Sample Question Paper (Chapter-2)

Class-12 Biology | Term-I

General Instructions:

1. The Question Paper contains three sections and a total of 60 questions.
2. Section A has 24 questions. Attempt ***any 20*** questions.
3. Section B has 24 questions. Attempt ***any 20*** all questions.
4. Section C has 12 questions. Attempt ***any 10*** questions.
5. All questions carry equal weightage of ***0.7*** marks.
6. There is no negative marking.

Section – A

Section – A consists of 24 questions. Attempt any 20 questions from this section.

The first attempted 20 questions would be evaluated.

1) 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

2) The coconut water from tender coconut is
(a) cellular endosperm.
(b) free nuclear endosperm.
(c) both cellular and nuclear endosperm.
(d) free nuclear embryo.

3) Pollen grains are well preserved as fossils because of presence of
(a) sporopollenin
(b) cellulose
(c) lignocellulose
(d) pectocellulose

4) The thalamus contributes to the fruit formation in
(a) Banana
(b) Orange
(c) Strawberry
(d) Guava

5) Ovule is
(a) megasporangium
(b) megasporophyll
(c) integumented megasporangium
(d) rolled megasporophyll

6) Egg apparatus consists of
(a) egg cell and antipodal cells.
(b) egg cell and central cell.
(c) egg cell and two synergids.
(d) egg cell and one synergid

7) Filiform apparatus is found in
(a) synergids
(b) anther wall
(c) secondary nucleus
(d) egg cell

8) Both chasmogamous and cleistogamous flowers are present in
(a) Helianthus
(b) Viola
(c) Rosa
(d) Gossypium

9) Milky water of green coconut is
(a) liquid chalaza
(b) liquid nucellus
(c) liquid endosperm
(d) liquid female gametophyte

10) Scutellum is present in the embryo of
(a) pea
(b) Ranunculus
(c) Triticum
(d) None of these

11) Perisperm is a
(a) degenerate part of synergids
(b) peripheral part of endosperm
(c) degenerate part of secondary nucleus
(d) remnant of nucellus.

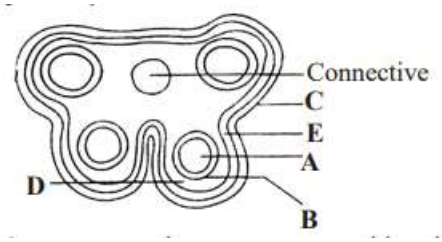
12) Apomixis is the
(a) development of plants in darkness.
(b) development of plants without fusion of gametes
(c) inability to perceive stimulus for flowering
(d) effect of low temperature on plant growth.

13) Which of the following statement is incorrect about emasculation?
(a) During emasculation process, stigma is removed
(b) Emasculated flowers are bagged in order to prevent self-pollination
(c) Emasculation is the removal of stamens before the maturation of selected bisexual flowers
(d) It is one of the steps for artificial hybridization.

14) Multinucleate condition is present in
(a) quiescent centre
(b) maize
(c) meristematic tissue
(d) liquid endosperm of coconut

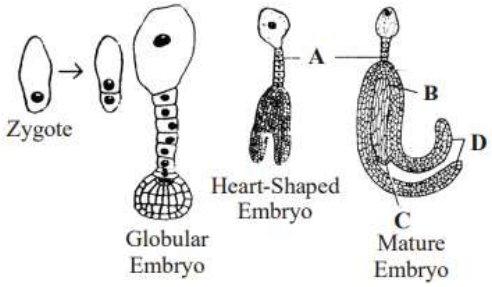
15) Through which part of the embryo sac, does the pollen tube enter the embryo sac?
(a) Egg cell
(b) Persistent synergid
(c) Degenerated synergid
(d) Central cell

16) The given diagram refers to a T. S. of anther. Identify A to E respectively



(a) Sporogenous tissue, tapetum, epidermis, middle layer, endothecium
(b) Sporogenous tissue, epidermis, tapetum, middle layer, endothecium
(c) Sporogenous tissue, epidermis, middle layer, tapetum, endothecium
(d) Sporogenous tissue, tapetum, middle layer, epidermis, endothecium

17) Diagram given below shows the stages in embryogenesis in a typical dicot plant (Capsella). Identify the structures A to D respectively

