AUM SUN PUBLIC SCHOOL

HOLIDAY HOMEWORK (2026-27)

XII-A

SUBJECT – ENGLISH

Complete the Extract-based questions of all the chapters till 'Lost spring' in flamingo & 'The Tiger king' in Vistas.

Reading Skills: [Worksheet]

Passage-1 pg.no. 19

Passage-2. Pg No. 22

Passage-4 Pg no.27

Passage-5 Pg no. 30

Writing Skills (from Worksheet].

NOTICE:- Quo5, 9& 10 from the additional exercises for Notice [Page no. 48]

Complete them is your English Holiday homework notebook.

FORMAL INVITATIONS: Replies - [Acceptance & Declination]

Ques no 02 - pg no-56} in worksheet

Ques no.03 - pg no-57}in worksheet

Ques 1,6,9 in your English Holiday Homework notebook. (Page no. 58)

JOB APPLICATIONS

Ques no 4 [pg no.74] in your Worksheet

Ques no.05 {Pg no. 75] in your Worksheet

Ques no 21, 22 & 23 from additional Exercises [Pgno. 79) in your English Holiday Homework, notebook.

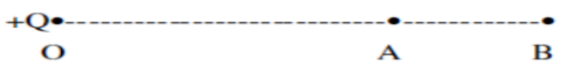
ARTICLE WRITING :- Ques no. 1, 2 & 6 [page no 94 & 95] in your English Holiday Homework notebook.

PHYSICS

Syllabus:- Electric potential, potential difference, electric potential due to a point charge, a dipole and system of charges; equipotential surfaces, electrical potential energy of a system of two-point charges and of electric dipole in an electrostatic field. Conductors and insulators, free charges and bound charges inside a conductor. Dielectrics and electric polarization, capacitors and capacitance, combination of capacitors in series and in parallel, capacitance of a parallel plate capacitor with and without dielectric medium between the plates, energy stored in a capacitor(no derivation, formulae only)

Q. Derive an expression for the E. potential at a distance r from a point charge q.Draw variation graph b/w E or V v/s r.

Q. A point charge +Q is placed at point O as shown in the figure. Is the potential difference $V_A - V_B$ positive, negative or zero?



Q. Derive an expression for the potential at a point along the axial line of a short dipole.

Q. Show mathematically that the potential at a point on the equatorial line of an electric dipole is zero.

Q. Derive an expression for the electric potential at any general point at distance r from the centre of a dipole.

Q. A short electric dipole has dipole moment of 4 x 10^{-9} Cm Determine the electric potential due to the dipole at a point distant 0.3 m from the centre of the dipole situated (a) on the axial line (b) on equatorial line and (c) on a line making an angle of 60° with the dipole axis.

Q. Write expression for the electric potential due to a uniformly charged spherical shell at apoint (i) outside the shell, (ii) on the shell and (iii) inside the shell.

Q. Determine the electric potential at the surface of agold nucleus. The radius is 6.6 x 10^{-15} m and the atomic number Z =79. Given charge on a proton =1.6 x $1O^{-19}$C

Q. E.f at point 'B' due to a point charge 'Q' kept at point 'A' is 24 NC-1 and the electric potential at point 'B' due to same charge is 12 JC-1 . Calculate the distance AB and also the magnitude of charge.

Q. A charge of 24μC is given to a hollow metallic sphere of radius 0.2 m Find the potential (i) at the surface of the sphere, and (ii) at a distance of 0.1 cm from the centre of the sphere.

Q. Twenty seven drops of same size are charged at 220 V each. They coalesce to form a bigger drop. Calculate the potential of the bigger drop.

Q. N small conducting liquid droplets, each of radius r, are charged to a potential V each. These droplets coalesce to form a single large drop without any charge leakage. Find the potential of the large drop.

Q. Two point charges q and –2q are kept 'd' distance apart. Find the location of point relative to charge 'q' at which potential due to this system of charges is zero.

Q. Two charges 3 x 10^{-8} C and- 2 x 10^{-8} Care located 15 cm apart. At what point on the line joining the two charges is the electric potential zero? Take the potential at infinity to be zero.

Q. Four charges + q, + q,- q and- q are placed respectively at the corners A, B, C and D of a square of side 'a' arranged in the given order. Calculate the electric potential at the centre o. If E and F are the midpoints of sides BC and CD respectively, what will be the work done in carrying a charge 'e' from 0 to E and from 0 to F ?

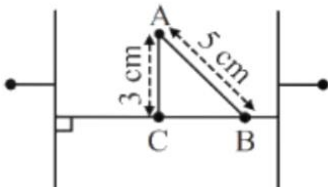
Q. Two small conducting balls A and B of radius r_1 and r_2 have charges q_1 and q_2 respectively. They are connected by a wire. Obtain the expression for charges on A and B, in equilibrium.

Q. Deduce the relation between the electric field and the potential gradient between them. Write the two important conclusions concerning the relation between the electric field and electric potentials

Q. Draw an equipotential surface in (i) a uniform E.F and (ii) a dipole iii) Write characteristics of equipotential surfaces.

