DAV PUBLIC SCHOOL MATHURAPUR

Summer Vacation Holiday Homework

SESSION - 2025-26

Class - XII

SUBJECT	HOME WORK
ENGLISH	H.HW Summer Vacation English Profect work- My Mother at sixty six a) visual of the poet kamla das b) Her introduction as a poet c) Text of the poet 2 Litrary devices used in the poem e) Theme (moral message) of the poem. 2) Justify the title The Last Lesson' 100 words using 2 paragraphs) 3) Act against the child labour and the behavioural reality (100 words) '4) Summary of "The Tigerking'.
PHYSICAL EDUCATION	Complete exercise of chapters 1,2,3. Revise chapters 4,5,6 and write summary of chapters. Make notes of previous question paper of class 12 session 2023-24 and 2024-25.
MATHS	PROJECT WORK:- Draw the graph of all trigonometric functions along with their inverse. Also draw the principal branch of all inverse trigonometric functions.Write the domain and range of all functions in tabular form in 2 coloured chart papers using colour sketch pen. Holiday H.W 1. Let N be the set of natural number and R be the relation on N x N defined by (a, b) R (a + b) iff ad = be for all a,b: c, d € N. Show that R is an equivalence relation. 2. Let R be a relation defined on the set Z of all integers as R = {(x, y): x - y is an integer). Show that R is an equivalence relation. 3. Show that the relation R defined on Z by 'xRy holds iff x, y is divisible by 5', x, y, z is an equivalence relation. 4. Prove that the relation R is set of real numbers R defined as R = {(a, b): a ≥ b} is reflexive and transitive but not symmetric. 5. Prove that the relation R defined on set Z as a R ba-b is divisible by 3, is an equivalence relation. 6. Show that distance between the point (0, 1, 7) and the plane 3x+4y+ 1 = 0 is

	R={(P1, P2): and P and P_2 have same numbers of sides} is an equivalence relation. 7. Let A = R - (2) and B = R - {1}. If f: A → B is a function defined by f (x) =(x-1)/(x-2) show that f is one-one and onto. 8. Prove that the function f: N→ N, defined by f(x) = x^2+x+1 is one-one but not onto. 9. Show that the function f: R→ R defined by f(x) = x/(x^2+1) is neither one-one nor onto. 10. Show that the function f: R→ R given by f(x) = ax + b, where a, b = R, is a bijection. 11. Show that the function f: W→ W defined by f(x) =n+1, if n is even n-1, if n is odd , is a bijective function. 12.. If f: R→ R be the function defined by f (x) = $4x^3$ +7, show that f is a bijection. Let A = R (3) and B = R(1). Consider the function f: A → B defined by f (x) = (x-2)/(x-3) Is f one-one and onto? Justify your answer. 13. Show that f: N→ N, given by f(x) = x+1, if x is odd f(x) = x-1, if x is even is both one-one and onto. 14. Let f: N→ N, be defined as f(n)= (n+1)/2 when n is odd f(n) = n/2, ,when n is even State whether the function f is bijective. Justify your answer. 15. A function f: [-4, 4] → [0, 4] is given by f(x)=√16-x^2.Show that f is an onto function but not a one-one function. Further, find all possible values of 'a' forwhich f(a) = √7. 16. Let A = R(5) and B = R - (1). Consider the function f: A→B, defined by f(x) =(x-3)/(x-5) show that f is one-one and onto. 17. Show that the relation S in the set A= (x = Z:0≤x≤12) given by S = {(a, b): a, b e Z, la-b] is divisible by 4)is an equivalence relation. Find the set of all elements related to 1. 18.Let f: X→Y be a function. Define a relation R on X given by R = ((a, b) : f (a) = f (b)). Show that R is an equivalence relation on X. 19. Let A = {1, 2, 3,...., 9) and R be the relation in A x A defined by (a, b) R (c, d). If a + d = b + c for (a, b), (c, d) in Ax A, prove that R is an equivalence relation. Also obtain the equivalence class [(2, 5)]. 20. Let R be a relation defined on the set of natural numbers N as follows: R= {(x, y), xe N, y e N and 2x + y = 24} Find the domain and range of the relation R. Also, find if R is an equivalence relation or not. 21. Show that the relation R on R defined as R = {(a, b):a ≤ b), is reflexive, and transitive but not symmetric. 22. Prove that the relation R on Z, defined by R {(x, y):(x - y) is divisible by 5) is an equivalence relation. 23 Let N denote the set of all natural numbers and R be the relation on N x N defined by (a, b) R (c, d) if

	ad(b+c) = bc(a + d). Show that R is an equivalence relation. 24. Show that the relation R is the Set A = {1, 2, 3, 4, 5} given by R = {(a, b): [a b] is even) is an equivalence relation. Write all the equivalence classes of R. 25. Let A = (xe Z:0≤ x ≤ 12). Show that R= {(a, b): a, be A, lab is divisible by 4} is an equivalence relation. Find the set of all elements related to 1. Also write the equivalence class [2]. 26.. Check whether the relation S in the set of real numbers. R defined by S = {(a, b): where a.- b,+ √2, is an irrational number) is reflexive, symmetric or transitive.
PHYSICS	PHYSICS HHW – CLASS XII A.Do the exercise questions of chapter – 1 & 2 from NCERT book. B.Solve the following practice questions from 1 to 20. 1. Mcqs based questions: i. What happens to the electric force if the distance between two charges is doubled? A. It becomes half B. It becomes one-fourth C. It becomes double D. It remains the same ii. Which of the following is a vector quantity? A. Electric charge B. Electric field C. Electric potential D. Electric flux iii. The unit of capacitance is: a) Volt b) Coulomb c) Farad d) Ohm iv. A parallel-plate capacitor is charged. What happens to the capacitance if the distance between the plates is doubled? a) Doubles b) Halves c) Remains the same d) Becomes zero v. A 10 μF capacitor is charged to 50 V. The energy stored is: a) 0.025 J b) 0.0125 J c) 0.005 J d) 0.05 J vi. If the electric field is perpendicular to the surface, the flux through the surface is: a) Zero b) Maximum c) Minimum d) Cannot be determined vii. The potential energy of an electric dipole in a uniform electric field EEE is given by: a) –pEcosθ b) pEsinθ c) pEcosθ d) Zero viii. In a uniform electric field, the net force on an electric dipole is: a) Zero b) Maximum c) minimum d) Depends on θ ix. The potential at a point on the equatorial line of an electric dipole is: a) Maximum b) Zero c) Half of the axial line potential d) Infinite x. The relationship between electric field E and potential V is: a) E=−dVdr b) E=Vxr c) E=V2 d) E=1/V 2.Two charges +4μC and −4μC are placed 0.5 m apart. Calculate the force between them and state whether the force is attractive or repulsive. 3. Define electric field intensity. Derive the expression for the electric field due to a point charge. 4.Explain the concept of electric field lines. List their properties and significance. 5.Draw electric field lines pattern of an isolated positive point charge and an electric dipole. 6. A point charge of +5 μC is placed in vacuum. Calculate the electric field at a point 0.2 m away from the charge. 7.Derive the expression for the electric field at a point on the axial line of an electric dipole.

	8.What is an equipotential surface? Write its properties. 9.Derive the expression for the torque experienced by an electric dipole of dipole moment p placed at an angle θ with a uniform electric field E. 10.Describe the orientation of an electric dipole in a uniform electric field when it is in stable equilibrium and when it is in unstable equilibrium. Explain it with the help of torque and potential energy. 11.Define electric flux. Write its formula and SI unit. 12.State Gauss's law in electrostatics. Why is the net electric flux through a closed surface that does not enclose any charge zero ? 13. A charge of +8μC is placed at the center of a cube of side 1 m. Calculate the electric flux through one face of the cube. 14.Two charges of +2 μC and -2 μC are placed 3 m apart. Find the point on the line joining the charges where the electric field is zero. 15.Four equal positive charges are placed at the corners of a square of side a. Calculate the electric field at the center of the square. 16.Define electric potential and write its SI unit. Write the expression for the electric potential V at a point due to a point charge Q. 17. Define the electric potential energy of a system of charges. Write the expression for the potential energy of a system of three point charges . 18.Define capacitance. Derive the expression for the capacitance of a parallel plate capacitor. 19.A capacitor is connected to a battery and then disconnected. A dielectric is then inserted between the plates. Explain what happens to the capacitance, voltage, charge, and stored energy. 20.i. A parallel plate capacitor is filled with two dielectric slabs of dielectric constants K1 and K2, placed side by side between the plates. Derive the expression for the equivalent capacitance. ii. a dielectric slab of thickness(t) is inserted between the plates of capacitor, find net capacitance of resulting capacitor.
CHEMISTRY	Short and Long Answer Type Questions 1. What are ideal and non-ideal solutions? What type of non-idealities are exhibited by cyclohexane–ethanol and acetone–chloroform mixtures? Give reasons. 2. What do you understand by colligative properties? Explain briefly osmosis and osmotic pressure. 3. What do you understand by relative lowering of vapour pressure? Is it a colligative property? Show graphically the variation of total vapour pressure with composition. 4. Draw a labelled diagram to show the change in vapour pressure and boiling point when a non-volatile solute is dissolved. 5. What are isotonic, hypertonic and hypotonic solutions? 6. What is van't Hoff factor? How does it help in determining dissociation or association of a solute? What are its possible values? 7. Show that osmotic pressure, boiling point elevation and freezing point depression are colligative properties. 8. What is the effect of temperature on the vapour pressure of a liquid/solution? 9. Why is the vapour pressure of a solution lower than that of pure solvent when a non-volatile solute is added? 10. What is the expression for calculating vapour pressure of a nearly ideal solution with 2 or more liquids?

