

THE S D VIDYA SCHOOL, NOIDA
SUMMER HOLIDAY HOMEWORK (2023-24)

CLASS XII-A

Dear students,

“Self-belief and hard work will always earn you success.”

Holidays provide a much-needed respite from the daily routine and academic pressure. It allows you to unwind, spend quality time with family and friends, and engage in activities you love. Balancing holidays and studies is a crucial aspect of a student's life. While they are meant for relaxation and enjoyment, it is equally important to maintain a certain level of focus on studies during these breaks. By setting realistic goals and creating a conducive study environment, you can effectively utilize holidays to consolidate knowledge, enhance skills, and stay academically on track. Moreover, incorporating breaks and leisure activities into your study routine can help to maintain focus, reduce stress, and make study sessions more productive. Ultimately, by finding the right balance between holidays and studies you can enjoy the break while also making progress in your academic journey.

KEEP IN MIND TO:

- Pray to the Almighty daily and thank Him for the blissful life that you enjoy.
- Give prime importance to your health.
- Set and maintain a routine at home. Be a good time manager.
- Practice positive thinking and be grateful for what we have.
- Relax, listen to music, or read books.
- Be a helping hand to your parents and learn the skill of shared responsibility.

MOST IMPORTANT:

- Make sure that all the syllabus done by May is revised thoroughly.
- Complete the assignments.

REMEMBER:

“THE FUTURE BELONGS TO THE COMPETENT. GET GOOD, GET BETTER, BE THE BEST!”

Wishing all the students a joyful learning and happy holidays.

ENGLISH

ASSIGNMENT -1

(PROJECT WORK)

TOPIC: CRITICAL APPRECIATION-KEEPING QUIET-BY PABLO NERUDA

- Make a Project File defining and illustrating the critical appreciation of the poem 'Keeping Quiet' by 'Pablo Neruda' (Flamingo).

The project must include the following in the same sequence-

1. Title of project
 2. Certificate
 3. Acknowledgement
 4. Index
 5. Introduction to the topic
 6. About the poet
 7. Analysis on the poem's themes and literary devices
 8. The Importance and Need of Silence, Stillness and Introspection in Contemporary Society
 9. Strategies for incorporating quiet reflection into daily life
 10. Conclusion and reflection on the significance of 'Keeping Quiet'
 11. Bibliography / References
- You may display your creative vigour.

ASSIGNMENT -2

(CREATIVE WRITING SKILLS)

- To be done on A4 size ruled sheets (white or coloured) and attached at the back in the Project File itself with a title page.

1. You are the Secretary of the English Literary Association of Tagore Memorial School, Patna. Write out a notice for noticeboard, inviting names of those who would like to participate in the proposed inter-house debate, oratorical and elocution contest.

2. You are Anand Bakshi, a social worker. You want to organise a cleanliness campaign in your locality. Write a notice in not more than 50 words to be displayed at suitable places in the locality inviting the citizens to participate in the campaign. Give details.

3. National Book Trust organised a week-long book fair at Anna Grounds, Chennai. You visited the fair and bought a few books. You were pleased with the arrangements, enthusiasm of the visitors and the fact that books have not yet lost their relevance in the world of the Internet. Write a letter in 120 – 150 words to the editor of a local newspaper to express your feelings and stating how books play a crucial role in one's life. You are Lalit/Lata, House No-112, Mount Road, Chennai.

4. Social Media today is one of the major sources of information and entertainment for the common man. However, there is a visible decline in the quality of content on the social media platforms. Write a letter to the editor of a national newspaper expressing your concern. You are John/Elizabeth, House No-18, Civil Lines, Meerut.

CHEMISTRY

Make a short video on the topic Biomolecules.

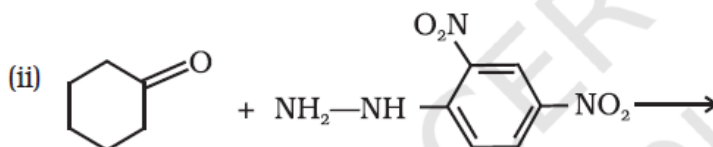
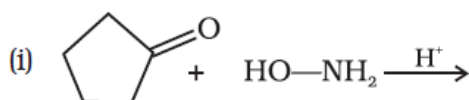
Make an investigatory project on any one topic of your choice as per the guidelines of CBSE.

Complete the given assignments in your notebook.

