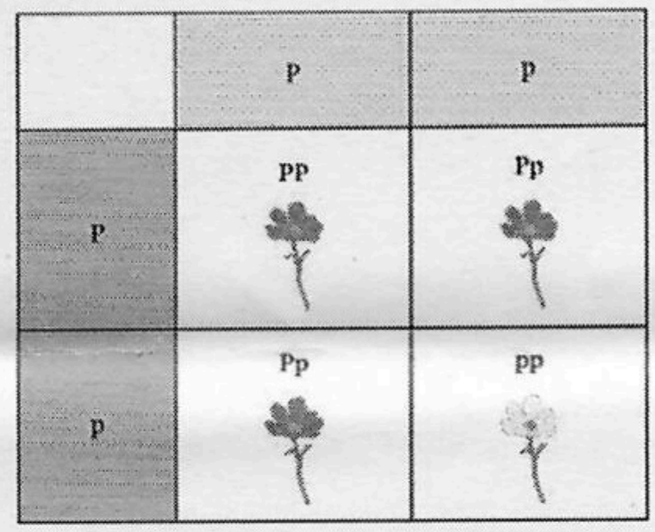
BHARTIYA SHIKSHA BOARD
MARKING SCHEME
SAMPLE QUESTION PAPER 2025-26
CLASS - XII
BIOLOGY (152)

General Instructions:

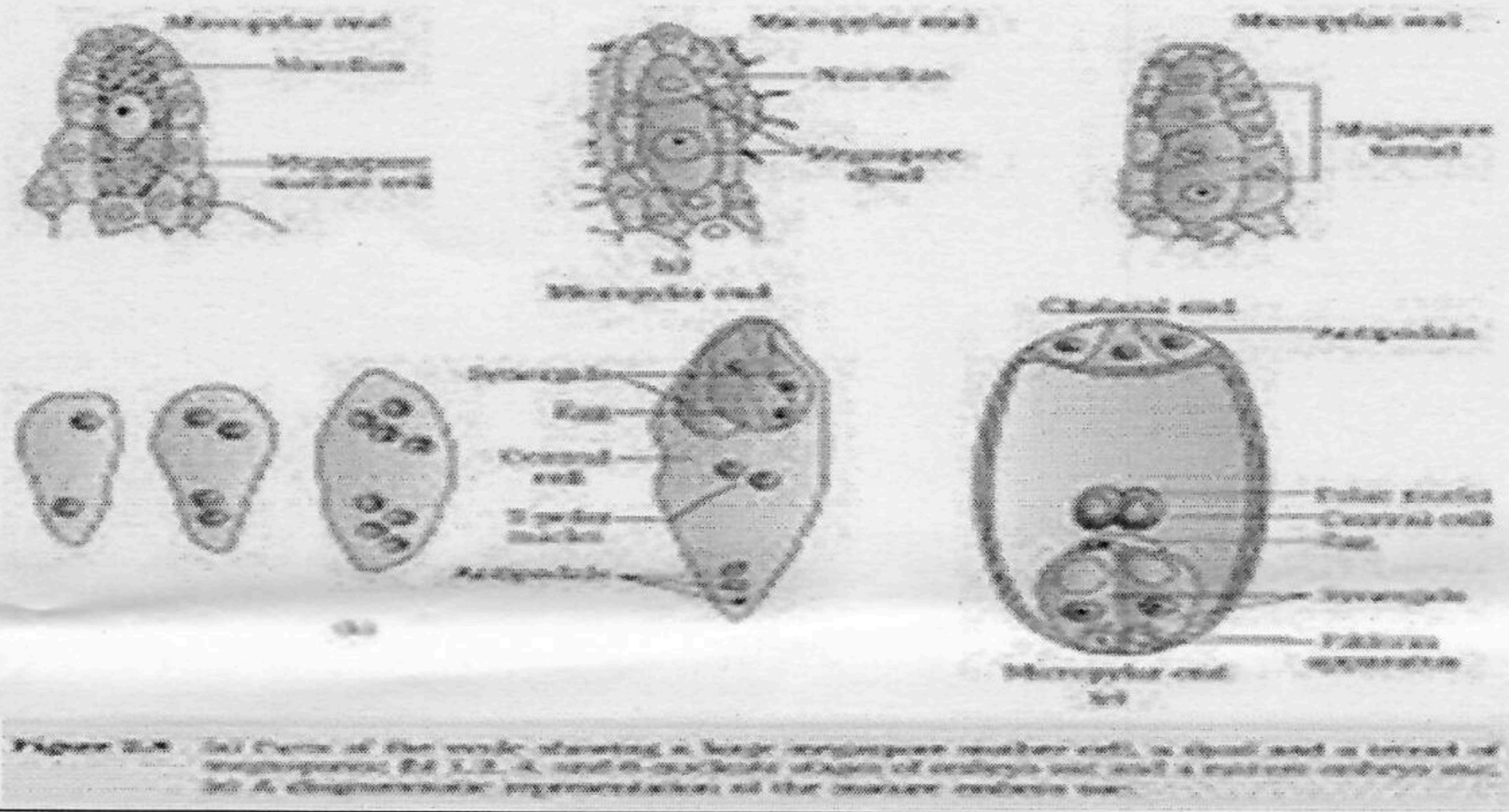
(i) All questions are compulsory.
(ii) The question paper has five sections and 33 questions. All questions are compulsory.
(iii) Section–A has 16 questions of 1 mark each; Section–B has 5 questions of 2 marks each; Section– C has 7 questions of 3 marks each; Section– D has 2 case-based questions of 4 marks each; and Section–E has 3 questions of 5 marks each.
(iv) There is no overall choice. However, internal choices have been provided in some questions A student has to attempt only one of the alternatives in such questions.
(v) Wherever necessary, neat and properly labeled diagrams should be drawn