	11. What is the expression for calculating molar mass of a non-volatile solute from vapour pressure? 12. What are colligative properties? 13. Define an ideal solution. 14. What properties should liquids have to form an ideal solution? 15. An azeotrope shows +ve deviation. Is its boiling point lower or higher than its components? 16. What is the relation between elevation in boiling point and molality? 17. What is the expression for molar mass from freezing point depression? 18. What are the units of molal depression/elevation constant? 19. What is the relation between molal elevation constant and molecular elevation constant? 20. What is the value of solution constant if O.P. is measured in atm and V in litres? 21. What is the value of van't Hoff factor for fully dissociated salts? 22. What is reverse osmosis? What is its use? 23. What is the technical name of constant boiling mixtures? Are they ideal? 24. What are isotonic solutions? 25. Which substance is used as antifreeze in car radiators? 26. Why is osmotic pressure a colligative property? 27. Define azeotropic mixture. 28. Why does NaCl solution freeze at a lower temperature and boil at a higher temperature than water? 29. State Raoult's law for a non-volatile solute solution. 30. Define molal elevation constant. 31. Define cryoscopic constant. 32. Relation between vapour pressure lowering and osmotic pressure. 33. What deviation is shown when mixing liquids causes warming? 34. Why is O.P. preferred for molar mass determination of macromolecules? 35. How is O.P. related to molar mass of a non-volatile substance? 36. Why don't oil and water mix? 37. What type of compound forms a dimer via hydrogen bonding? 38. What is the boiling point elevation of an aqueous solution that freezes at –0.186°C? 39. Which colligative property provides the most accurate molar mass? 40. Calculate Relative lowering of vapour pressure for 0.1 M NaCl, $CuSO_4$, and K_2SO_4. 41. Write the Formula for calculating molar mass using osmotic pressure. 42. Find the Volume of 0.1 N NaOH needed to neutralize oxalic acid solution. 43. Which enthalpy conditions make a solution ideal? 44.Define colligative property and write the name of all the colligative properties. 45. What is the Freezing point of a weak acid solution with partial ionization. 46. Find NaCl concentration needed to match osmotic pressure of blood. 47. Calculate Urea concentration if 6.02×10^{20} molecules are present in 100 mL. 48. Why is camphor used in molecular mass determination? 49. What is the degree of dissociation of Na_2SO_4 if 0.004 M Na_2SO_4 is isotonic with 0.010 M glucose? 50. What is the Van't Hoff factor formula based on degree of dissociation (α) of Na_2SO_4 ?