Q.(i) An electric dipole (dipole moment p), consisting of charges - q and q, separated by distance 2a, is placed along the x-axis, with its centre at the origin. Show that potential V due to this dipole at a point x, (x >> a) is equal to 1 /4πε$_0$ $\vec{p}$.î x^2 (ii) Two isolated metallic spheres S1 and S2 of radii 1 cm and 3 cm respectively are charged such that both have the same charge density (2/π * 10^{-9})C/m2.. They are placed far away from each other and connected by a thin wire. Calculate the new charge on sphere S1.

Q. I. Draw an equipotential surface for a system consisting of two charges Q, –Q separated by a distance r in air. Locate the points where the potential due to the dipole is zero. II. For any charge configuration, equipotential surface through a point is normal to the electric field. Justify.



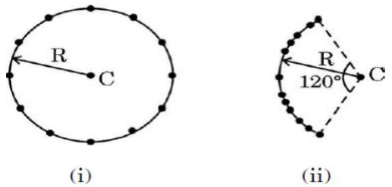
Q. Two large plane parallel conducting plates are kept 8 cm apart as shown in figure. The potential difference between them is V. Find potential difference between the points A and B (shown in the figure) ?

Q. A charge 'q' is moved from a point A above a dipole of dipole moment 'p' to a point B below the dipole in equatorial plane without acceleration. Find the work done in the process.

Q. A charged particle (+q) moves in a uniform electric field ($\vec{E}$) in the direction opposite to $\vec{E}$. What will be the effect on its electrostatic potential energy during its motion?

Q.Two uniformly large parallel thin plates having charge densities +σ and – σ are kept in the X-Z plane at a distance 'd' apart. Sketch an equipotential surface due to electric field between the plates. If a particle of mass m and charge '–q' remains stationary between the plates, what is the magnitude and direction of this field?

Q.(a) Twelve negative charges of same magnitude are equally spaced and fixed on the circumference of a circle of radius R as shown in Fig. (i). Relative to potential being zero at infinity, find the electric potential and electric field at the centre C of the circle. (b) If

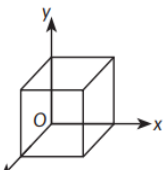


(i) (ii)

the charges are unequally spaced and fixed on an arc of 120° of radius R as shown in Fig. (ii), find potential at the centre C.

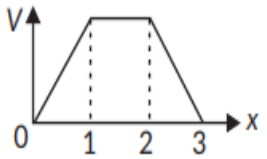
Q. Three point charges +Q, –2Q and –3Q are placed at the vertices of an equilateral triangle ABC of side L. If these charges are displaced to the mid points A_1, B_1 and C_1 respectively, calculate work done in shifting the charges to the new locations.

Q. (i) Derive an expression for potential energy of an electric dipole p in an external uniform electric field E. When is the P.E of the dipole (1) maximum,& (2) minimum? (ii) Three point charges q, 2q and nq are placed at the vertices of an equilateral triangle. If the potential energy of the system is zero, find the value of n.

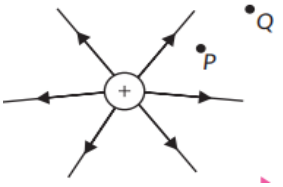


Q. A cube of side 20 cm is kept in a region as shown in the figure. An electric field E exists in the region such that the potential at a point is given by V=10x + 5, where V is in volt and x is in m. Find the (i) electric field E and (ii) total electric flux through the cube.

Q. The electric potential as a function of distance 'x' is shown in the figure.Draw a graph of the E.F 'E' as a function of x. "Is the electrostatic potential necessarily zero at a point where E=0"



Q.Figure shows the field lines on a positive charge. Is the work done by the field in moving a small positive charge from Q to P positive or negative?
Give reason.



Q. Two point charges q and –q are located at (0, 0, -a) and (0, 0, a) respectively. (a) Depict the equipotential surfaces due to this arrangement. (b)Find the amount of work done in moving a small test charge q_0 from point (l, 0, 0) to (0, 0, 0).

Q. Four point charges Q, q, Q and q are placed at the corners of a square of side 'a'.Find the potential energy of this system.

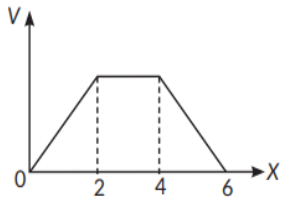
Q. Three point charges q, –4q and 2q are placed at the vertices of an equilateral triangle ABC of side 'l'. Find out the amount of the work done to separate the charges at infinite distance.

Q. Three point charges +1 μC, –1 μC and +2 μC are initially infinite distance apart. Calculate the work done in assembling these charges at the vertices of an equilateral triangle of side 0.01 m

Q. Find the expression for the potential energy of a system of two point charges q_1 and q_2 located at r_1 and r_2 , respectively in an external electric field E.

Q. An infinitely large thin plane sheet has a uniform surface charge density σ. Obtain the expression for the amount of work done in bringing a point charge q from infinity to a point, distant r, in front of the charged plane sheet.

