

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 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. 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.	Among the terms listed below, those that of are not technically correct names for a floral whorl are: (i) Androecium (ii) Carpel (iii) Corolla (iv) Sepal (A) (i) and (iv) (B) (iii) and (iv) (C) (ii) and (iv) (D) (i) and (ii)	1
2.	Embryo sac is related to ovule as _____ is related to an anther. (A) Stamen (B) Filament (C) Pollen grain (D) Androecium	1
3.	In a typical complete, bisexual and hypogynous flower the arrangement of floral whorls on the thalamus from the outermost to the innermost is: (A) Calyx, corolla, androecium and gynoecium (B) Calyx, corolla, gynoecium and androecium (C) Gynoecium, androecium, corolla and calyx (D) Androecium, gynoecium, corolla and calyx	1
4.	A dicotyledonous plant bears flowers but never produces fruits and seeds. The most probable cause for the above situation is: (A) Plant is dioecious and bears only pistillate flowers. (B) Plant is dioecious and bears both pistillate and staminate flowers. (C) Plant is monoecious. (D) Plant is dioecious and bears only staminate flowers.	1
5.	The outermost and innermost wall layers of microsporangium in an anther are respectively: (A)Endothecium and tapetum. (B)Epidermis and endodermis. (C)Epidermis and middle layer. (D) Epidermis and tapetum.	1
6.	During microsporogenesis, meiosis occurs in: (A) Endothecium. (B) Microspore mother cells . (C) Microspore tetrads. (D) Pollen grains..	1

7.	From among the sets of terms given below, identify those that are associated with the gynoecium. (A) Stigma, ovule, embryo sac, placenta. (B) Thalamus, pistil, style, ovule. (C) Ovule, ovary, embryo sac, tapetum. (D) Ovule, stamen, ovary, embryo sac.	1
8.	From the statements given below choose the option that are true for a typical female gametophyte of a flowering plant: (A) It is 8-nucleate and 7-celled at maturity. (B) It is free-nuclear during the development. (C) It is situated inside the integument but outside the nucellus. (D) It has an egg apparatus situated at the chalazal end.	1
9.	Starting from the innermost part, the correct sequence of parts in an ovule are: (A) egg, nucellus, embryo sac, integument. (B) egg, embryo sac, nucellus, integument. (C) embryo sac, nucellus, integument, egg. (D) egg, integument, embryo sac, nucellus.	1
10.	The structure of bilobed anther consists of: (A) 2 thecae, 2 sporangia. (B) 4 thecae, 4 sporangia. (C) 4 thecae, 2 sporangia. (D) 2 thecae, 4 sporangia.	1
11.	Evolutionary convergence is development of a (a) common set of functions in groups of different ancestry. (b) dissimilar set of functions in closely related groups. (c) common set of structures in closely related groups. (d) dissimilar set of functions in unrelated groups.	1
12.	Megaspore, the first cell of female gametophytic generation develops into: (A) Pollens. (B) Embryo sac. (C) Ovule. (D) Anthers.	1
13.	Choose the correct statement. (A) Mature embryo sac has numerous antipodal cells. (B) The reduction division occurs in the megaspore mother cells. (C) There is a small central cell in the embryo sac. (D) The egg cell has a filiform apparatus.	1
14.	Which of the following is an example of ex situ conservation? (a) Sacred Groves (b) National Park (c) Biosphere Reserve (d) Seed Bank	1
15.	Swathi was growing a bacterial colony in a culture flask under ideal laboratory conditions where the resources are replenished. Which of the following equations will represent the growth in this case? (Where population size is N, birth rate is b, death rate is d, unit time period is t, and carrying capacity is K). (a) $dN/dt = KN$ (b) $dN/dt = r N$ (c) $dN/dt = r N(K-N/K)$ (d) $dN/dt = r N(K+N/K)$	1

16.	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
Section - B		
17.	How many cells are present in the pollen grains at the time of their release from anther? Name the cells.	2
18.	“Pollen grains in wheat are shed at the 3-celled stage while in peas they are shed at the 2-celled stage.” Explain. Where are germ pores present in a pollen grain?	2
19.	A pollen grain in angiosperm at the time of dehiscence from an anther could be 2-celled or 3-celled. Explain. How are the cells placed within the pollen grain when shed at a 2-celled stage?	2
20.	In a flowering plant, a microspore mother cell produces four male gametophytes while a megaspore mother cell form only one female gametophyte. Explain.	2
21.	Mention the ploidy of the different types of cells present in the female gametophyte of an angiosperm.	2
SECTION C		
22.	When and where do tapetum and synergids develop in flowering plants? Mention their functions.	3
23.	Where are the following structures present in a male gametophyte of an angiosperm? Mention the function of each one of them. (a) Germ pore (b) Sporopollenin (c) Generative cell	3
24.	Pollen banks are playing a very important role in promoting plant breeding programme the world over. How are pollens preserved in the pollen banks? Explain. How are such banks benefiting our farmer? Write any two ways.	3
25.	(i) Do all pollen grains remain viable for the same length of time? Support your answer with two suitable examples. (ii) How are pollen grains stored in pollen banks? State the purpose of storing pollen grains in banks.	3
26.	(i) Draw a labelled diagram of a section of an enlarged view of microsporangium of an angiosperm. (ii) Name the cells and the event they undergo to produce pollen grains.	3
27.	(i) Draw a labelled sketch of a mature 7-celled, 8-nucleate embryo sac. (ii) Which one of the cells in an embryo-sac produce endosperm after double fertilisation?	3

28.	(a) Name the organic material exine of the pollen grain is made up of. How is this material advantageous to pollen grain? (b) Still it is observed that it does not form a continuous layer around the pollen grain. Give reason. (c) How are 'pollen banks' useful?	3
Section - D		
Q. No. 29 and 30 are case-based questions. Each question has 3 subparts with internal choice in one subpart.		
29.	A son persuades his father to replace his old mobile phone with the latest model launched in the market. He also shares the latest features it has and explains how it can be of a help to him in the modern technological world. Father is reluctant in buying a new one and tries to explain about its environmental impact. How do you think, the biologist father would try to convince his son? Justify the arguments of father and son both, by mentioning positive aspects of the behavior displayed by both of them in the situation concerned (three each).	4
30.	A doctor prescribed morphine as a sedative and pain killer to your cousin who had undergone a surgery. Even after recovery, he indiscriminately took the medicines and later craved for the same. What do you conclude about his condition? What measures will you suggest to him to overcome this problem? Briefly explain any two.	4
SECTION – E		
31.	(a) Where does microsporogenesis occur in an angiosperm? Describe the process of microsporogenesis. (b) Draw a labelled diagram of the two-celled male gametophyte of an angiosperm. How is the threecelled male gametophyte different from it?	5
32.	Read the statement and answer the questions that follow: A flower of brinjal has 520 ovules in its ovary. However, it produces a fruits with only 480 viable seeds. (a) What could have prevented the rest of the 40 ovules from mating into viable seeds? Explain giving a reasons. (b) Describe the development of a dicot embryo in a viable seed. (c) Why certain angiosperm seeds are albuminous while others are exalbuminous? Explain.	5
33.	(a) A capsicum flower has 240 ovules in its ovary. But, it produces a fruit with only 180 viable seeds. Explain giving a reason that could be responsible for such a result. (b) Describe the development of an endosperm in a viable seed. Why does endosperm development precede embryo development? (c) Give an example of an angiosperm seed that has a perisperm. Name the part the perisperm develops from.	5