amenorrhea- during breast feeding no ovulation + no side effects and no medicines or devices used.	1 2 1+1 1+1
	SET 2	
4	b) It is a form of asexual reproduction that mimics sexual reproduction	1
10	c) The species of the prokaryotic cell from which the restriction enzyme is isolated.	1
20	They are designed to make us understand how gene contribute to the development of diseases like cancer, Alzheimer's etc Toxicity testing can be done in short time.	1
24	a) genotype of the man-Bb and his mother-bb b) What are possible genotypes of his Father.- BB/Bb + pedigree chart)	1 1+1
27	a) causative organisms of pneumonia disease-Streptococcus pneumoniae & Haemophilus influenzae b) organ- alveoli (lungs)+ effect of the infection- alveoli get filled with fluid leading to severe problems in breathing. c) any two major symptoms.	1 1 1
29	a) any one difference b) any two examples of the ex-situ (Zoo, Botanical gardens, safari parks) c) Cryopreservation and seed banks. OR Habitat loss & fragmentation	1 1 2

The genetic change that enables a flu strain to jump from one animal species to another, including humans, is called "ANTIGENIC SHIFT."
Antigenic shift can happen in three ways:

