

**ARMY PUBLIC SCHOOL JAMMU CANTT  
HOLIDAYS HOMEWORK-XII (2024-25)**

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**ENGLISH (301)**  
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**Dear Children**

**We wish you happy and safe summer break. To maintain the educational continuum and to keep boredom at bay, your teachers have designed enriching assignments and projects which will keep you constructively busy.**

**So, don your thinking cap and wear your magic mantle to unleash your creative side.  
Have Fun!!!**

**WRITING SECTION**

1. Write your views on the contemporary topic ‘Will virtual learning actually replace the offline learning?’ (100-120 words)
2. Draft an invitation for your sister’s marriage
3. Write an article on Reality Shows : Painting or Tainting the life of children.

**LITERATURE SECTION**

Revise the syllabus done in the class & prepare yourself for the assessment to be held post summer vacation.

**ART INTEGRATED ACTIVITIES**

**I know you can do wonders, my highly creative children..!**

1. Create illustrated comic strips representing events from history or work of fiction or a chapter or poem from your literature book. You can either unleash your creativity by drawing comics or use apps to create them.
2. Make a documentary on slum life. And include that in the Project based ASL.

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**PHYSICS (042)**

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**Read textbook material for chapters**

1. Electric charges and fields (pdf provided)
2. Electrostatic potential and capacitance (pdf provided)
3. Current electricity (pdf provided)
4. Moving charges and magnetism (pdf provided)

**THEORY ASSIGNMENT**

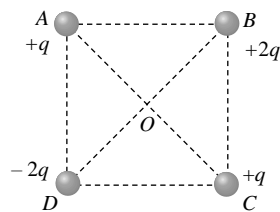
**Solve NCERT solved examples & exercises of the following chapters**

1. Electric charges and fields
2. Electrostatic potential and capacitance
3. Current electricity
4. Moving charges and magnetism

**Solve the following numerical:**

**Charge and Coulomb's Law**

1. When the distance between the charged particles is halved, then find force between them.
2. There are two charges  $+1$  microcoulombs and  $+5$  microcoulombs. What is the ratio of the forces acting on them?
3.  $F_g$  and  $F_e$  represents gravitational and electrostatic force respectively between electrons situated at a distance  $10\text{ cm}$ . The ratio of  $F_g / F_e$  is of the order of -----.
4. Four charges are arranged at the corners of a square  $ABCD$ , as shown in the adjoining figure. Find the force on the charge kept at the centre  $O$  i

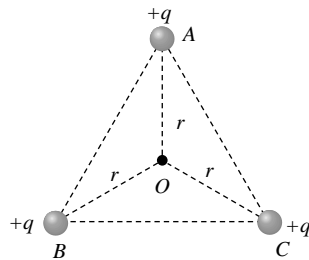


5. A total charge  $Q$  is broken in two parts  $Q_1$  and  $Q_2$  and they are placed at a distance  $R$  from each other. What is condition for maximum force of repulsion between them?
6. Three charges  $4q, Q$  and  $q$  are in a straight line in the position of  $0, l/2$  and  $l$  respectively. The resultant force on  $q$  will be zero, if  $Q =$  -----.
7.  $+2C$  and  $+6C$  two charges are repelling each other with a force of  $12\text{ N}$ . If each charge is given  $-2C$  of charge, then what is value of the force?
8. Dielectric constant of pure water is  $81$ . What is its permittivity?

## Electric Field and Potential

1. Charges of  $+\frac{10}{3} \times 10^{-9} C$  are placed at each of the four corners of a square of side  $8\text{ cm}$ . Then what is the potential at the intersection of the diagonals
2. Three charges  $2q, -q, -q$  are located at the vertices of an equilateral triangle. At the center of the triangle
  - (a) The field is zero but potential is non-zero
  - (b) The field is non-zero but potential is zero
  - (c) Both field and potential are zero
  - (d) Both field and potential are non-zero
3. ABC is an equilateral triangle. Charges  $+q$  are placed at each corner. The electric intensity at  $O$  will be

- (a)  $\frac{1}{4\pi\epsilon_0} \frac{q}{r^2}$
- (b)  $\frac{1}{4\pi\epsilon_0} \frac{q}{r}$
- (c) Zero
- (d)  $\frac{1}{4\pi\epsilon_0} \frac{3q}{r^2}$



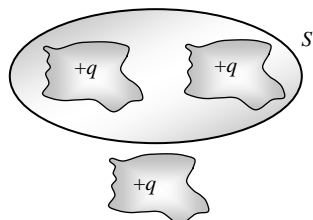
4. The magnitude of electric field intensity  $E$  is such that, an electron placed in it would experience an electrical force equal to its weight is given by -----.
5. Two parallel plates have equal and opposite charge. When the space between them is evacuated, the electric field between the plates is  $2 \times 10^5 V/m$ . When the space is filled with dielectric, the electric field becomes  $1 \times 10^5 V/m$ . Find the dielectric constant of the dielectric material
6. Two charges  $+4e$  and  $+e$  are at a distance  $x$  apart. At what distance, a charge  $q$  must be placed from charge  $+e$  so that it is in equilibrium
7. Two plates are  $2\text{ cm}$  apart, a potential difference of  $10\text{ volt}$  is applied between them, the electric field between the plates is -----.
8. At a certain distance from a point charge the electric field is  $500 V/m$  and the potential is  $3000\text{ V}$ . What is this distance
9. What is the magnitude of a point charge due to which the electric field  $30\text{ cm}$  away has the magnitude  $2\text{ newton/coulomb}$  [ $1/4\pi\epsilon_0 = 9 \times 10^9 Nm^2/C^2$ ]
10. Two positive charges of  $20\text{ coulomb}$  and  $Q\text{ coulomb}$  are situated at a distance of  $60\text{ cm}$ . The neutral point between them is at a distance of  $20\text{ cm}$  from the  $20\text{ coulomb}$  charge. Then find Charge  $Q$
11. An alpha particle is accelerated through a potential difference of  $10^6\text{ volt}$ . Its kinetic energy will be -----.
12. A charge of  $5\text{ C}$  is given a displacement of  $0.5\text{ m}$ . The work done in the process is  $10\text{ J}$ . Find the potential difference between the two points.