BIOLOGY	Assignment - 1. Complete the notebook 2. Write all the exercises questions 3. Read chapter -4 in advance 4. Try to write these chapter based questions. Ch -1 (sexual reproduction in flowering plants 1 . Pollen grains in a wheat are shed at" 3 celled stage while in a peas they are shed at two celled stage." explain .where are germ pores present in a pollen grain? 2. How many cells are present in the pollen grain at the time of their release from anther? Name the cells. 3. Explain the development of male gametophyte in an angiosperm. 4. Explain the development of female gametophyte in an angiosperm. 5. Draw a level diagram of three sell male gametophyte. 6. Give an example of a plant which came into India as a contaminant and is causes of Poland allergy. 7. Name the organic material exine and intine of an angiosperm pollen grain are made up of .Explain the role of exine. 8. a. Do all pollen grains remain vival for the same length of time ?support your answer with suitable examples. b. How are pollen grains stored in pollen banks ?state the purpose of storing pollen grains in bank. 9. List the different types of pollination depending upon the source of pollen grain. 10. Some flower selected for artificial hybridization ,do not require emasculation but bagging is essential for them give reason. 11. Explain double fertilization in an angiosperm. 12. Explain three different modes of pollination that can occur in a chasmogamous flower . 13. Banana is a true fruit as well as parthenocarpic fruit. Give reason. 14. It is said apomixis is a type of asexual reproduction. justify 15. (a) Describe any two device in a flowering plant which prevent both autogamy and geitonogamy. (b) Explain the events upto double fertilization after the Pollen tube enters one of the Synergids in an ovule of an angiosperm. Ch- 2 (Human Reproduction) 1. Write the location and function of the following in human organ.(a) Myometrium and (b) endometrium. 2. In the diagram of human sperm. a. What is the ploidy of the nucleus? b.why does the middle piece have a lot of mitochondria? c. What is the role of acrosome? d. Only one sperm is able to fertilize the egg. How is this ensured? 3. Explain the function of the following structure in the human male reproductive system.a. scrotum b.leydig cells c. Male accessory glands 4. Refer to the diagram below where ,the first circle p includes part of the human female reproductive system that support conception and the second circle R includes part that support pregnancy. a. Name two parts each that belong to p and r b. Name two parts that support both contraception and pregnancy.

	c. Name two parts that function as endocrine gland and indicate whether they belong to p or r 5. After spermiogenesis the sperm heads get embedded in which cell? 6. Explain the process of hormonal regulation of spermatogenesis. 7. Polyspermy is an extremely rare condition in which an ovum is fertilized by more than one sperm. a. How many chromosome will a zygote contain if two sperm fertilized an ovum? b. How is polyspermy prevented in humans? 8. Name the gonadotropin in human. Explain their role in human male and female respectively. 9. How does zona pellucida of ovum help in preventing poly spermy? 10. Explain the formation of placenta after implantation in a human female. 11. Mention the relationship between pituitary and ovarian hormone during a mensuration cycle. 12. (1)Explain the following phases in the mensuration cycle of a human female a. Mensuration phase (b)follicular phase (c) luteal phase. (2) A proper understanding of menstrual cycle can help immensely in family planning .Do you agree with this statement ? provide reason for your answer. 13. State from where do the signals for parturition originate in human females. 14. On which day of menstrual cycle graafian follicle rupture. Name the process induce the rupture of graafian follicle . 15. State the role of oxytocin in parturation. what triggers its released from the pituitary? 16. Explain the events that follow up to fertilization when the sperm come in contact with the ovum in the fallopian tube of a human female. 17. Name the stage of human embryo at which it gets implanted . Explain the process of implantation. 18. Medically it is advised to all young mothers that breastfeeding is the best for their new born baby do you agree ? give reasons in support of your answer. 19. 1.Name the hormone secreted and write their function (a) By Corpus luteum and placenta (b) During follicular phase and parturition. 2. Name the stages in a human female where; (a) Corpus luteum and placenta coexist (b) Corpus luteum temporary cease to exist. 20. Explain the formation of placenta after implantation in human female. 21. Name the three germ layer that lead to formation of embryo.? 22. Which hormone level rises near the end of pregnancy ?mention its role. Chapter - 3 (Reproductive health) 1. Our government has intentionally imposed strict condition for MTP in our country . justify giving a reason. 2. Government of India has raised the marrige able age of female to 18 years and male to 21 years. suggest any two more major adopted by government for the purpose. 3. Explain one application of the following aminocentesis 4. State the composition and principle of oral pills as a contraceptive measure taking the example of saheli. 5. What is conception ? Name two assisted conception method. 6. An infertile couple is advised to adopt a test tube baby program .Describe two principal procedures adopted for such technologies.

	7. (a) Explain the mode of action of copper + + releasing IUDs as a good contraceptive. how is hormone releasing IUDs the different from it ? (b) Why is saheli preferred contraceptive by women (any two reasons)? 8.(a) Name a terminal method to prevent pregnancy in human. (b) Describe the procedure of the terminal method carried in human male and female. 9. List any two types of IUDs that are available for human female and state their mode of action. 10. (a) List any two reasons other than physical and co-genetial disorder for causing in fertility in couples (b) Explain how IVF as a technique help childless couple in having children (c) Compare ZIFT and ICSI. Working Demonstration:- Make a simple model using a eco friendly/ recyclable material. Choose any one. 1.DNA double helix model 2. Sperm cell model 3. Pollination
PAINTING	Project making • Still life • Draw a nature place