Q. The electric potential V as a function of distance X is shown in the figure. The graph of the magnitude of electric field intensity E as a function of X is?



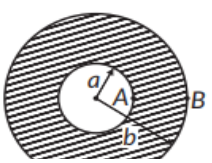
Q. (i) Obtain the expression for the electric field intensity due to a uniformly charged spherical shell of radius R at a point distant r from the centre of the shell outside it. (ii) draw a graph showing the variation of electric field intensity E with r, for r > R and r < R.

Q. An electric dipole of length 2 cm is placed with its axis making an angle of 60^0 with respect to uniform electric field of 10^5 N/C &. If it experiences a torque of 8√3 N/m , calculate the magnitude of charge on the dipole, and its potential energy.

Q. Two charges 2 μC and –2 μC are placed at points A and B 6 cm apart. (a) Identify an equipotential surface of the system. (b) What is the direction of the electric field at every point on this surface?

Q. Prove that, if an insulated, uncharged conductor is placed near a charged conductor and no other conductors are present, the uncharged body must be intermediate in potential between that of the charged body and that of infinity.

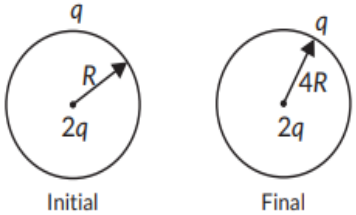
Q. Two charged conducting spheres of radii a and b are connected to each other by a wire. What is the ratio of electric fields at the surfaces of the two spheres? Use the result obtained to explain why charge density on the sharp and pointed ends of a conductor is higher than on its flatter portions.



Q. A spherical shell of radius R having charge q has a point charge 2q kept at its centre. Find the work done by the field in increasing the radius to 4R.

Q. A hollow sphere having uniform charge density σ. Find the potential difference between A and B.

Q. Calculate potential on the axis of a disc of radius R due to a charge Q uniformly distributed on its surface.



Q. Drive an expression for its capacitance of parallel plate capacitor. On what factors does the capacitance of a parallel plate capacitor depend ?

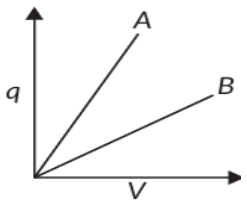
Q. A parallel plate capacitor has plate area of 25 cm^2 and a separation of 2.0 mm between its plates. The capacitor is connected to 12 V battery. (j) Find the charge on the capacitor. (ii) If the plate separation is decreased by 1.0 mm what extra charge is given by the battery to the positive plate ?

Q. Two parallel plate air capacitors have their plate areas 100 and 500 cm^2 ?- respectively. If they have the same charge and potential and the distance between the plates of the first capacitor is 0.5 mm what is the distance between the plates of the second capacitor ?

Q. A number of capacitors are connected . **i.**Derive an expression for the equivalent capacitance of the series combination. **ii.**Derive an expression for the equivalent capacitance of the parallel combination.

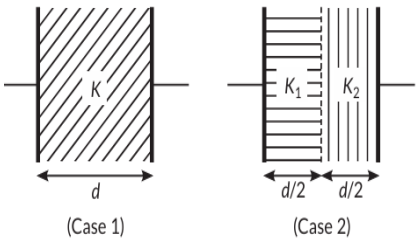
Q. Two capacitors have a capacitance of 5μF when connected in parallel and 1.2 μF when connected in series. Calculate their capacitances.

Q. The given graph shows variation of charge q' versus potential difference V for two capacitors C1 and C2. Both the capacitors have same plate separation but plate area of C2 is greater than that of C1. Which line (A or B) corresponds to C1 and why?

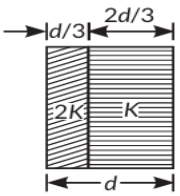


Q. When a parallel plate capacitor is connected across a dc battery, explain briefly how the capacitor gets charged.

Q. The space between the plates of a parallel plate capacitor is completely filled in two ways. n the first case, it is filled with a slab of dielectric constant K. In the second case, it is filled with two slabs of equal thickness and dielectric constants K1 and K2 respectively as shown in the figure. The capacitance of the capacitor is same in the two cases. Obtain the relationship between K, K1 and K2.



Q. Two slabs of dielectric constants 2K and K fill the space between the plates of a parallel plate capacitor of plate area A and plate separation d as shown in figure. Find an expression for capacitance of the system.

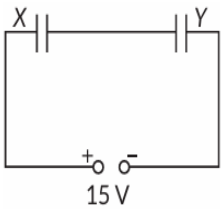


Q. A parallel plate capacitor of capacitance C is charged to a potential V. It is then connected to another uncharged capacitor having the same capacitance. Find out the ratio of the energy stored in the combined system to that stored initially in the single capacitor.

Q. A 12pf capacitor is connected to a 50V battery. How much electrostatic energy is stored in the capacitor? If another capacitor of 6pf is connected in series with it with the same battery connected across the combination, find the charge stored and potential difference across each capacitor.

Q. Two capacitors of unknown capacitances C1 and C2 are connected first in series and then in parallel across a battery of 100V . If the energy stored in the two combinations is 0.045J and 0.25J respectively, determine the value of C1 and C2. Also calculate the charge on each capacitor in parallel combination.

Q. Two parallel plate capacitors X and Y have the same area of plates and same separation between them. X has air between the plates while Y contains a dielectric of $\epsilon_r = 4$.(i) Calculate capacitance of each capacitor if euivalent capacitance of the combination is 4μF. (ii) Calculate the potential difference between the plates of X and Y. (iii) Estimate the ratio of electrostatic energy stored in X and Y.



Q. A capacitor of capacitance C is connected across a battery. After charging, the battery is disconnected and the separation between the plates is doubled. How will (i) the capacitance of the capacitor, and (ii) the E.Fbetween the plates be affected?

Q. A parallel plate capacitor of capacitance 'C' is charged to 'V' volt by a battery. After some time the battery is disconnected and the distance between the plates is doubled. Now a slab of dielectric constant $1 < K < 2$ is introduced to fill the space between the plates. How will the following be affected? (i) The electric field between the plates of the capacitor? (ii) The energy stored in the capacitor. Justify your answer in each case.

Q. Find the ratio of the potential differences that must be applied across the parallel and series combination of two capacitors C1 and C2 with their capacitances in the ratio 1 : 2 so that the energy stored in the two cases becomes the same.

Q. A fully charged parallel plate capacitor is connected across an uncharged identical capacitor. Show that the energy stored

in the combination is less than that stored initially in the single capacitor.

Chemistry

1. Prepare a file of Investigatory Project.

- File should be hard cover card board file.
- It should be covered with black chart paper.
- It should be written in your hand-writing only (Please do not put any printouts in the file)
- It should include a page about "Why did I choose this topic?

MATHS

1. Prepare a portfolio file including basic concepts and formula of

(a) Inverse Trigonometric Functions

(b) Matrices

(c) Determinants

(d) Continuity and Differentiability

Also write about 5 mathematician contribution in maths.

2. Solve P.T 1 question paper on A-4 Sheet.

3. Do five questions daily in practice copy.

Subject – Biology

Worksheet -1

Sexual Reproduction in Flowering Plants

Pre-fertilization: Structures and Events
Stamen, Microsporangium and Pollen grain

MCQ

1. A group of compactly arranged homogenous mass of cells occupying the centre of a typical microsporangium in an anther is
(a) Sporogenous tissue
(b) Pollen sacs
(c) Microspore tetrads
(d) Spores. (Term-I, 2021-22)

VSA (1 Marks):

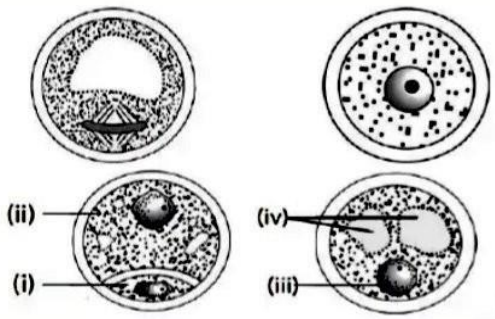
2. If the cells in the leaves of a maize plant contain 10 chromosomes each, write the number of chromosomes in its endosperm and zygote. Name and explain the process by which an endosperm and a zygote are formed in maize. (2024)

Structure of Ovule

MCQ:

3. The part of the ovule that develops into protective coats of a seed after fertilization in a typical flowering plant is:
(a)Embryo sac (b) Nucellus
(c) Integuments (d) Megaspore (2024)

4. The figures of the developmental stage of a microspore into a mature pollen grain are given below. Choose the option showing the correct labeling for (i), (ii), (iii) and (iv).

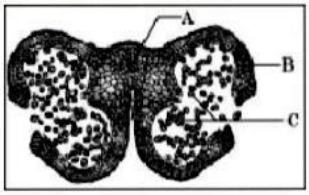


	(i)	(ii)	(iii)	(iv)
(a)	Generative cell	Vegetative cell	Male gametes	Vacuoles
(b)	Vegetative cell	Generative cell	Vacuoles	Male gametes
(c)	Generative cell	Vegetative cell	Nucleus	Vacuoles
(d)	Vegetative cell	Generative cell	Vacuoles	Nucleus

5. An angiosperm embryo sac is located within the :

(A) Placenta
(B) Megasporangium
(C) Nucellus
(D) Ovary (2024)

6. Study the following diagram of Transverse Section of a young anther of an angiosperm



Select the option where parts 'A', 'B' and 'C' are correctly identified.