## Electric Dipole

1. A given charge is situated at a certain distance from an electric dipole in the end-on position experiences a force  $F$ . If the distance of the charge is doubled, the force acting on the charge will be-----.
2. An electric dipole consisting of two opposite charges of  $2 \times 10^{-6} C$  each separated by a distance of  $3 cm$  is placed in an electric field of  $2 \times 10^5 N/C$ . what is the maximum torque on the dipole.
3. Two charges  $+3.2 \times 10^{-19}$  and  $-3.2 \times 10^{-19} C$  placed at  $2.4 \text{ \AA}$  apart form an electric dipole. It is placed in a uniform electric field of intensity  $4 \times 10^5 \text{ volt / m}$ . Then what is the electric dipole moment.
4. Electric charges  $q, q, -2q$  are placed at the corners of an equilateral triangle  $ABC$  of side  $l$ . Find the magnitude of electric dipole moment of the system.
5. Two opposite and equal charges  $4 \times 10^{-8} \text{ coulomb}$  when placed  $2 \times 10^{-2} cm$  away, form a dipole. If this dipole is placed in an external electric field  $4 \times 10^8 \text{ newton / coulomb}$ , then find value of maximum torque and the work done in rotating it through  $180^\circ$ .
6. The distance between  $H^+$  and  $Cl^-$  ions in  $HCl$  molecule is  $1.28 \text{ \AA}$ . What will be the potential due to this dipole at a distance of  $12 \text{ \AA}$  on the axis of dipole?
7. For a dipole  $q = 2 \times 10^{-6} C$  and  $d = 0.01 m$ . Calculate the maximum torque for this dipole if  $E = 5 \times 10^5 N / C$
8. Two charges  $+3.2 \times 10^{-19} C$  and  $-3.2 \times 10^{-19} C$  kept  $2.4 \text{ \AA}$  apart forms a dipole. If it is kept in uniform electric field of intensity  $4 \times 10^5 \text{ volt/m}$  then what will be its electrical energy in equilibrium
9. What is the angle between the electric dipole moment and the electric field strength due to it on the equatorial line?

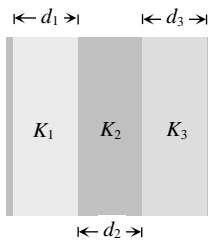
## Electric Flux and Gauss's Law

1. A cube of side  $l$  is placed in a uniform field  $E$ , where  $E = E\hat{i}$ . Find net electric flux through the cube.
2. Eight dipoles of charges of magnitude  $e$  are placed inside a cube. Then what is the total electric flux coming out of the cube.
3. The inward and outward electric flux for a closed surface in units of  $N \cdot m^2 / C$  are respectively  $8 \times 10^3$  and  $4 \times 10^3$ . Then what is the total charge inside the surface .[where  $\epsilon_0 =$  permittivity constant]
4. If the electric flux entering and leaving an enclosed surface respectively is  $\phi_1$  and  $\phi_2$  the electric charge inside the surface will be -----.
5. Shown below is a distribution of charges. The flux of electric field due to these charges through the surface  $S$  is



## Capacitance

1. A parallel plate capacitor has a capacity  $C$ . The separation between the plates is doubled and a dielectric medium is introduced between the plates. If the capacity now becomes  $2C$ , the dielectric constant of the medium is-----.
2. The diameter of each plate of an air capacitor is  $4\text{ cm}$ . To make the capacity of this plate capacitor equal to that of  $20\text{ cm}$  diameter sphere, the distance between the plates will be-----
3. The expression for the capacity of the capacitor formed by compound dielectric placed between the plates of a parallel plate capacitor as shown in figure, will be (area of plate =  $A$ )

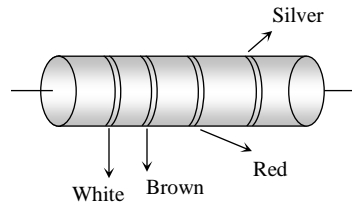


4. The capacity of a condenser in which a dielectric of dielectric constant 5 has been used, is  $C$ . If the dielectric is replaced by another with dielectric constant 20, then what is capacity?
5. A charge of  $10^{-9}\text{ C}$  is placed on each of the 64 identical drops of radius  $2\text{ cm}$ . They are then combined to form a bigger drop. Find its potential
6. What is the area of the plates of a  $3\text{ F}$  parallel plate capacitor, if the separation between the plates is  $5\text{ mm}$
7. A  $10\text{ pF}$  capacitor is connected to a  $50\text{ V}$  battery. How much electrostatic energy is stored in the capacitor
8. What is the radius of a metallic sphere if its capacitance is  $1/9\text{ F}$ ?