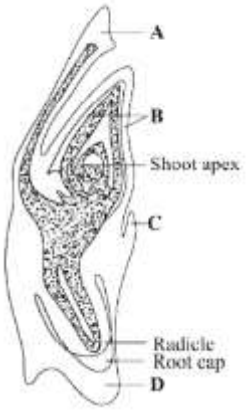


(a) Suspensor, Radicle, Plumule, Cotyledons
(b) Hypophysis, Radicle, Plumule, Cotyledons
(c) Suspensor, Plumule, Radicle, Cotyledons
(d) Suspensor, Radicle, Plumule, Hypocotyls

18) Which of the following is correct?
(a) Proembryo → Mature embryo → Globular embryo
(b) Proembryo → Globular embryo → Mature embryo
(c) Globular embryo → Proembryo → Mature embryo
(d) Mature embryo → Globular embryo → Proembryo

19) The reward produced by plants to their animal visitors is in the form of
(a) Nectar
(b) Pollen grain
(c) Both (a) and (b)
(d) None of these

20) The given figure shows the L.S. of a monocot embryo. Choose the correct labelling for A, B, C and D marked in the figure from the options given below.



(a) A – Coleoptile; B – Scutellum; C – Epiblast; D – Coleorhiza
(b) A – Scutellum; B – Coleoptile; C – Coleorhiza; D – Epiblast
(c) A – Scutellum; B – Epiblast; C – Coleoptile; D – Coleorhiza
(d) A – Scutellum; B – Coleoptile; C – Epiblast; D – Coleorhiza

21) White kernel of coconut is which part of endosperm?
(a) Cellular
(b) Free nuclear
(c) Cellular as well as nuclear
(d) Neither cellular nor free nuclear

22) Triple fusion results in _____ while syngamy results in _____.
(a) Zygote and endosperm
(b) Endosperm and zygote
(c) Both form of zygote
(d) Both fern endosperm

23) Emasculated flowers are covered with a bag of suitable size; the process is referred to as
(a) Emasculation
(b) Bagging
(c) Both (a) and (b)
(d) None of these

24) Polyembryony is seen in
(a) Citrus fruits
(b) Coconut
(c) Date palm
(d) Pineapple

Section – B

Section - B consists of 24 questions (Sl. No.25 to 48). Attempt any 20 questions from this section.

The first attempted 20 questions would be evaluated.

Question No. 25 to 28 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.

25) Assertion : Endosperm is a nutritive tissue and it is triploid.
Reason: Endosperm is formed by fusion of secondary nucleus to second male gamete. It is used by developing embryo.

26) Assertion : Insects visit flower to gather honey.
Reason : Attraction of flowers prevents the insects from damaging other parts of the plant.

27) Assertion : Chasmogamous flowers require pollinating agents.
Reason : Cleistogamous flowers do not expose their sex organs.

28) Assertion: Endosperm development occurs before embryo development.
Reason: Cells of endosperm are filled with reserve food material and act as source of nutrition for developing embryo.

29) Phoenix dactylifera is
(a) A 2000 year old viable seed
(b) A type of date palm
(c) Excavated from king Herod's palace near the Dead sea
(d) All the above

30) Persistent nucleus perisperm is found in
(a) Wheat and maize
(b) Pea and ground nut
(c) Barley and castor
(d) Black paper and beat

31) A botanist studying Viola (common pansy) noticed that one of the two flower types withered and developed no further due to some unfavourable condition, but the other flower type on the same plant survived and it resulted in an assured seed set. Which of the following will be correct?
(a) The flower type which survived is Cleistogamous and it always exhibits autogamy
(b) The flower type which survived is Chasmogamous and it always exhibits geitonogamy
(c) The flower type which survived is Cleistogamous and it exhibits both autogamy and geitonogamy
(d) The flower type which survived is Chasmogamous and it never exhibits autogamy.

