



INDIAN SCHOOL AL WADI AL KABIR

SAMPLE PAPER 2
CLASS 12 - BIOLOGY (044) - SET II – ANSWER KEY

SECTION A		
Sl. No.	QUESTIONS	MARKS
1	Tapetum – dense protoplasm ($1/2$); more than one nucleus ($1/2$)	1
2	Only one functional megaspore is involved in the development of embryo sac.	1
3	They produce two types of flowers – chasmogamous and cleistogamous. In cleistogamous flowers due to autogamy, seed set is assured.	1
4	Milk contains several antibodies (IgA) which are essential for developing resistance in new born babies.	1
5	Phenotypic ratio – 3:1 ($1/2$) Genotypic ratio – 1:2:1 ($1/2$)	1
6	It is a strong tool to trace the inheritance of a specific trait ($1/2$), inheritance of a disease ($1/2$)	1
7	Cistron – a segment of DNA coding for a polypeptide; exon – expressed sequences that appear in processed DNA.	1
8	Isolated Taq polymerases from this microbe and is used in PCR.	1
9	Alpha-lactalbumin ($1/2$); 2.4 grams per litre ($1/2$)	1
10	<i>Parthenium, Lantana, Eicchornia</i> (Any two)	1
11	(a) OR (a)	1
12	(d)	1
13	(b)	1
14	(c)	1
15	Immunisation and vaccination (any 4)	4
(i)	(b)	
(ii)	(c)	

(iii)	(c)	
(iv)	(a)	
(v)	(d)	
16	Haemophilia (any 4)	4
i	(a)	
ii	(d)	
iii	(d)	
iv	(b)	
v	(c)	
SECTION B		
17	Pelvic inflammatory diseases(PID), abortions, still births, ectopic pregnancies, infertility, cancer (any 4)	2
18	Aneuploidy – Failure of segregation of chromatids during cell division results in gain or loss of one or two chromosomes (1) Polyploidy – Failure of cytokinesis after telophase results in an increase in a whole set of chromosomes (1)	2
19	T-lymphocytes are developed and matured in thymus gland (1), Immune system will become weak on removal of thymus gland (1).	2
20	Separation and Purification (1) This process is essential because reaching into market, the product has to be subjected for clinical trial and quality control (1) OR Cells are treated with appropriate enzymes to release DNA (1) RNA and proteins are removed by treatment with ribonuclease and protease enzymes respectively (1)	2
21	Explanation of heat shock method (1), explanation of Biolistics (1)	2
22	Number of fragments of linear DNA = 4 Number of fragments of plasmid = 3 OR Conventional nomenclature of EcoRI (2)	2
23	IUCN (2004) has described slightly more than 1.5 million species of plants and animals.(1) According to Robert May’s estimates the global species diversity is about 7 million.(1)	2
24	Thick cuticle, Stomata in deep pits, Stomata closed during day time, leaves modified into spines	2
25	Definition (1), Roles (1)	2
SECTION C		
26	(b)Foetal ejection reflex (1) (c) The reflex triggers release of oxytocin (1) (f) Expulsion of the baby out through birth canal. (1)	3
27	(i) Green pod colour is dominant (1/2) (ii) Green pod colour (1/2) (iii) Cross Phenotypic ratio 3 : 1 Genotypic ratio 1 : 2 : 1 (2)	3

28	<p>Reasons to attract towards drug abuse: Curiosity, peer pressure, escape from frustration and failure, family problems, false belief of enhanced performance. (any 3)</p> <p>Preventive measures : Avoid undue peer pressure, Education and Counselling, Seeking help from parents and peers.</p>	3
29	<p>(a) In bacteria, cry protein remains in inactive form as Protoxin.</p> <p>(b) Protoxin becomes active toxin in alkaline pH of gut of insects. Toxins bind to surface of midgut and cause perforation, swelling, lysis of cells ultimately leading to death.</p> <p>(c) Specific Bt toxin genes isolated from <i>Bacillus thuringiensis</i> and incorporated into several crop plants such as cotton and corn which become pest resistant against certain insects.</p>	3
30	<p>Shape of pyramids reflects growth status of the population (a) growing (b) Stable (c) declining.(1+1+1)</p> <p style="text-align: center;">OR</p> <p>Definition (1/2), Causes(1), symptoms (1), Adjusted (1/2)</p>	3
SECTION D		
31	<p>(a) Malaria (1/2)</p> <p>(b) Different species of Plasmodium - <i>P. vivax</i>, <i>P. malaria</i> and <i>P. falciparum</i>. (1/2)</p> <p>(c) Malarial fever and chills are caused by the toxins (haemozoin) produced in the human body by the malarial parasite. This toxin is released by the rupturing of RBCs. (1)</p> <p>(d) Life cycle of Plasmodium (3)</p> <p style="text-align: center;">OR</p> <p>(a) In normal cells, growth and differentiation is highly controlled and regulated (contact inhibition). The cancerous cells have lost the property of contact inhibition, hence continue to divide giving rise to masses of cells (tumors) (1)</p> <p>(b) The benign tumor remains confined in the organ affected as it is enclosed in a connective tissue sheath and does not enter the metastatic stage (1)</p> <p>(c) Cancer may be caused due to carcinogens which are physical (X-rays, gamma rays and UV rays), chemicals (Nicotine, Aflatoxin, Cadmium oxide, Asbestos) and biological (viral oncogenes and proto oncogenes) (2)</p> <p>(d) Surgery, radiotherapy, Chemotherapy, immunotherapy by using biological response modifiers like α-interferons (1)</p>	5
32	<p>Any 5 characteristic features of genetic code and explanation</p> <p style="text-align: center;">OR</p> <p>Explanation of splicing (any 5 five points)</p>	5
33	<p>(i) D – Spermatids (1)</p> <p>(ii) A – Spermatogonium; B – Primary spermatocyte; C – Secondary spermatocyte F – Sertoli cells (2)</p> <p>(iii) B – Diploid E – Haploid (1)</p> <p>(iv) Provide nourishment to germ cells (1)</p> <p style="text-align: center;">OR</p> <p>(I) (a) During this phase, primary follicles transform into Graafian follicle under FSH stimulation. Graafian follicles secrete Estrogens with stimulate enlargement of Endometrium of uterus. (1)</p>	5

	(b) During this phase, Corpus luteum is fully formed and secretes large quantity of Progesterone. (1) (II) Diagram (1), labels (2)	

Prepared by : The Department of Science 2020 -21
Checked by : HOD – SCIENCE