ASSIGNMENT - 1

Q.I Answer the following questions

1. Give names of the reagents to bring about the following transformations:
 - a. Allyl alcohol to propenal
 - b. Ethanenitrile to ethanal
2. Arrange the following compounds in the increasing order of their boiling points:
CH₃CH₂CH₂CHO, CH₃CH₂CH₂CH₂OH, H₅C₂-O-C₂H₅,
CH₃CH₂CH₂CH₃
3. Aldehydes are more reactive than ketones in nucleophilic addition reactions. Justify
4. Predict the products of the following reactions:



5. An organic compound with the molecular formula C₉H₁₀O forms 2,4-DNP derivative, reduces Tollens' reagent and undergoes Cannizzaro reaction. On vigorous oxidation, it gives 1,2-benzenedicarboxylic acid. Identify the compound.
6. Arrange the following compounds in increasing order of their property as indicated:
 - a. Benzoic acid, 4-Nitrobenzoic acid, 3,4-Dinitrobenzoic acid, 4-Methoxybenzoic acid (acid strength)
 - b. Acetaldehyde, Acetone, Di-*tert*-butyl ketone, Methyl *tert*-butyl

ketone (reactivity towards HCN)

7. Convert:
 - a. Ethanol to 3-Hydroxybutanal
 - b. Benzene to *m*-Nitroacetophenone
8. Write a chemical test to differentiate between:
 - a. Acetophenone and Benzophenone
 - b. Propanal and Propanone
9. Describe the following:
 - a. Cannizzaro reaction
 - b. Hell Volhard Zelinsky
10. Carboxylic acid does not undergo Friedal Crafts reaction.Explain

Q.II Choose the correct option:

- 1 Which of the following cannot reduce Fehling's solution?
 - (a) Formic acid
 - (b) Acetic acid
 - (c) Formaldehyde
 - (d) Acetaldehyde
- 2 Methyl ketones are usually characterised through
 - (a) Tollen's reagent
 - (b) Iodoform test
 - (c) Schiff's test
 - (d) Benedict solution test.
- 3 Which of the following reagents can be used to prepare ketone from acid chloride?
 - (a) Grignard's reagent
 - (b) LiAlH_4
 - (c) Dimethyl cadmium
 - (d) Cadmium chloride
- 4 HVZ reaction is used to prepare
 - (a) β -haloacid
 - (b) α -haloacid
 - (c) α, β -unsaturated add
 - (d) None of these
- 5 Chlorination of toluene in the presence of light and heat followed by treatment with aqueous NaOH gives
 - (a) o-Cresol
 - (b) p-Cresol

- (c) 2,4-Dihydroxytoluene
(d) Benzyl alcohol
- 6 Which of the following acids has the smallest dissociation constant?
 (a) $\text{CH}_3\text{CHF}\text{COOH}$
 (b) $\text{FCH}_2\text{CH}_2\text{COOH}$
 (c) $\text{BrCH}_2\text{CH}_2\text{COOH}$
 (d) $\text{CH}_3\text{CHBr}\text{COOH}$
- 7 The most suitable reagent for the conversion of $\text{R-CH}_2\text{OH} \rightarrow \text{RCHO}$ is
 (a) KMnO_4
 (b) $\text{K}_2\text{Cr}_2\text{O}_7$
 (c) CrO_3
 (d) PCC (Pyridinium chlorochromate)
- 8 Which one of the following can be oxidized to the corresponding carbonyl compound?
 (a) 2-Hydroxypropane
 (b) o-Nitrophenol
 (c) Phenol
 (d) 2-Hydroxy-2-methyl propane
- 9 Which of the following reactions can be used for the reduction
- $$\begin{array}{c} \text{R} \\ \diagdown \\ \text{C}=\text{O} \\ \diagup \\ \text{R} \end{array} \longrightarrow \begin{array}{c} \text{R} \\ \diagdown \\ \text{C}-\text{CH}_2 \\ \diagup \\ \text{R} \end{array}$$
- (a) Clemmensen reaction
 (b) Wolff-Kishner reaction
 (c) Wurtz reaction
 (d) HI and red phosphorus.
- 10 Acetaldehyde is a condensation product of
 (a) two molecules of ethanal
 (b) two molecules of propanone
 (c) ethanal and methanal
 (d) ethanal and propanone.