(A) A - Connective, B - Endothecium, C - Pollen grain
(B) A - Endothecium, B - Connective, C - Pollen grain
(C) A - Pollen grain, B - Connective, C - Endothecium
(D) A - Endothecium, B - Pollen grain, C – Connective (2024)

VSA (1 mark)

7. Give an example of a plant which came into India as a contaminant and is a cause of pollen allergy. (AI 2014)

8. Identify A, B, C and D in the table given below:

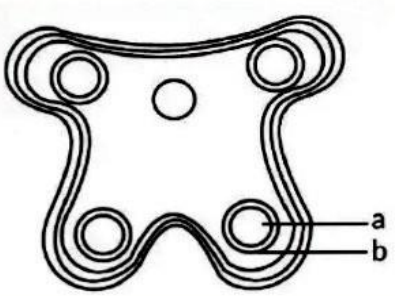
Terms	*Part of the plant it represents*
Pericarp	'A'
'B'	Cotyledon in seed of grass family
Embryonal axis	'C'
'D'	Remains of nucellus in a seed

(2024)

SA I (2 marks)

9. (a) Explain the process of the development of a male gametophyte in an angiosperm.
(b) Why is it called a male gametophyte? (2023)

10. In the T.S. of a mature anther given below, identify "a" and " b " and mention their functions.



(AI 2019)

11. 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? (AI 2017)

12. Name the organic materials exine and intine of an angiosperm pollen grain are made up of. Explain the role of exine. (Delhi 2014)

13. Draw a diagram of a matured microspore of an angiosperm. Label its cellular components only. (Foreign 2014)

SA II (3 marks)

14. Draw a schematic transverse section of a mature anther of an angiosperm. Label its epidermis, middle layers, tapetum, endothecium, sporogenous tissue and the connective. (2020)

15. 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 (2019)

16. (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? (AI 2016)

17. Why are angiosperm anthers called dithecous? Describe the structure of its microsporangium. (AI 2014)

LA (5 marks)

18. (a) Where does microsporogenesis occur in an angiosperm? Describe the process of microsporogenesis.
(b) Draw a labeled diagram of the two celled male gametophyte of an angiosperm. How is a three celled male gametophyte different from it? (2020)

19. Trace the development of a 2-celled pollen grain of an angiosperm within an anther.
Draw a labeled diagram to substantiate your answer. (2020)

20. (a) Name the specific part in the anther and the process responsible for the development of a male gametophyte in an angiosperm.
(b) Draw a labeled diagram of a mature male gametophyte (3-celled) of an angiosperm. Write the functions of each labeled part. (2020C)

21. (a) Draw a labeled diagram of the sectional view of microsporangium of an angiosperm.
(b) Explain the development of male gametophyte in the microsporangium. (Delhi 2015C)

22. (a) Describe the sequence of the process of microsporogenesis in angiosperms.
(b) Draw a labeled diagram of a two celled final structure formed. (Delhi 2015C)

LA(5 Marks):

23. (a)(i): Explain the process of double fertilization in an angiosperm starting from the germination of pollen grains on the stigma, mentioning the ploidy of the end products formed at the end. State the role of synergids during the course of the process.
(ii): Why does the development of endosperm precede that of the embryo?
(b)(i): Mention the site where fertilisation of the ovum occurs in a human female. Explain the process of fertilization and mention how polyspermy is prevented.
(ii): Name the embryonic stage that gets implanted in the uterus. Explain the process of implantation in a human female. (2024)

Pistil, Megasporangium and Embryo sac

MCQ

24. Figure (i) and figure

(ii) given below are showing two stages of megasporogenesis in a typical angiosperm plant.

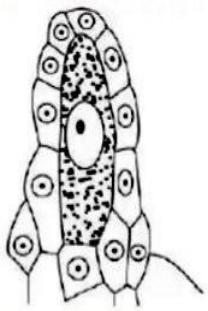


Fig. (i)

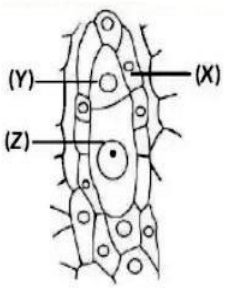


Fig. (ii)

Choose the option showing the correct ploidy of X, Y and Z in the table given below.

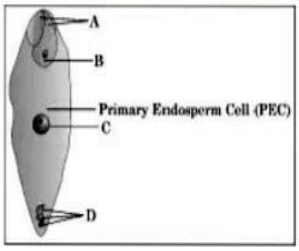
X	Y	Z
(a) $2n$	n	$2n$
(b) $2n$	n	n
(c) $2n$	$3n$	n
(d) $3n$	$2n$	n

(Term-I, 2021-22)

25. Which one of the following is not found in a female gametophyte of an angiosperm?

(a) Germ pore
(b) Synergids
(c) Filiform apparatus
(d) fertilised embryo sac of Central cell (2020)

26. Identify the correct labeling in the figure of a an angiosperm given below



(A) A – zygote, B – degenerating synergids, C – degenerating antipodals, D – PEN
(B) A – degenerating synergids, B – zygote, C – PEN, D – degenerating antipodals
(C) A – degenerating antipodals, B – PEN, C – degenerating synergids, D – zygote
(D) A – degenerating synergids, B – zygote, C – degenerating antipodals, D – PEN

(2024)

VSA (1 mark)

27.