## Electric current

1. The specific resistance of a wire is  $\rho$ , its volume is  $3\text{ m}^3$  and its resistance is  $3\text{ ohms}$ , then what is its length.
2.  $62.5 \times 10^{18}$  Electrons per second are flowing through a wire of area of cross-section  $0.1\text{ m}^2$ , then what is the value of current flowing?
3. A piece of wire of resistance  $4\text{ ohms}$  is bent through  $180^\circ$  at its mid-point and the two halves are twisted together, then the resistance is -----.
4. When a piece of aluminum wire of finite length is drawn through a series of dies to reduce its diameter to half its original value, its resistance will become-----.
5. In hydrogen atom, the electron makes  $6.6 \times 10^{15}$  revolutions per second around the nucleus in an orbit of radius  $0.5 \times 10^{-10}\text{ m}$ . It is equivalent to a current nearly -----.
6. The resistance of a wire is  $10\ \Omega$ . Its length is increased by 10% by stretching. Then what is new resistance.
7. Resistance of tungsten wire at  $150^\circ\text{ C}$  is  $133\ \Omega$ . Its resistance temperature coefficient is  $0.0045 / ^\circ\text{C}$ . find resistance of this wire at  $500^\circ\text{ C}$ .
8. A metal wire of specific resistance  $64 \times 10^{-6}\text{ ohm - cm}$  and length  $198\text{ cm}$  has a resistance of  $7\text{ ohm}$ , then what is radius of the wire.
9. Calculate the amount of charge flowing in 2 minutes in a wire of resistance  $10\ \Omega$  when a potential difference of  $20\text{ V}$  is applied between its ends
10. There is a current of  $40\text{ ampere}$  in a wire of  $10^{-6}\text{ m}^2$  area of cross-section. If the number of free electron per  $\text{m}^3$  is  $10^{29}$ , then find drift velocity.

11. In the figure a carbon resistor has bands of different colours on its body as mentioned in the figure. The value of the resistance is



12. Masses of 3 wires of same metal are in the ratio 1: 2: 3 and their lengths are in the ratio 3: 2: 1. The electrical resistances are in ratio-----.
13. What is the resistance of a carbon resistance which has bands of colors brown, black and brown
14. The color sequence in a carbon resistor is red, brown, orange and silver. The resistance of the resistor is -----.
15. If a rod has resistance  $4 \Omega$  and if rod is turned as half cycle then find the resistance along diameter.

### PRACTICAL WORK

The record, to be submitted by the students, at the time of their submission of holiday's homework has to include Record of following practical.

*(As demonstrated by the teacher).*

1. To determine resistance per cm of a given wire by plotting a graph for potential difference versus current.
2. To find resistance of a given wire using metre bridge and hence determine the resistivity (specific resistance) of its material.
3. To verify the laws of combination (series) of resistances using a metre bridge.
4. To verify the Laws of combination (parallel) of resistances using a metre bridge.
5. To compare the EMF of two given primary cells using potentiometer.
6. To determine the internal resistance of given primary cell using potentiometer.

***Note:*** All work should done on respective copy/practical file in a neat and proper order as provided above.

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**CHEMISTRY (043)**

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**Read textbook material for chapters**

1. Solution
2. Electrochemistry
3. Haloalkanes and Haloarenes
4. Alcohol , Phenol and Ether

**THEORY ASSIGNMENT**

**Solve NCERT exercises of the following chapters:**

1. Haloalkanes and Haloarenes
2. Alcohol , Phenol and Ether

**PRACTICAL WORK**

The record, to be submitted by the students, at the time of their submission of holiday's homework has to include Record of following practical.

*(As demonstrated by the teacher).*

1. To prepare a sample of starch sol.
2. To prepare a double salt of ferrous ammonium sulphate.
3. To prepare a sample of ferric hydroxide sol.
4. To prepare a Crystal of potash alum.

**ART INTEGRATED ACTIVITY**

Make a powerpoint presentation on any of the following topics:

1. Nucleophilic substitution reactions of Haloalkanes.
2. Polyhalogen compounds

***Note:*** All work should done on respective copy/practical file in a neat and proper order as provided above

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**MATHEMATICS (041)**

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**CHAPTER: 1. RELATIONS AND FUNCTIONS**

1. If  $R_1$  and  $R_2$  are equivalence relations in a set A, show that  $R_1 \cap R_2$  is also an equivalence relation.
2. Let R be the relation on set A of ordered pairs of positive integers defined by  $(x, y) R (u, v)$  if

and only if  $xv = yu$ . Show that  $R$  is an equivalence relation.

3. Show that the number of equivalence relations in the set  $\{1, 2, 3\}$  containing  $(1, 2)$  and  $(2, 1)$  is two.

5. If the function  $f: \mathbb{R} \rightarrow \mathbb{R}$  is given by  $f(x) = \frac{x+3}{2}$  and  $g: \mathbb{R} \rightarrow \mathbb{R}$  is given by  $g(x) = 2x - 3$ , find  $f \circ g$  and  $g \circ f$ . Is  $f^{-1} = g$ .