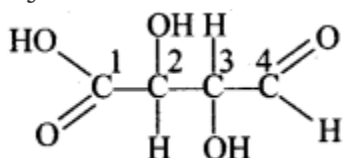
ASSIGNMENT -2

- Q.I Choose the correct option:
- Which is the correct increasing order of boiling points of the following compounds?
1-iodobutane, 1-bromobutane, 1-chlorobutane, Butane
(a) Butane < 1-chlorobutane < 1-bromobutane < 1-iodobutane
(b) 1-iodobutane < 1-bromobutane < 1-chlorobutane < Butane
(c) Butane < 1-iodobutane < 1-bromobutane < 1-chlorobutane
(d) Butane < 1-chlorobutane < 1-iodobutane < bromobutane
 - Among the following, the molecule with the highest dipole moment is
(a) CH_3Cl
(b) CH_2Cl_2
(c) CHCl_3
(d) CCl_4
 - Ethyl chloride on heating with AgCN forms a compound X. The functional isomer of X is
(a) $\text{C}_2\text{H}_5\text{NC}$
(b) $\text{C}_2\text{H}_5\text{NH}_2$
(c) $\text{C}_2\text{H}_5\text{CN}$
(d) None of these
 - Which of the following undergoes nucleophilic substitution exclusively by $\text{S}_\text{N}1$ mechanism?
(a) Benzyl chloride
(b) Ethyl chloride
(c) Chlorobenzene
(d) Isopropyl chloride
 - $\text{S}_\text{N}1$ reaction of alkyl halides lead to
(a) Retention of configuration
(b) Racemisation
(c) Inversion of configuration
(d) None of these
 - Which of the following alkyl halides will undergo $\text{S}_\text{N}1$ reaction most readily?
(a) $(\text{CH}_3)_3\text{C}-\text{F}$
(b) $(\text{CH}_3)_3\text{C}-\text{Cl}$
(c) $(\text{CH}_3)_3\text{C}-\text{Br}$
(d) $(\text{CH}_3)_3\text{C}-\text{I}$

7 Phenol is less acidic than _____.

- (a) ethanol
- (b) o-nitrophenol
- (c) o-methylphenol
- (d) o-methoxyphenol

8 Which of the carbon atoms present in the molecule given below are asymmetric?



- (a) 1, 2, 3, 4
- (b) 2, 3
- (c) 1, 4
- (d) 1, 2, 3

9 1, 2-dibromoethane reacts with alcoholic KOH to yield a product X. The hybridisation state of the carbons present in X respectively, are

- (a) sp, sp
- (b) sp³, sp³
- (c) sp³, sp²
- (d) sp², sp²

10 How many alcohols with molecular formula C₄H₁₀O are chiral in nature?

- (a) 1
- (b) 2
- (c) 3
- (d) 4

Q II Account for the following:

1. Melting point of p-Dichloro benzene is higher than its ortho and meta isomer.
2. Alcohol reacts with thionyl chloride to give pure halo alkane.
3. Finkelstein reaction of halo alkane is carried out in the presence of dry acetone.
4. Benzylic halides and allylic halides are more reactive towards nucleophile in SN1 reaction.
5. Although chlorine atom has electron withdrawing effect

electrophilic substitution occur at ortho and para position.

6. p-nitrophenol is more acidic than p-methylphenol.

7. Bond length of C—O bond in phenol is shorter than that in methanol.

8. $(\text{CH}_3)_3\text{C—Br}$ on reaction with sodium methoxide ($\text{Na}^+ \text{ } ^-\text{OCH}_3$) gives alkene as the main product and not an ether.

9. The C—O—H bond angle in alcohols is slightly less than the tetrahedral angle .

10. $(\text{CH}_3)_3\text{C—O—CH}_3$ on reaction with HI gives $(\text{CH}_3)_3\text{C—I}$ and $\text{CH}_3\text{—OH}$ as the main products and not $(\text{CH}_3)_3\text{C—OH}$ and $\text{CH}_3\text{—I}$.

BIOLOGY

Make an investigatory project on any one topic of your choice as per the guidelines of CBSE.

Complete the given assignments in your notebook.