A

B

These pictures show the gynoecium of (A) Papaver and (B) Michelia flowers. Write the difference in the structure of their ovaries. (NCERT Exemplar, Delhi 2015C)

28. State the function of filiform apparatus found in mature embryo sac of an angiosperm. (Foreign 2014)

SA I (2 marks)

29. A mature embryo sac in flowering plant may possess 7-cells, but 8-nuclei. Explain with the help of diagram only. (NCERT Exemplar, Delhi 2017)

30. Gynoecium of a flower may be apocarpous or syncarpous. Explain with the help of an example each. (AI 2016)

SA II (3 marks)

31. (a) Draw a L.S. of pistil showing pollen tube entering into the embryo sac. Label the following:

(i) Nucellus
(ii) Antipodals
(iii) Synergids
(iv) Micropyle

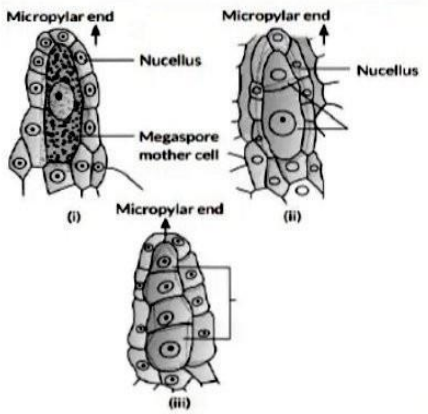
(b) Write the functions of the following:
(i) Synergids
(ii) Micropyle (AI 2019)

32. Draw a labelled diagram of a typical anatropous ovule. (NCERT, Delhi 2014)

LA (5 marks)

33. (i) Explain the monosporic development of embryo sac in the ovule of an angiosperm.
(ii) Draw a diagram of the mature embryo sac of an angiospermic ovule and label any four parts in it.
(2023)

34. Study the figures given below of the development of megaspore in an angiosperm and answer the questions that follow:



(i) Describe the developmental events in the nucellus of the ovule. What is this type of development of megaspore referred to as?
(ii) How many free nuclear mitotic divisions will the functional megaspore undergo to form a mature embryo sac?
(iii) Describe the structure of a typical female gametophyte of a flowering plant.
(2021C)

35. Where does the process of megasporogenesis start in an angiosperm? Describe the process upto the formation of embryo sac. (Delhi 2019)

Describe the process of megasporogenesis upto fully developed embryo sac formation in an angiosperm. (AI 2019)

Worksheet -2

Pollination

MCQ

36. Select the plant species, where emasculation is not required for artificial hybridisation experiment.

(a) Castor
(b) Maize
(c) Papaya
(d) Wheat (Term-I, 2021-22)

37. Which of the given statements are correct with respect to pollination in Vallisneria?

(i) Pollen grains are light and non-sticky.
(ii) Female flowers reach the surface of water by long stalks.
(iii) Pollen grains are carried passively by water currents.
(iv) Female flowers remain submerged in water.
Choose the correct option.
(a) (i) and (iv)
(b) (ii) and (iv)
(c) (i) and (ii)
(d) (ii) and (iii) (Term-I, 2021-22)

38. Self-pollination is fully ensured if

(a) The flower is bisexual
(b) The style is longer than the filament
(c) The flower is cleistogamous
(d) The time of pistil and anther maturity is different. (2020)

39. Cleistogamous flowers are self pollinated because

(a) They are bisexual flowers which do not open at all
(b) They are bisexual and open flowers
(c) They are unisexual
(d) Their stigma matures before anthers dehisce. (2020)

40. In which of the following plants are both male and female flowers born on the same plant and the mode of pollination can be geitonogamy or xenogamy?

(a) Papaya
(b) Date Palm
(c) Maize
(d) Spinach (2024)

41. In a fertilized ovule of an angiosperm, the cells in which n, 2n and 3n conditions respectively occur are:

(a) antipodal, zygote and endosperm
(b) zygote, nucellus and endosperm
(c) endosperm, nucellus and zygote
(d) antipodals, synergids and integuments (2024)

42. A phenomenon where a male insect mistakenly identified the patterns of a orchid flower as the female insect partner, and tries to copulate and thereby pollinates the flower is said to be :

(a) Pseudocopulation
(b) Pseudopollination
(c) Pseudoparthenocarpy
(d) Pseudofertilisation (2024)

VSA (1 mark)

43. Name the part of the flower which the tassels of the corn-cob represent. (AI 2014)

44. What is pollen-pistil interaction and how is it mediated? (Foreign 2014)

45. Differentiate between xenogamy and geitonogamy. (AI 2014C)

SA I (2 marks)

46. Explain the mechanism of pollination in marine seagrasses like Zostera. (2021C)

47. Mention the advantages of emasculation and bagging in artificial hybridisation in plants bearing unisexual and bisexual flowers. (2020)

48. What is 'bagging'? State its importance in artificial hybridisation of flowering plants. (2020C)

49. Express the process of pollination in Vallisneria. (Delhi 2019)

50. What is cleistogamy? Write one advantage and one disadvantage of it, to the plant. (AI 2019)

51. List the different types of pollination depending upon the source of pollen grain. (2/5, Delhi 2016)

52. Angiosperms bearing unisexual flowers are said to be either monoecious or dioecious. Explain with the help of one example of each. (Delhi 2016)