### CHAPTER: 2. INVERSE TRIGONOMETRIC FUNCTIONS

1. Solve for  $x$ ,  $\tan^{-1}(x+1) + \tan^{-1}(x-1) = \tan^{-1} \frac{8}{31}$
2. Prove that  $\sin^{-1} \frac{4}{5} + \sin^{-1} \frac{5}{13} + \sin^{-1} \frac{16}{65} = \frac{\pi}{2}$
3. Solve for  $x$ :  $\tan^{-1}(x-1) + \tan^{-1} x + \tan^{-1}(x+1) = \tan^{-1} 3x$
4. Prove that  $2 \tan^{-1} \frac{1}{5} + \sec^{-1} \frac{5\sqrt{2}}{7} + 2 \tan^{-1} \frac{1}{8} = \frac{\pi}{4}$
5. Show that  $\cos\left(2 \tan^{-1} \frac{1}{7}\right) = \sin\left(4 \tan^{-1} \frac{1}{3}\right)$

### CHAPTER: 3 & 4. MATRICES AND DETERMINANT

1. Value of determinant  $\begin{vmatrix} 1 & a & b+c \\ 1 & b & c+a \\ 1 & c & a+b \end{vmatrix}$  is

(A)  $abc$

(B)  $0$

(C)  $a+b+c$

(D)  $1$

2. Let  $A = \begin{bmatrix} 2 & 3 \\ -1 & 2 \end{bmatrix}$  and  $f(x) = x^2 - 4x + 7$ . Show that  $f(A) = 0$  and use this result to find  $A^5$ .

3. For what value of  $x$ , the matrix  $A$  is singular, if  $A = \begin{bmatrix} 1+x & 7 \\ 3-x & 8 \end{bmatrix}$ ?

4. For a  $3 \times 3$  matrix  $A$ , given that  $|A| = 3$ , then find  $|\text{adj}(A)|$ .

5. Find the product  $AB$ , where  $A = \begin{bmatrix} -4 & 4 & 4 \\ -7 & 1 & 3 \\ 5 & -3 & -1 \end{bmatrix}$  and  $B = \begin{bmatrix} -1 & 1 \\ -2 & -2 \\ 2 & 1 & 3 \end{bmatrix}$  and use it

to solve the equations  $x - y + z = 4$ ,  $x - 2y - 2z = 9$  and  $2x + y + 3z = 1$ .

6. For what value of  $k$ , the matrix  $\begin{bmatrix} 2-k & 4 \\ -5 & 1 \end{bmatrix}$  is not invertible?

7. If  $A$  is a matrix of order  $2 \times 3$  and  $B$  is a matrix of order  $3 \times 5$ , then what is the order of matrix  $(AB)^T$ ?

8. For keeping fit  $X$  people believe in morning walk,  $Y$  people believe in yoga and  $Z$  people join Gym. Total no. of people are 70. Further 20% 30% and 40% people are suffering from any disease who believe in morning walk, yoga and GYM respectively. Total no. of such people is 21. If morning walk cost Rs 0 Yoga cost Rs 500/month and GYM cost Rs 400/ month and total



expenditure is Rs 23000.

- a) Formulate a matrix problem.
- b) Calculate the no. of each type of people.
- c) Why exercise is important for health.

**Note:** *All work should be done on separate notebook.*

### **THEORY ASSIGNMENT**

Solve NCERT Misc. exercise of Chapters determinants, relations and functions and inverse trigonometric functions.

**Note:** *All this work should be done on fair notebook.*

### **PRACTICAL WORK**

**ACTIVITY No. 1, 2, 3, 4, 8**

**Note:** *All this work should be done on practical notebook.*

### **ART INTEGRATED ACTIVITY**

1. Real life applications of functions, differentiation, and integration (Paste Pictures).
2. Draw graphs of any three functions.
3. Prove any three properties of determinants using examples.

**Note:** *All this work should be done in a file (on white sheets).*

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## BIOLOGY (044)

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**Revise the following Chapters:**

1. Sexual Reproduction in flowering plants.
2. Reproduction in Humans
3. Reproductive Health
4. Genetics

### THEORY BASED QUESTIONS

**A. Solve the assignment questions.**

- 1) Name the process in which unwanted mRNA regions are removed & wanted regions are joined.
- 2) Give the initiation codon for protein synthesis. Name the amino acid it codes for?
- 3) In which direction, the new strand of DNA synthesised during DNA replication.
- 4) Name the enzyme that joins the short pieces in the lagging strand during synthesis of DNA?
- 5) Mention the dual functions of AUG?
- 6) “DNA polymerase plays a dual function during DNA replication” comment on statement?
- 7) Three codons on mRNA are not recognised by tRNA what are they? What is the general term used for them what is their significance in protein synthesis?
- 8) Give two reasons why both the strands of DNA are not copied during DNA transcription?
- 9) What is transformation? Describe Griffith’s experiment to show transformation? What did he prove from his experiment?
- 10) The base sequence on one strand of DNA is ATGTCTATA
  - a. Give the base sequence of its complementary strand.
  - b. If an RNA strand is transcribed from this strand what would be the base sequence of RNA?
  - c. What holds these base pairs together?
- 11) What is an operon? Describe the major steps involved in an operon?
- 12) What do you mean semi conservative nature of DNA replication? Who proved it & how?
- 13) What do you mean by “Central Dogma of Molecular genetics?”
- 14) Describe the continuous & discontinuous Synthesis of DNA?
- 15) Where do transcription & translation takes place in a prokaryotic cell? Describe the three steps involved in translation?
- 16) What are the three types of RNA & Mention their role in protein Synthesis? [
- 17) How did Hershey and Chase differentiate between DNA and protein in their experiment while proving that DNA is the genetic material?
- 18) What are the functions of (i) methylated guanine cap, (ii) poly-A “tail” in a mature on RNA?
- 19) Define a cistron. Giving examples differentiate between monocistronic and polyeistronic transcription unit