32) Which of the following statement(s) is/are correct about self-incompatibility ?
(i) It is a device to prevent inbreeding.
(ii) It provides a biochemical block to self-fertilization.
(iii) It ensures cross-fertilization.
(iv) It is governed by pollen-pistil interaction.
(v) It is governed by series of multiple alleles.
(vi) It prevents self-pollen (from the same flower of other flowers of the same plant) from fertilizing the ovules by inhibiting pollen germination of pollen tube growth in the pistil.
(a) (i), (ii) and (iii)
(b) (i), (iv) and (v)
(c) All of the above
(d) None of the above

33) Which one of the following is not related to other three?
(a) Archaegonium
(b) Oogonium
(c) Ovule
(d) Antheridium

34) Seed coat is not thin, membranous in
(a) coconut
(b) groundnut
(c) gram
(d) maize

35) Which of the following processes is necessary for the complete development of male gametophyte?
(a) One meiotic cell division and two mitotic cell divisions.
(b) One meiotic cell division and one mitotic cell division.
(c) Two meiotic cell divisions and one mitotic cell division.
(d) Two mitotic cell divisions

36) Unisexuality of flowers prevents
(a) geitonogamy but not xenogamy
(b) autogamy and geitonogamy
(c) autogamy but not geitonogamy
(d) both geitonogamy and xenogamy.

37) Albuminous seeds store their reserve food mainly in
(a) perisperm
(b) endosperm
(c) cotyledons
(d) hypocotyl

38) While planning for an artificial hybridization programme if the female parent have unisexual flowers, then which of the following steps would not be relevant?
(a) Bagging of female flower
(b) Dusting of pollen on stigma
(c) Emasculation
(d) Collection of pollen

39) If a diploid female plant and a tetraploid male plant are crossed, the ploidy of endosperm shall be
(a) tetraploid

(b) triploid
(c) diploid
(d) pentaploid

40) A dicotyledonous plant bears flowers but never produces fruits and seeds. The most probable cause for the above situation is
(a) The plant is dioecious and bears only pistillate flowers
(b) The plant is dioecious and bears both pistillate and staminate flowers
(c) The plant is monoecious.
(d) The plant is dioecious and bears only staminate flowers

41) In an embryo sac, the cells that degenerate after fertilization are
(a) Synergid and primary endosperm nucleus cell
(b) Synergid and antipodal
(c) Antipodal and primary endosperm nucleus cell
(d) Egg and antipodals

42) Endosperm persist in mature seed of
(a) Pea, castor and coconut
(b) Castor and coconut
(c) Pea and beans
(d) Groundnut and castor

43) Amorphophallus provide floral rewards in the form of
(a) Providing safe place to lay eggs
(b) Tallest flower
(c) Both (a) and (b)
(d) None of these

44) Which of the following is correct for the relationship existence between moth and yucca plant?
(a) Moth and the plant cannot complete their life cycle without each other
(b) Moth deposits egg in the locule of the ovary and the flower and in turn flower gets pollinated by the moth
(c) Larva of the moth comes out of the eggs as the seeds start developing
(d) All the above

45) Whorl of carpel in flower represents
(a) Gynoecium
(b) Androecium
(c) Calyx
(d) Corolla

46) Each cell of microspore tetrad is
(a) 2n (b) n
(c) Some n and some 2n (d) 3n

47) Generative cell floats in the cytoplasm of
(a) Vegetative cell
(b) Microspore mother cell
(c) Pollen mother cell
(d) Megasporangium

48) Rice pollen grains are viable for
(a) 6.0 mins
(b) Approximately 30 mins
(c) Approximately 60 mins
(d) 40 mins

Section – C

Section-C consists of one case followed by 6 questions linked to this case (Q.No.49 to 54). Besides this, 6 more questions are given. Attempt any 10 questions in this section.
The first attempted 10 questions would be evaluated.

Case.

Given here is *Lycopersicon esculentum* plant. Assume that the plant here will be producing a total of 1440 seeds. Based on this information answer the questions below.

49) Find the minimum number of pollen grains that must have been involved in the pollination process.
(a) 1140 (b) 360
(c) 5760 (d) None of these

50) What should be the minimum number of ovules associated in this case?
(a) 1140 (b) 1440 (c) 360 (d) 5760

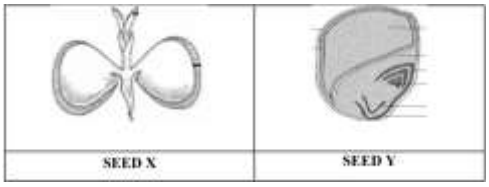
51) How many MMC should be involved?
(a) 1140 (b) 1440 (c) 360 (d) 5760

52) What is the minimum number of PMC involved in the above case?
(a) 2880 (b)1440 (c) 360 (d) 5760

53) How many male gametes should be involved in this case?
(a) 2880 (b)1440 (c) 360 (d)5760

54) What will be the minimum number of meiotic cell division that would be required to produce the requisite number of pollen grains in this case?
(a) 360 (b) 720 (c)1440 (d) 2880

55) Which of the following statements are true related to Seed X and Y?