ASSIGNMENT -1

- When 'Aa' is crossed with 'aa', (A is dominant over a)
 - all the offspring will have dominant phenotype.
 - all the offspring will have recessive phenotype.
 - 50% of offspring will have dominant phenotype and 50% will have recessive phenotype.
 - 75% of offspring will have dominant phenotype and 50% will have recessive phenotype.
- A heterozygous violet-flowered pea plant is crossed to another homozygous violet-flowered pea plant. What percent of the progeny plants will have the recessive trait, i.e., white flowers?
 - 0%
 - 25%
 - 50%
 - 75%
- From a cross AABb x aaBb, the genotypes AaBB: Aa β b: Aabb will be obtained in the ratio
 - 1:1:2
 - 1:2:1
 - 2:1:1
 - 2:1:2
- The possibility of all genotypes of offspring in a genetic cross is calculated by a graphical representation which was developed by
 - Komberg
 - T.H. Morgan
 - Gregor Mendel
 - Reginald Punnett
- A woman with normal vision has a colour-blind father. She marries a colourblind man. What proportion of their children will be colourblind?
 - 0%
 - 25%
 - 50%
 - 100%
- Mother and father of a person with 'O' blood group have A and B blood group respectively. What would be the genotype of both mother and father?
 - Mother is homozygous for 'A' blood group and father is heterozygous for B
 - Mother is heterozygous for 'A' blood group and father is homozygous for B
 - Both mother and father are heterozygous for 'A' and 'B' blood group, respectively.
 - Both mother and father are homozygous for 'A' and 'B' blood group, respectively
- The inheritance pattern of a gene over generations among humans is studied by the pedigree analysis. Character studied in the pedigree analysis is equivalent to

- (a) Quantitative trait. (b) Mendelian trait
(c) Polygenic trait (d) Maternal trait.

8. Occasionally, a single gene may express more than one effect. The phenomenon is called:

- (a) multiple allelism (b) mosaicism
(c) pleiotropy (d) polygeny.

9. Conditions of a karyotype $2n+1$ and $2n-2$ are called:

- (a) Aneuploidy (b) Polyploidy
(c) Allopolyploidy (d) Monosomy

10. If a genetic disease is transferred from a phenotypically normal but carrier female to only some of the male progeny the disease is-

- (a) Autosomal dominant
(b) Autosomal recessive
(c) Sex linked dominant
(d) Sex linked recessive.

11. In a dihybrid cross, if you get 9:33:1 ratio it denotes that:

- (a) The alleles of two genes are interacting with each other.
(b) It is a multigenic inheritance.
(c) it is a case of multiple allelism
(d) The alleles of two genes are segregating independently.

12. In sickle cell anaemia glutamic acid is replaced by valine. Which one of the following triplets codes for valine?

- (a) GGG (b) AAG (c) GAA (d) GUG

13. Which of the following traits studied by Mendel in garden pea is a dominant trait

- (a) Terminal flowers. (b) Inflated pod.
(c) Green colour of seed. (d) Yellow colour of pod.

14. If a haemophilic woman marries a normal man,

- (a) all their children will be normal.
(b) all their sons will be haemophilic.
(c) all their daughters will be haemophilic.
(d) 50% sons and 50% daughters will be haemophilic.

15. Trisomy of 21st chromosome in a male, leads to_____

ASSIGNMENT -2

1. Why do sons of a haemophilic father never suffer from this trait?
2. Give any two similarities between the behaviour of genes during inheritance and of chromosomes during cell division.
3. What is co-dominance? State one example in humans.
4. A woman of 47 years delivered an abnormal child with flattened nasal bridge and mouth usually open with a large protruding tongue. Name this genetic abnormality. What causes this condition?
5. A colourblind man marries a woman with normal vision, whose father was colourblind. Work out a cross to show the genotype of the new couple and their prospective sons.
6. Mention the advantages of selecting a pea plant for experiment by Mendel.
7. When a cross is made between tall plants with yellow seeds (TtYy) and tall plant with green seeds (Ttyy) what proportions of the phenotype in the offspring could be expected to be:
 - (a) tall and green
 - (b) dwarf and green
8. Two heterozygous parents are crossed. If the two loci are linked what would be the distribution of phenotypic features in F₂ generation for a dihybrid cross?
9. What is pedigree analysis? Suggest how such an analysis can be useful?
10. Give the Mendelian monohybrid ratio. How is it mathematically condensable to binomial expression?
11. What are multiple alleles? Give an example.
12. Write four characteristic symptoms shown by a Turner's syndrome.
13. A man with AB blood group marries a woman with O blood group.
 - (i) Work out the possible phenotypes and genotypes of the progeny.
 - (ii) Discuss the kind of dominance in the parents and progeny in this case.
14. A red-eyed heterozygous female fruit fly is crossed with a red-eyed male work out all the possible genotypes and phenotypes of the progeny comment on the pattern of inheritance of eye colour in fruit flies.
15. In humans, sex of the child is determined by father and not by the mother. How?
16. Explain the phenomenon of multiple allelism and codominance by taking the example of ABO blood group in human beings.
17. Why did Mendel's work remain unrecognized from 1865 to 1900? Who rediscovered Mendel's work?
18. Describe sex determination in birds.
19. What is the cause of phenylketonuria? Explain the disorder.
20. Mention three similarities between Mendelian factors (genes of today) and chromosomes.
21. A cross between normal couple resulted in a son who was haemophilic and a normal daughter. In course of time, when the daughter was married to a normal man. To their surprise, the grandson was also haemophilic.
 - i) Represent this cross in the form of a pedigree chart. Give the genotype of the daughter and her husband.
 - ii) Write the conclusion drawn from the inheritance pattern of this disease.
22. Work out a dihybrid cross between homozygous tall Pisum sativum plant