- 20) Name the phenomena that occur when homologous chromosomes do not separate during meiosis.
- 21) Name one trait each in humans & in *Drosophila* whose genes are located on sex chromosome.
- 22) What is a test cross?
- 23) Give any two similarities between behavior of genes (Mendel's factor) during inheritance & chromosomes during cell division.
- 24) Which law of Mendel is universally accepted? State the law?
- 25) How will you find out whether a given plant is homozygous or heterozygous?
- 26) In *Antirrhinum majus* a plant with red flowers was crossed with a plant with white flowers. Work out all the possible genotypes & phenotypes of F1 & F2 generations comment on the pattern of inheritance in this case?
- 27) A red eyed male fruitfly is crossed with white eyed female fruitfly. Work out the possible genotype & phenotype of F1 & F2 generation. Comment on the pattern of inheritance in this cross?
- 28) In dogs, barking trait is dominant over silent trait & erect ears are dominant over drooping ears. What is the expected phenotypic ratio of offspring when dogs heterozygous for both the traits are crossed?
- 29) Why do sons of haemophilic father never suffer from this trait?
- 30) The map distance in certain organism between genes A & B is 4 units, between B & C is units, & between C & D is 8 units which one of these gene paves will show more recombination frequency? Give reason.
- 31) A man with AB blood group marries a woman with O group blood.
  - a. Work out all the possible phenotypes & genotypes of the progeny.
  - b. Discuss the kind of domination in parents & progeny in this case?
- 32) In an cross made between a hybrid tall & red plant (TtRr) with dwarf & white flower (ttrr). What will be the genotype of plants in F1 generation?
- 33) Differentiate between dominance, co-dominance & Incomplete dominance with one example each.
- 34) Mention two differences between Turner's syndrome and Klinefelter. Syndrome
- 35)
- 36).
- 37) Mention four reasons why *Drosophila* was chosen by Morgan for his experiments in genetics.
- 38) A dihybrid heterozygous round, yellow seeded garden pea (*Pisum sativum*) was crossed with a double recessive plant.
  - a. What type of cross is this?
  - b. Work out the genotype and phenotype of the progeny.
  - c. What principle of Mendel is illustrated through the result of this cross?
- 39) Explain the Law of Dominance using a monohybrid cross
- 40) What is pedigree analysis? Suggest how such an analysis, can be useful.
- 41) How is sex determined in human beings?
- 42) What is Down's syndrome? Give its symptoms and cause. Why is it that the chances of having a child with Down's syndrome increases if the age of the mother exceeds forty years?
- 43) Define aneuploidy. How is it different from polyploidy? Describe the individuals having following chromosomal abnormalities.
  - a. Trisomy of 21st Chromosome
  - b. XXY
  - c. XO
- 44) Offsprings produced by asexual reproduction are referred to as clones. Why?
- 45) Name the most invasive aquatic plant weed which is called as. Terror of Bengal.

- 46) Mention the main difference between the offspring produced by asexual reproduction and progeny produced by sexual reproduction.
- 47) Which characteristic property of Bryophyllum is exploited by gardeners and farmers?
- 48) Higher organisms have resorted to sexual reproduction inspite of its complexity. Why?
- 49) Tapeworms posses both male and female reproductive organs. What is the name given to such organism? Give two more examples of such organisms.
- 50) Bryophytes and Pteridophytes produce a large number of male gametesbut relatively very few female gametes. Why?
- 51) . The probability of fruit set in a self-pollinated bisexual flower of a plant is far greater than a dioecious plant. Explain
- 52) Between an annual and a perennial plant, which one has a shorter juvenile phase? Give one reason.
- 53) Although potato tuber is an underground part, it is considered as a stem. Give two reasons.
- 54) In haploid organisms that undergo sexual reproduction, name the stage in the life cycle when meiosis occurs. Give reasons for your answer.
- 55) 'Fertilisation is not an obligatory event for fruit production in certain plants'. Explain the statement
- 56) In a developing embryo, analyse the consequences if cell divisions are not followed by cell differentiation.
- 57) Suggest a possible explanation why the seeds in a pea pod are arranged in a row, whereas those in tomato are scattered in the juicy pulp.
- 58) Differentiate between (a) oestrus and menstrual cycles; (b) ovipary and vivipary. Cite an example for each type.
- 59) What is vegetative propagation? Give two suitable examples
- 60) Define
- Juvenile phase,
  - Reproductive phase,
  - Senescent phase
- 61) What do you understand by double fertilization?
- 62) What is sporopollenin?
- 63) Name one plant each where pollination occurs with the help of
- Water.
  - Bats
- 64) Why do most zygotes develop after certain amount of embryo is formed?
- 65) What is polyembryony?
- 66) Why is emasculation done in the process of hybridization
- 67) Why pollen grains can remain well preserved as fossils?
- 68) Why are cleistogamous flowers invariably autogenous?
- 69) State any one advantage and disadvantage of pollen grains to humans
- 70) Differentiate between microsporogenesis and megasporogenesis.
- 71) Explain the stages involved in the maturation of a microspore into a pollen grain.
- 72) Explain the structure of an anatropous ovule with a neat labeled diagram?
- 73) Continued self-pollination lead to inbreeding depression. List three devices, which flowering plant have developed to discourage self-pollination?
- 74) What will be the fate of following structures in the angiospermic plant? Ovary wall, Ovule, zygote, outer integument, Inner integument and primary endosperm nucleus.
- 75) State the characteristics of insect pollinated flowers.
- 76) Differentiate between chasmogamous and cleistogamous flowers
- 77) Which type of pollination ensures the arrival of genetically different pollen grains to stigma?
- 78) What relationship exists between a species of moth and Yucca plant?
- 79) Enlist the advantages offered by seeds to angiosperms.