	SECTION A	
Q NO	**QUESTIONS**	**MAR**
1	a) Spermatogonia → Primary Spermatocytes → Secondary Spermatocytes → Spermatids → Spermatozoa	1
2	b) It is the absence of menstruation during the first few months after delivery, primarily due to high levels of prolactin from breastfeeding.	1
3	c) The concept of mutations as a source of new variations	1
4	d) Transcribes tRNA, 5s rRNA and snRNA	1
5	d) Flipper of penguin and dolphin are analogous organs.	1
6	a) 5' – UAC –	1
7	a) To determine the genotype of an individual with a dominant phenotype	1
8	c) A and B only	1
9	b) The primary lymphoid organs include the thymus and bone marrow, which are involved in the maturation of immune cells, whereas the secondary lymphoid organs include the lymph nodes and spleen, which are involved in the activation and coordination of immune responses.	1
10	d) 0.48	1
11	c). i, iv, v ,ii, vi, iii	1
12	b) It is composed of two heavy chains and two light chains, forming a Y-shaped structure with variable and constant regions.	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.** **b) Both A and R are true and R is not the correct explanation of A.** **c) A is true but R is false.**	

	d) A is false but R is true.	
13	b) Both A and R are true and R is not the correct explanation of A.	1
14	c) A is true but R is false.	1
15	d) A is false but R is true.	1
16	a) Both A and R are true and R is the correct explanation of A.	1
	SECTION -B	
17	Well exposed stamens, Production of large number of pollens, Light and non-sticky pollens, Feathery and sticky stigma.	4x½-
18	Incomplete dominance ½ Parent phenotypes  Parent genotypes Pp Pp  1 1:2:1, which is the same for both the phenotypic and genotypic ratio ½	2
19	a)Oral ingestion, snorting, injection(any two) 2x½-1 b)Peer pressure, stress on studies, family issue ,any other point(any two) 2x½-1	2
20	On the basis of their ability to produce colour in the presence of a chromogenic substrate. In this , a recombination DNA is inserted within the coding sequence of an enzyme , β – galactosidase . This results into inactivation of the gene resulting in absence of synthesis of this enzyme , which is referred to as insertional inactivation	2
21	a.Sixth extinction is 100 – 1000 times faster and is due to man's activities- (1) b. The Nile perch introduced into Lake Victoria in east Africa led eventually to the extinction of an ecologically unique assemblage of more than 200 species of cichlid fish in the lake native species by invasive weed species like carrot grass (Parthenium), Lantana and water hyacinth (Eicchornia) Introduction of the African catfish Clarias gariepinus for aquaculture purposes is posing a threat to the indigenous catfishes in our rivers (any two) 2x½-1 OR (I) A-Exponential growth curve B- Logistic growth curve (1)	2

