MODEL QUESTION PAPER

BIOLOGY

XII – STANDARD (CBSE)

Time: 3 hours **Maximum Marks: 70**

General Instructions:

(i) All questions are compulsory.

(ii) The question paper has five sections and 33 questions. All questions are compulsory.

(iii) Section–A has 16 questions of 1 mark each; Section–B has 5 questions of 2 marks each; Section– C has 7 questions of 3 marks each; Section– D has 2 case- based questions of 4marks each; and Section–E has 3 questions of 5 marks each.

(iv)There is no overall choice. However, internal choices have been providedin Some questions. A student has to attempt only one of the alternatives insuch questions. Wherever necessary, neat and properly labeled diagrams should be drawn.

SECTION -A

S.NO.	Question	Marks
1.	The aquatic plant having long and ribbon like pollen grains is: *a. Vallisneria* *b. Hydrilla* *c. Eicchornia* *d. Zostera*	1
2.	To overcome incompatible pollinations so as to get desired hybrids, a plant breeder must have the knowledge of _____ a. pollen-nucellar interaction b. pollen- egg cell interaction c. pollen- pistil interaction d. pollen-embryo sac interaction	1
3.	Pollen grains retain viability for months in plants belonging to different families given below: i.Solanaceae ii.Leguminosae iii.Gramineae iv.Rosaceae v.Liliaceae The correct option is: a. (i), (ii) and (v)	1

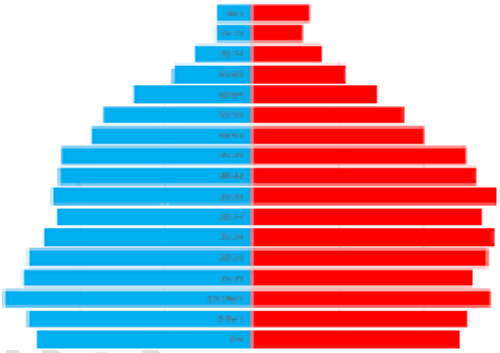
	b. (i), (ii) and (iv) c. (ii), (iv) and (v) d. (i), (iii) and (v)	
4.	During human embryonic development, the heart in the embryo is formed after; a. 15 days of pregnancy b. 30 days of pregnancy c. 45 days of pregnancy d. 60 days of pregnancy	1
5.	The theory of evolution supported by the experiment conducted by Louis Pasteur is A. Spontaneous generation theory B. Life comes only from pre-existing life C. Abiogenesis of life D. Big bang theory	1
6.	The diagnostic test that confirms typhoid in humans is A. ELISA B. Widal C. MRI D. Amniocentesis	1
7.	'Blue revolution' refers to A. construction of water dams for conservation of water B. production of fish in large quantities C. sewage treatment D. controlling algal bloom	1
8.	Which one of the following is not the product of transgenic experiments? A. Pest-resistant crop variety B. High nutritional value in grains C. Production of insulin by rDNA technique D. Drought-resistant crops	
9.	Variations caused due to mutations are a) random and directionless b) random and directional c) random and small d) random, small and directional	1

10.	Interferons are most effective in making non-infected cells resistant against the spread of which of the following diseases in humans? (a) ascariasis (b) ringworm (c) amoebiasis (d) AIDS	1
11.	Remnants of nucellus are persistent during seed development in: a) pea b) groundnut c) wheat d) black pepper	1
12.	What is the smallest part of a DNA molecule that can be changed by a point mutation? a) Oligonucleotide b) Codon c) Gene d) Nucleotide	1

Question No. 13 to 16 consist of two statements – Assertion (A) and Reason (R). Answer these questions selecting the appropriate option given below:

A. Both A and R are true and R is the correct explanation of A.
Both A and R are true and R is not the correct explanation of A.
B. A is true but R is false.
C. A is False but R is true.

13.	Assertion: Gametes receives only one allele of a gene. Reason: During gamete formation, mitosis takes place leads to formation of haploid cells.	1

14.	Assertion- Virus infected cells secrete proteins called interferons which protect non -infected cells from further viral infection. Reason- It is a case of physiological barriers.	1
15.	Assertion: A high density of elephant population in an area can result in intra specific competition . Reason : It plays an important role in supporting other species.	1
16.	Given below is the Age Pyramid of population in one of the states in India as per 2011 census. It depicts the male population on the left hand side, female population on the right hand side, newborns towards the base and gradually increasing age groups as we move from base to the top, with the oldest population at the top. Study this pyramid and comment upon the appropriateness of the Assertion and the Reason.  Assertion: It is a stable population. Reason: The pre-reproductive and reproductive individuals are almost in equal numbers and the post-reproductive individuals are relatively fewer.	1

SECTION - B

17.	Explain the relevance of "Totipotency" and "Somaclones" in raising healthy banana plants from virus infected banana plants.	2

18.	Name the two primary lymphoid organs. State the importance of T-lymphocytes.	2
19.	How are malignant tumors different from benign tumors? Why are some patients treated with α-interferons?	2
20.	Substantiate with the help of one example that in an ecosystem mutualists (i) tend to co-evolve and (ii) are also one of the major causes of biodiversity loss.	2
21.	Name the hormone with which a cow is administered using MOET technology. State the function of this hormone.	2

SECTION – C

22.	Substantiate with the help of one example that in an ecosystem mutualists (i) tend to co-evolve and (ii) are also one of the major causes of biodiversity loss.	3
23.	List any four ways by which GMO's have been useful for enhanced crop output.	3
24.	Draw a labelled diagram to show interrelationship of four accessory ducts in a human male reproductive system.	3
25.	(a) Write two differences between Homo erectus and Homo habilis. (b) Rearrange the following from early to late geologic periods : Carboniferous, Silurian, Jurassic.	3
26.	Write the importance of cryopreservation in conservation of biodiversity	3
27.	Why is 'Origin of replication' (Ori) required to facilitate cloning into a vector?	3
28.	Do eukaryotic cells have restriction endonuclease? Justify your answer.	3

SECTION D

29.	Describe the process of amplification of "gene of interest" using PCR technique.	4
30.	Draw a vertical section of a Maize grain and label. (i) pericarp (ii) scutellum (iii) coleoptile (iv) radicle	4

SECTION – E

31.	(a) Why does endosperm development precede embryo development in angiosperm seeds? State the role of endosperm in mature albuminous seeds. (b) Describe with the help of three labelled diagrams the different embryonic stages that include mature embryo of dicot plants	5

32.	(a) Explain the events taking place at the time of fertilization of an ovum in a human female. (b) Trace the development of zygote upto its implantation in the uterus. (c) Name and draw a labeled sectional view of the embryonic stage that gets implanted	5
33.	(a) What is hydrarch succession? (b) Compare the pioneer species and climax communities of hydrarch and xerarch succession respectively. (c) List the factors upon which the type of invading pioneer species depend in secondary hydrarch succession. Why is the rate of this succession faster than that of primary succession?	5