53. A single pea plant in your kitchen garden produces pods with viable seeds, but the individual papaya plant does not. Explain. (AI 2016)

54. Why do hermaphrodite angiosperms develop out breeding devices? Explain any two such devices with the help of examples. (AI 2015C)

SA II (3 marks)

55. One of the major approaches of crop improvement programme is artificial hybridisation. Explain the steps involved in making sure that only the desired pollen grain pollinate the stigma of a bisexual flower by a plant breeder. (2023) U

56. Draw a longitudinal section of the pistil from a flowering plant where pollination has occurred. Label the following:
(a) Stigma showing germinating pollen grains.
(b) Style
(c) Pollen tube reaching the micropyle of the ovule.
(d) Embryo sac
(e) Components of the egg apparatus. (2020)

57. Explain three different modes of pollination that can occur in a chasmogamous flower. (2020)

58. Differentiate between wind pollinated and insect pollinated flowers. (2020)

OR

Write the differences between wind-pollinated and insect-pollinated flowers. Give an example of each type. (Foreign 2014)

59. (a) Differentiate between geitonogamy and xenogamy.
(b) Write the difference in the characteristics of the progeny produced as a result of the two processes. (Delhi 2019)

60. Emasculation and bagging are the two important steps carried during artificial hybridisation to obtain superior varieties of desired plants. Explain giving reasons, in which types of flowers and at what stages are the two processes carried out. (AI 2019)

SA I (2 marks)

72. Write the difference between the tender coconut water and the thick white kernel of a mature coconut and their ploidy. (AI 2015C)

SA II (3 marks)

73. Describe the development of endosperm after double fertilisation in an angiosperm. Why endosperm development does precede that of zygote? (Delhi 2015)

74. List the post-fertilisation events in angiosperms. (Delhi 2014)

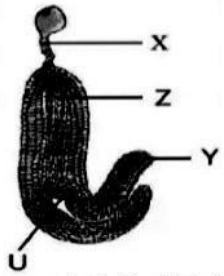
LA (5 marks)

75. (a) Draw a diagram of a fully developed embryo sac of an angiosperm. Label its chalazal end and any other five parts within the embryo sac.
(b) Why does the development of an endosperm precede that of the embryo in angiosperm?
(c) Number of chromosomes in an onion plant cell is 16. Name the cells of the embryo sac having 16 and 24 chromosomes formed after fertilisation. (2020)

Embryo

MCQ

76. Select the option that shows the correctly identified ' U ', ' X ', ' Y ' and ' Z ' in a developing dicot embryo.



(a) X - Plumule (2n), Y - Suspensor (n), Z - Cotyledon (2n), U - Radicle (2n).
(b) X - Plumule (2n), Y - Suspensor (2n),
Z - Radicle (2n), U - Cotyledon (2n).
(c) X - Suspensor (2n), Y - Cotyledon (2n),
Z - Radicle (2n), U - Plumule (2n).
(d) X - Cotyledon (2n), Y - Radicle (n),
Z - Plumule (n), U - Suspensor (n). (2023)

83. Endosperm is completely consumed by the developing embryo in

(a) Castor and coconut
(b) Coconut and groundnut
(c) Groundnut and pea
(d) Castor and pea. (Term-I, 2021-22)

84. The floral part that develops into a fruit in strawberry is

(a) pedicel
(b) calyx
(c) thalamus
(d) bracts. (Term-I, 2021-22)

85. In which of the following combinations of seeds/ grains of different plants, residual endosperm will be present at maturity?

(a) Groundnut, Barley, Beans
(b) Castor, Groundnut, Maize
(c) Wheat, Maize, Barley
(d) Pea, Groundnut, Beans q (Term-I, 2021-22)

86. Assertion (A): The zygote gives rise to a heart-shaped embryo and subsequently to a proembryo in most angiosperms.
Reason (R): The zygote is present at the micropylar end of the embryo sac and develops into an embryo.
(A) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of the Assertion (A).
(B) Both Assertion (A) and Reason (R) are true, but Reason (R) is not the correct explanation of the Assertion (A).
(C) Assertion (A) is true, but Reason (R) is false.
(D) Assertion (A) is false, but Reason (R) is true. (2024)

VSA (1 mark)

87. Differentiate between parthenogenesis and parthenocarpy. (1/3, AI 2014C)

88. Identify A, B, C and D in the table given below :

Terms	*Part of the plant it represents*
Pericarp	'A'
'B'	Cotyledon in seed of grass family
Embryonal axis	'C'
'D'	Remains of nucellus in a seed

(2024)

SA II (3 marks)

112. State what is apomixes. Write its significance. How can it be commercially used? (AI 2019, 2015)

113. (a) How is apomixis different from parthenocarpy?
(b) Describe any two modes by which apomictic seeds can be produced.
(AI 2014C)

LA (5 marks)

114. (a) When a seed of an orange is squeezed, many embryos, instead of one are observed. Explain how it is possible.
(b) Are these embryos genetically similar or different? Comment. (AI 2017)

Apomixis and Polyembryony:

MCQ(1 Mark):

115. In which one of the following floral plants are many embryos formed in the seeds without fertilisation of the egg cell?