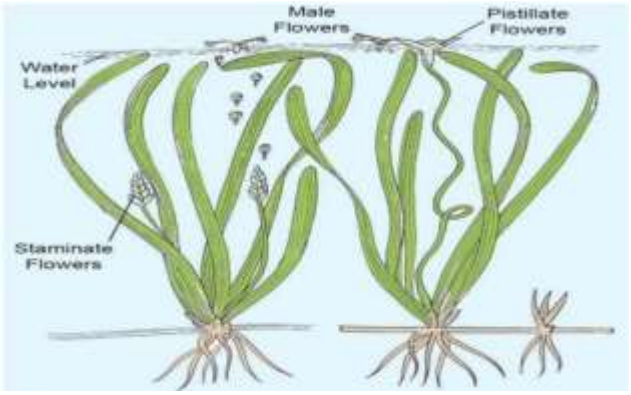


(i) Seed X is dicot and endospermic or albuminous.
(ii) Seed X is dicot and non-endospermic or non-albuminous.
(iii) Seed Y is monocot and endospermic or albuminous.
(iv) Seed Y is monocot and non-endospermic or non-albuminous.
Choose the correct option with the respect to the nature of the seed
(a) (i), (iii)
(b) (ii), (iii)
(c) (i), (iv)
(d) (ii), (iv)

56) Male gametophyte in angiosperms produces
(a) Single sperm and a vegetative cell
(b) Single sperm and two vegetative cells
(c) Three sperms
(d) Two sperms and a vegetative cell

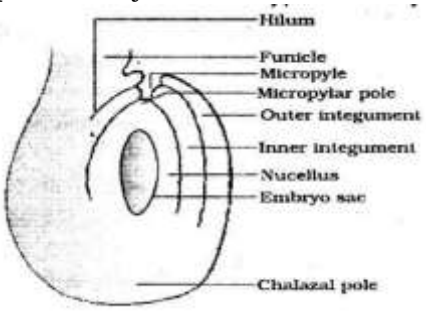
57) The ovule of an angiosperm is technically equivalent to
(a) Megasporophyll
(b) Megaspore mother cell
(c) Megaspore
(d) Megasporangium

58) In the dioecious aquatic plant shown, identify the characteristics of the male flowers that reach the female flowers for pollination:



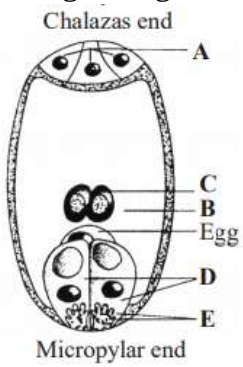
	Size of the flower	Colour of flower	Characteristic feature of pollen grain
(a)	small	brightly coloured	Light weight and non-sticky
(b)	Large	colourless	large and sticky
(c)	Small	white	small, covered with mucilage
(d)	large	colourless	non sticky

59) In the figure of anatropous ovule given below, choose the correct option for the characteristic distribution of cells within the typical embryo sac



	Number of cells at chalazal end	Number of cells at micropylar end	Number of nuclei left in central cell
(a)	3	2	3
(b)	3	3	2
(c)	2	3	3
(d)	2	2	4

60) Identify A, B, C, D and E structures marked in the given figure of a mature embryo sac.



	A	B	C	D	E
(a	Antipodal Cells	Central Cell	Polar Nuclei	Synergids	Acrosome
(b	Antipodal Cells	Central Cell	Polar Nuclei	Synergids	Filiform Apparatus
(c	Synergids	Central Cell	Polar Nuclei	Antipodal Cells	Filiform Apparatus
(d	Synergids	MMC	Polar Nuclei	Synergids	Filiform Apparatus