- 80) Explain the development of embryo in a dicotyledonous plant with neatly labeled diagrams.
- 81) What is self-incompatibility? Why does self-pollination not lead to seed formation in self-incompatible species?
- 82) What is triple fusion? Where and how does it take place? Name the nuclei involved in triple fusion
- 83) With a neat diagram explain the 7-celled, 8-nucleate nature of the female gametophyte
- 84) Draw the diagram of a microsporangium and label its wall layers. Write briefly on the role of the endothecium.

### **PRACTICAL WORK**

1. To study pollen germination on the slide.
2. To study adaptations to pollination by different agencies (wind, insects and birds)
3. To identify the stages of gamete development ie T.S of Testes, T. S of Ovary through the permanent slides.
4. To study T. S of blastula through the permanent slide.

### **PROJECT WORK**

1. Collect material for the investigatory project of your choice except for human diseases.

Collect material for an investigatory project report on the topic assigned to you in the class.

Instructions for the project report:

- Report should be handwritten on A4 size papers.
- Report should be of minimum 15 pages.
- Report should contain the following contents:
  - (a) Title of the project with student's information.
  - (b) Certificate
  - (c) Acknowledgment
  - (d) Introduction about the topic
  - (e) Main content (explanation of complete concept).
  - (f) Current research related to the topic
  - (g) Conclusion
  - (h) References (Sources of information written in the project).

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**COMPUTER SCIENCE (083)**

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**Revise the following chapters:**

1. Python Revision Tour-I
2. Python Revision Tour-II
3. Working with Functions
4. Using Python Libraries
5. File Handling

**PRACTICAL WORK**

**Instructions regarding CS Practical File.**

1. Purchase Computer Science Practical File (Sangam).
2. Write all the following programs in the file in the same sequence.
3. You have to write the code on the ruled sheet and the output on the plain sheet of the file.
4. Don't write two programs on the same sheet.
5. Use blue pen to write the code and pencil to write the output.
6. You have to also perform the practical and make a pdf of the executed code as well as output.

**Complete the Practical assignment worksheet in the practical file .You can access Assignment worksheet via the following link:**

[https://drive.google.com/file/d/107wX2MC976vC\\_tFWkJbhpNp4PBkJhXwm/view?usp=drive\\_link](https://drive.google.com/file/d/107wX2MC976vC_tFWkJbhpNp4PBkJhXwm/view?usp=drive_link)

**ART INTEGRATED ACTIVITY**

**Make a PowerPoint presentation on the following topics:**

<b>GROUP</b>	<b>GROUP MEMBERS</b>	<b>TOPIC</b>
Group-I	Aashi Rathour	Computer Network and its Types.
Group-II	Anjali Bharti	Network Topologies and its Types.
Group-III	Nitesh Kumar	Wired and Wireless Transmission Media

***Note:*** Each group member has to prepare his/her own PowerPoint presentation.

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**INFORMATICS PRACTICES (065)**  
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**Revise the following chapters:**

- 1. Data Handling with Pandas-I
- 2. Data Handling with Pandas-II
- 3. Data Visualization using Matplotlib

**PRACTICAL WORK**

**Instructions regarding IP Practical File.**

- 1. Purchase Informatics Practices Practical File (Sangam).
- 2. Write all the following programs in the file in the same sequence.
- 3. You have to write the code on the ruled sheet and the output on the plain sheet of the file.
- 4. Don't write two programs on the same sheet.
- 5. Use blue pen to write the code and pencil to write the output.
- 6. You have to also perform the practical and make a pdf of the executed code as well as output.

**Complete the Practical assignment worksheet in the practical file .You can access Assignment worksheet via the following link:**

[https://drive.google.com/file/d/1kKEPZNg1eo0RopGNyIytVF3WfUF3wLch/view?usp=drive\\_link](https://drive.google.com/file/d/1kKEPZNg1eo0RopGNyIytVF3WfUF3wLch/view?usp=drive_link)

**ART INTEGRATED ACTIVITY**

**Make a PowerPoint presentation on the following topics:**

<b>GROUP</b>	<b>GROUP MEMBERS</b>	<b>TOPIC</b>
Group-I	Unnati	Computer Network and its Types.
Group-II	Nikita Kumari	E-waste: hazards and management
Group-III	Harshdeep Kumar	Network Topologies and its Types.