(A) Black pepper (B) Mustard

(C) Groundnut (D) Citrus (2017)

Project work

To prepare 25-30 page File on the topic provided for each student. The file should include:Cover page (Introduction), index, Acknowledgement, Certificate, Introduction, Details about project, Conclusion, Bibliography

1. Pragya and Devika -Genetically modified Organisms(GMOs) :[Introduction, History, Process of development of GMO ,Types of GMO ,GM plant ,GM Animal ,GM microbes,GM Microbes in managing environmental pollution,Possible challenges of using GMO]

2.Namita and Garv - Autoimmune disorder [Introduction, Classification of Autoimmune Disorders-(systemic & organ specific) , Factors causing autoimmune disorders ,Common symptoms of A.D ,Some common A.D.(Type 1 diabetes, rheumatoid arthritis, psoriasis, multiple sclerosis, SLE, IBD, Graves' disease) ,Diagnosis of A.D. ,Treatment of A.D]

3..Aditi and Harshit - Cancer [Introduction ,Common types of cancer ,Cancer statistics in India ,Early cancer warning signs ,Difference between normal and cancer cells ,How does cancer cells activate, Causes of cancer ,Cancer diagnostic tests, Famous people or cases who suffered from cancer ,Worldwide cancer deaths ,Cancer treatment]

4.Khushi and Pranav - Immunity [Introduction,Brief history of immunology ,Types of immunity:(Innate immunity &Adaptive immunity) , Fundamental defense mechanism, Structure of Antibodies, immune system components (cells) ,Allergy,Autoimmunity ,Lymphoid organs ,Immunodeficiency diseases or disorders]

5. Riya and Pranjal - Gene Therapy [Introduction ,Brief history of Gene Therapy ,Types of Gene Therapy ,Vectors of Gene Therapy ,Methods of Gene delivery, Success cases of Gene Therapy ,Problems with gene therapy, Ethical issues ,Conclusion

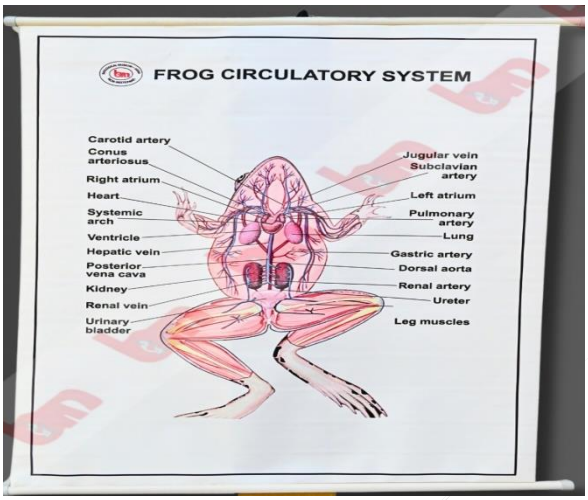
6.Yashika and Yoshita - Dna Fingerprinting [Introduction, Historical background, Biological material used, Approaches used for DNA fingerprinting ,Applications of DNA fingerprinting ,Famous cases solved ,Conclusion]

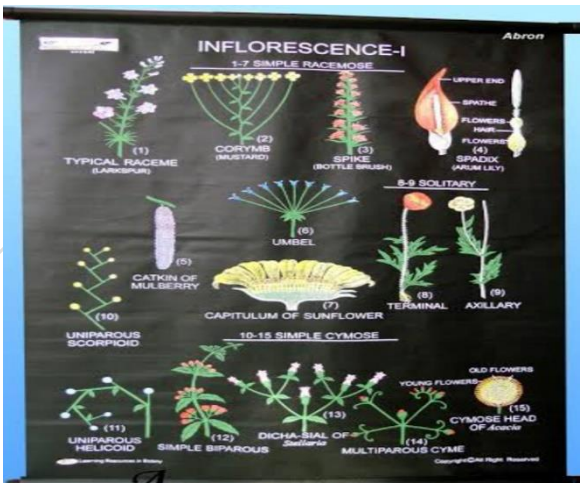
7.Sachi - Biodiversity [Introduction ,Types of diversity, Global biodiversity ,Biodiversity in India,Biodiversity and balance in nature ,Competitive and non competitive values of Biodiversity ,Threat to biodiversity ,Recent issues of

Biodiversity ,Conservation of Biodiversity-In-Situ conservation & Ex-situ conservation ,Biodiversity convention,Conclusion]

Note: 2.Complete notes of ch-1 sexual Reproduction and ch-2 Human Reproduction.

3.Printout the 3d chart from your biology ncert topics(e.g. Pollen-Pistil interaction) . Attachment of chart as example is provided.





SUBJECT – PHYSICAL EDUCATION

Q1. Write any game according to your syllabus in the Lab manual.

Q2. Make a chart of various postural deformities.