bearing

round seeds and a dwarf plant with wrinkled seeds through 2 generations using

punnet square. Give the dihybrid phenotypic ratio.

23. A dihybrid heterozygous round, yellow seeded garden pea was crossed with a double recessive plant.
 - (i) What type of cross is this?
 - (ii) Work out the genotype and phenotype of the progeny.
 - (iii) What principle of Mendel is illustrated through the result of this cross?
24. How are genetic disorders broadly classified? Explain with two examples for Each?
25. In the case of Snapdragon a plant with red flowers was crossed with another plant with white flowers. Trace the inheritance of flower colour up to the F₂ generation indicating the genotypes and phenotypes at each level. What special feature do you notice in the genotypic and phenotypic ratios in the F₂ generations?

PHYSICS

Make a power point presentation of at least 5 slides on the topic allocated in the class.

Make an investigatory project on any topic of your choice as per the guidelines of CBSE.

Complete the given assignments in your notebook.

ASSIGNMENT - 1

- Q1. If the dipole of moment 2.57×10^{-17} cm is placed into an electric field of magnitude 3.0×10^4 N/C such that the fields lines are aligned at 30° with the line joining P to the dipole, what torque acts on the dipole?
- (a) 7.7×10^{-13} Nm
 - (b) 3.855×10^{-13} Nm
 - (c) 3.855×10^{-15} Nm
 - (d) 7.7×10^{-15} Nm
- Q2. An electric dipole is placed at an angle of 30° with an electric field of intensity 2×10^5 NC⁻¹, It experiences a torque of 4 Nm. Calculate the charge on the dipole if the dipole length is 2 cm.
- (a) 8 mC
 - (b) 4 mC
 - (c) 8 μ C
 - (d) 2 mC
- Q3. Two insulated charged metallic sphere P and Q have their centres separated by a distance of 60 cm. The radii of P and Q are negligible compared to the distance of separation. The mutual force of electrostatic repulsion if the charge on each is 3.2×10^{-7} C is
- (a) 5.2×10^{-4} N
 - (b) 2.5×10^{-3} N
 - (c) 1.5×10^{-3} N
 - (d) 3.5×10^{-4} N
- Q4. The force between two small charged spheres having charges of 1×10^{-7} C and 2×10^{-7} C placed 20 cm apart in air is
- (a) 4.5×10^{-2} N
 - (b) 4.5×10^{-3} N

(c) 5.4×10^{-2} N

(d) 5.4×10^{-3} N

Q5. An electron is rotating around an infinite positive linear charge in a circle of radius 0.1 m, if the linear charge density is $1 \mu\text{C}/\text{m}$, then the velocity of electron in m/s will be

(a) 0.562×10^7

(b) 0.562×10^6

(c) 562×10^7

(d) 0.0562×10^7

Q6. Which of the following statements is not true about Gauss's law?

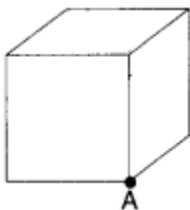
(a) Gauss's law is true for any closed surface.

(b) The term q on the right side of Gauss's law includes the sum of all charges enclosed by the surface.

(c) Gauss's law is not much useful in calculating electrostatic field when the system has some symmetry.

(d) Gauss's law is based on the inverse square dependence on distance contained in the coulomb's law

Q7. The total flux through the faces of the cube with side of length a if a charge q is placed at corner A of the cube is



(a) $\frac{q}{8\epsilon_0}$

(b) $\frac{q}{4\epsilon_0}$

(c) $\frac{q}{2\epsilon_0}$

(d) $\frac{q}{\epsilon_0}$

Q8. Consider a region inside which, there are various types of charges but the total charge is zero. At points outside the region

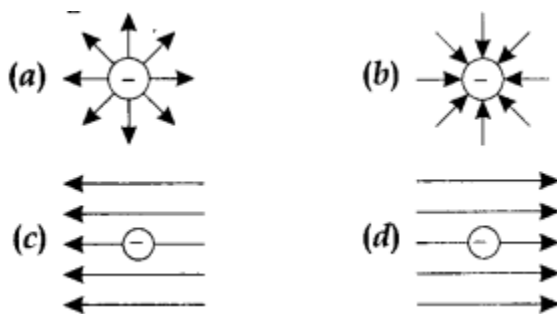
(a) the electric field is necessarily zero.