	(II) dN /dt=rN (K-N/K) (1)	
	SECTION C	
22	B- Embryo, C- primary endosperm cell. 1 The endosperm provides nutrition to the growing embryo, hence, endosperm development precedes embryo development 1 Zygote-globular embryo-heart shaped embryo- mature embryo 1	3
23	D- progesterone produced by corpus luteum 2 Peak C represents LH suge. It bring abou ovulation 1	3
24	Pleiotropy occurs when a single gene influences multiple phenotypic traits. It is an inborn error of metabolism. It's an autosomal recessive disorder. Phenylketonuria is caused due to the lack of an enzyme that converts phenylalanine into tyrosine due to mutation in the gene coding it.This causes mental retardation, reduction in hair and skin pigmentation.	3
25	Termination, D- RNA polymerase and E-rho factor. 1 ½ In prokaryotes the it forms functional mRNA while in eukaryotes it forms hnRNA which has to undergo splicing, capping and tailing to produce functional mRNA. 1 ½	3
26	**Benign Tumour** / **Malignant Tumour** It is a non-cancerous tumour. / It is a cancerous tumour. Benign tumour does not show metastasis and is non-invasive. / It shows metastasis and thus invades other body parts. 1 b) The spread of cancer cells from the place where they first formed to another part of the body. In metastasis, cancer cells break away from the original (primary) tumor, travel through the blood and form a new tumor in other organs or tissues of the body. 1 c) Hair loss,anemia. 1	3
27	a) In 1997 the transgenic cow ,Rosie produced human protein enriched milk (2.4 gram per litre) 1 The milk contained human alpha –lactalbumin and was nutritionally a more balanced product for human babies than cow milk 1 b) Testing of vaccine-polio vaccine Study diseases like cancer,cyctic fibrosis, alzheimer's 1 OR Ampicillin region 1, BamHI and SalI 1, Ori 1	3
28	a) Alexander von Humboldt 1/2 b) a) $S = c A^z$, b) $\log S = \log C + Z \log A$, 2 c) As the area increases the species richness also increases 1/2	3
	SECTION D	

29	a) George Gamow 1 b) 4 , UAG- Stop codon 1 Or AGU 1 c) i The codon is triplet. 61 codons code for amino acids and 3 codons do not code for any amino acids hence they function as stop codons. ii One codon codes for only one amino acid hence it is unambiguous and specific. iii Some amino acids are coded by more than one codon hence the code is degenerate. iv The codon is read in mRNA in a contiguous fashion. There are no punctuations. v The code is nearly universal: for example from bacteria to human UUU would code for Phenylalanine phe. Some exceptions to this rule have been found in mitochondrial codons and in some protozoans. vi AUG has dual functions. It codes for Methionine met and it also act as initiator codon. (any two) 2x1- 2	4
30	a) Environmentally friendly, Targeted pest ,Cost-effective: ,Easy to use (any two or other relevant points) 1 b) They control mosquito larvae 1 Or It's a free living fungi that are common in root ecosystem .they are biocontrol agents for several root pathogens. 1 c) They are specific to their target pests and don't harm plants, mammals, or non-target insects. They have Narrow-spectrum insecticidal applications. 2	4
	SECTION E	
31	A -Primary follicle B -Tertiary follicle with antrum C-Graafian follicle D -Corpus luteum E -Ovum. 2 ½ ii)In human female, primary oocytes are formed during the embryonic development stages in the foetal ovaries. Primary oocytes start dividing and enter prophase-1 of meiosis and are suspended at this stage. Each primary follicle is surrounded by a layer of granulosa cells and becomes the primary follicle. When it is surrounded by more layers of granulosa cells, is called a secondary follicle. Secondary follicle transforms into a tertiary follicle, with formation of fluid filled cavity antrum. Granulosa cells become organised into an outer theca externa and an inner theca	

	interna. Now the oocyte completes meiosis I and forms a larger secondary oocyte and a tiny first polar body. 2 ½ OR Monosporic development is the process by which the female gametophyte develops from a single functioning megaspore. 	
32	a) Adenosine deaminase deficiency 1 b) Its caused due to deletion of the gene Adenosine deaminase 1 c) Enzyme replacement therapy and bone marrow transplant. 1 d) ADA deficiency is treated by introduction of functional ADA (adenosine deaminase) cDNA (using a retroviral vector) into lymphocytes which are subsequently transferred to the patient.however these cells are not immotal there must be done in embryonic stages to get permanent cure .2 OR a) Agrobacterium tumifaciens, T-DNA 2 b) Ti plasmid 1 c) Disarmed retrovirus 1 d) DNA ligase 1	5
33	a.)Detritus(1/2) Steps of decomposition-Fragmentation , leaching, catabolism, humification and mineralization(1/2 each) b. Decomposition is slower if the detritus is composed of lignin and chitin, and quicker if it is composed of nitrogen and water soluble substances like sugars.(1) Warm and moist environment favour decomposition and low temperature and anaerobic conditions inhibit decomposition. (1) OR	5

	a) Khasi and Jaintia, hills in Meghalaya, Aravalli hills of Rajasthan , Western Ghat regions Karnataka and Maharastra and the Sarguja, Chanda and Bastar areas of Madhya Pradesh. (any 4) 2 b) Biodiversity hotspots are regions with very high levels of species richness and high degree of endemism. There are vey crucial as they harbour exceptionally high biodiversity. These regions show accelerated habitat loss. 3	