***Note:*** Each group member has to prepare his/her own PowerPoint presentation.

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**PHYSICAL EDUCATION (048)**  
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**Revise and complete the notes of the following chapters:**

1. Management of sporting events
2. Children and women in sports
3. Yoga

**Note:** Frame at least 10 MCQ'S from each above-mentioned chapters and write them in your notebook.

### **PRACTICAL WORK**

**Make a Record File that shall include:**

1. Fitness test administration (SAI KHELO INDIA)
2. Labelled Diagram of Field and Equipment, History, Rules, Terminologies and Skills of any Game of your Choice out of the list given below:
  - a) Volleyball
  - b) Basketball
  - c) Football
  - d) Handball
  - e) Hockey
  - f) Kho Kho
  - g) Kabaddi
  - h) Cricket
4. Procedure for Asanas, Benefits & Contraindication for any five Asanas for each Lifestyle disease studied in the chapter “Yoga and lifestyle”.

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**NCC (076)**



**Revise all the chapters done so far and complete your notes.**

1. National Integration
2. Drill
3. Weapon Training
4. Personality Development
5. Armed Forces
6. Map – Reading

**Do the following in your NCC notebook:**

1. Cut and paste or draw all the ten Standard Obstacle Courses in your NCC notebook,



explain each of them. [Unit -8 Common Subject - Adventure and Obstacle Training (same as you did in class 11)

2. Write types of Pollution, Effect of different types of Pollution, Measures to control the different types of Pollution, in your NCC notebook. (From unit-9)
3. Explain waste management and types of Waste. (From unit-9)

### **ART INTEGRATED ACTIVITY**

**Make a pdf of the following chapters as per your roll numbers.**

- a) Weapon Training (1-2)
- b) Drill (3-4)
- c) Map Reading (5,6,7,8)
- d) Personality Development (9,10,11)

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### **ACCOUNTANCY (055)**



**Revise all the chapters done so far and complete your notes.**

- 1. Do 10 numerical (from the exercise) of each of the following chapters, in your note book.**
  1. Issue and forfeiture of shares.
  2. Issue of Debentures and Redemption of Debentures.
  3. Financial statements of company
  4. Tools for Financial analysis.
  5. Cash flow statement.
- 2. Every student has to compulsorily undertake project on the following topics:**
  1. Ratio analysis
  2. Cash flow statement.

**Note:**

- ❖ *The project must be made on the assignments sheets.*
- ❖ *It must not be less than 20 pages.*
- ❖ *Use of pictures is mandatory.*

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**BUSINESS STUDIES (054)**  
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**Revise chapters 1 to 6 along with 9 and also complete your notes.**

1. Do at least 20 case studies from each of chapter 1 to 6 and chapter 9 in your notebooks. The answers must be detailed, explaining the entire concept.

**PROJECT WORK**

**Make a project report on any one of the following topics:**

- Principles of Management
- Or
- Marketing Management
- Or
- Stock Exchange

**Note:**

- ❖ *Details regarding the project will be forwarded in your class group before 10 June,24.*
- ❖ *The project to be made on assignment sheets.*
- ❖ *Use of pictures is mandatory.*
- ❖ *It must not be less than 20 to 25pages.*

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**ECONOMICS (030)**  
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**Revise the following units for UT-2 and complete your notebook.**

1. Aggregates related to national income.
2. Money and Banking.
3. Indian Economy on the Eve of Independence.
4. Economic planning and Growth Strategy from 1950-1990

**PROJECT WORK**

Every student has to compulsorily undertake one project work. Following topics for project work are allotted to you according to your roll nos.

**XII-C**

<b>S.NO.</b>	<b>TOPICS</b>	<b>ROLL NO</b>
1	Organic Farming – Back to the Nature	1,14
2	Sustainable development a need of time.	2,15
3	Rural Development a mission of Government in India.	3,16
4	Infrastructure an engine of economic growth.	4,17
5	Bumper Production- Boon or Bane for the farmer	5,18
6	COVID-19 and its impact on Indian economy	6,19
7	Contemporary Employment situation in India	7,20
8	Made In India Programme	8,21
9.	Role of Agriculture in Indian Economy	9,22
10	Disinvestment policy of the government	10,23
11	Food Supply Channel in India	11,24
12	Exchange Rate determination – Methods and Techniques	12,25
13	Alternate fuel – types and importance	13,26

**XII-D**

<b>Sr.No</b>	<b>TOPICS</b>	<b>ROLL NO</b>
1	Bumper Production- Boon or Bane for the farmer	1-8
2	Digital India- Step towards the future	9-16
3	Micro and Small Scale Industries	17-23
4	Livestock – Backbone of Rural India	24-29
5	MGNRAGA – Cost Ratio Benefits	30-36

- **Make a PPT on the following topics:**
  - a. Features of Indian Economy on the eve of Independence (Roll no. 1 to 7)
  - b. Humen Development Index (Roll no 8 to 14)
  - c. Alternate fuel-Types and Importance (Roll no 15 to 20)
  - d. Problem of Unemployment and its remedies ( 21 to 26)

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**POLITICAL SCIENCE (028)**



**Revise the following units for UT-2 and complete your notebook.**

1. International organizations
2. The challenges of Nation Building
3. Era of one-party dominance

4. Politics of planned development

**PROJECT WORK**

Every student has to compulsorily undertake one project work. Following Topics for project work are allotted to you according to your roll nos:

<b>TOPICS</b>	<b>ROLL NO</b>
India's Relations with its neighbor	01-05
India's Relations with China	06-10
United Nations in the 21 <sup>st</sup> Century	11-15
Partition of India	16-20
Indira Gandhi and the National Emergency	21-25
Globalization in the 21 <sup>st</sup> century	25-30
India -Pakistan Relations	31-36

- **Make a PPT on the following topics:**
  - e. Russia-Ukraine war (Roll no. 1 to 09)
  - f. Israel-Palestine issue (Roll no 10 to 19)
  - g. Analyses of 2024 Lok Sabha elections (Roll no 20 to 29)
  - h. Comparison of UPA 01 and 02 govt. with NDA 03 and 04 (Roll no. 30 to 36)

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**GEOGRAPHY (029)**



1. Frame a report highlighting the rank India has attained over the years in HDI released by UNDP.
2. Art integrated project- Make a multiple bar diagram to represent demographic variables of Gujarat and Jammu and Kashmir (2011 census)

**ART ACTIVITY**

- As a part of central government smart City project, identify and write in brief about any five big changes Jammu City had witnessed. You can click pictures yourself or download from website and paste them in your

Geography notebook

**PRACTICAL WORK**

**Do practice map work of the chapters (both India and World)**

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**HISTORY (027)**

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**Revise the following chapters:**

1. Bricks, Beads and Bones
2. Kings, farmers and towns
3. Kinship , class and class
4. Thinkers , beliefs and buildings

**Frame twenty five MCQ's from each of the following chapters and write it on your notebooks.**

1. Bricks, Beads and Bones
2. Kings, farmers and towns
3. Kinship , class and class
4. Thinkers , beliefs and buildings

**MAP WORK**

**On an outline map of India locate the following:**

**a) Mature Harappan sites:**

Harappa, Banawali, Kalibangan, Balakot, Rakhigarhi, Dholavira, Nageshwar, Lothal, Mohenjodaro, Chanhudaro, KotDiji.

**b) Important centres of the National Movement:**

Champaran, Kheda, Ahmedabad, Banaras, Amritsar, Chauri-Chaura, Lahore, Bardoli, Dandi, Bombay (Quit India Resolution), Karachi.

**c) Main centres of the Revolt of 1857:**

Delhi, Meerut, Jhansi, Lucknow, Kanpur, Azamgarh, Calcutta, Banaras, Gwalior, Jabalpur, Agra, Avadh.

**PROJECT WORK**

<b>GROUP</b>	<b>ROLL NOS</b>	<b>TOPICS FOR PROJECT</b>
1	1 to 8	“Mahatma Gandhi” – A legendary Soul
2	9 to 16	To reconstruct the History of Vijayanagar through the Archaeology of Hampi
3	17 to 24	Help, Humanity and Sacrifices during Partition
4	25 to 32	Buddha’s Path to Enlightenment

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**PSYCHOLOGY (037)**

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Revise the following chapters:

1. Variations in psychological attributes
2. Self and Personality
3. Meeting life challenges

**Do the following activities:**

- Prepare 5 case-based questions from each of these chapters and write it on your holiday’s homework.
- Prepare 20 MCQ’s of each chapter and make question bank.

**Project work:**

- Prepare a case study on any of the psychological disorder.

**Practical work:**

- Write down practical work of “Self-Concept Questionnaire” on practical notebook.

**Art integration:**

- Prepare a ppt on stress management, world mental health day.
- Make a poster on Suicide prevention Day.
- Solve NCERT activities till chapter 3 .

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**FINE ARTS (048)**

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Revise unit I  
Practical  
1. Colour composition

2. Nature study with watercolor
3. Water fall
4. African art
5. Coffee art

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SANSKRIT ()  
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➤ गृहकार्यम् कक्षा-द्वादशी

❖ संधिकार्यम्

1. अच् – दीर्घः, गुण, वृद्धिः आयादि, यण् ।
2. ह्राल् - परसवर्ण सन्धि, जश्त्व सन्धि, अनुनासिक सन्धि, आगम सन्धि
3. विसर्गः - सत्व सन्धि, उत्त्व सन्धि, रुत्व सन्धि, लोप सन्धि

❖ समासकार्यम्-

1. अव्ययभाव
2. तत्पुरुष
3. बहुब्रीहिः
4. द्वन्द्व

❖ रचनात्मककार्यम्-

1. अवकाशस्य कृते पत्रलेखनम् ।
2. किम्, कुत्र, कति, कदा, कुतः, कथं, किमर्थम् पदानाम् प्रयोग कृत्वा वाक्यानि रचयत् ।
3. ४२ प्रत्यहाराः लिखत्-

❖ वाल्मीकिकृत रामायणस्य परिचयं लिखत-