(b) the electric field is due to the dipole moment of the charge distribution only.

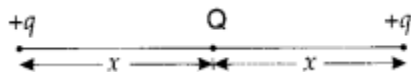
(c) the dominant electric field is inversely proportional to r^3 , for large r (distance from origin).

(d) the work done to move a charged particle along a closed path, away from the region will not be zero.

Q9. Which of the following figures represent the electric field lines due to a single negative charge?



Q10. A charge Q is placed at the centre of the line joining two point charges $+q$ and $+q$ as shown in the figure. The ratio of charges Q and q is



- (a) 4
- (b) $1/4$
- (c) -4
- (d) $-1/4$

ASSIGNMENT -2

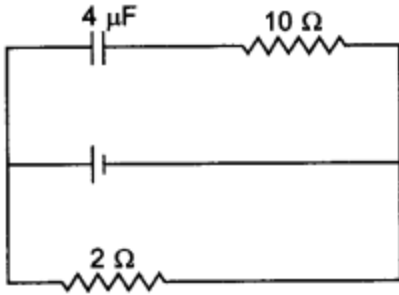
Q1. Two spherical conductors each of capacity C are charged to potential V and $-V$. These are then connected by means of a fine wire. The loss of energy is

- (a) zero
- (b) $\frac{1}{2}CV^2$
- (c) CV^2
- (d) $2 CV^2$

Q2. A capacitor has some dielectric between its plates, and the capacitor is connected to a dc source. The battery is now disconnected and then the dielectric is removed, then

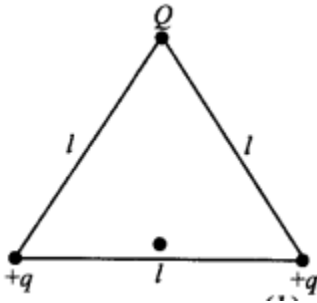
- (a) capacitance will increase.
- (b) energy stored will decrease.
- (c) electric field will increase.
- (d) voltage will decrease.

- Q3. When air is replaced by a dielectric medium of constant K , the maximum force of attraction between two charges separated by a distance
- (a) increases K times
 - (b) remains unchanged
 - (c) decreases K times
 - (d) increases K^{-1} times
- Q4. Dielectric constant for a metal is
- (a) zero
 - (b) infinite
 - (c) 1
 - (d) 10
- Q5. If a conductor has a potential $V \neq 0$ and there are no charges anywhere else outside, then
- (a) there must be charges on the surface or inside itself.
 - (b) there cannot be any charge in the body of the conductor.
 - (c) there must be charges only on the surface.
 - (d) both (a) and (b) are correct.
- Q6. 1 volt is equivalent to
- | | |
|---|--|
| (a) $\frac{\text{newton}}{\text{second}}$ | (b) $\frac{\text{newton}}{\text{coulomb}}$ |
| (c) $\frac{\text{joule}}{\text{coulomb}}$ | (d) $\frac{\text{joule}}{\text{second}}$ |
- Q7. Two metal plates form a parallel plate capacitor. The distance between the plates is d . A metal sheet of thickness $\frac{d}{2}$ and of the same area is introduced between the plates.
- What is the ratio of the capacitance in the two cases?
- (a) 2 : 1
 - (b) 3 : 1
 - (c) 2 : 1
 - (d) 5 : 1
- Q8. A capacitor of 4 pF is connected as shown in the circuit. The internal resistance of the battery is 0.5 Ω . The amount of charge on the capacitor plates will be [NCERT Exemplar]



- (a) 0
- (b) 4
- (c) $16 \mu\text{C}$
- (d) $8 \mu\text{C}$

Q9. Three charges Q , $+q$ and $+q$ are placed at the vertices of an equilateral triangle of side l as shown in the figure. If the net electrostatic energy of the system is zero, then Q is equal to



- (a) $-q$
- (b) $+q$
- (c) zero
- (d) $-\frac{q}{2}$

Q.10 A parallel plate condenser is connected with the terminals of a battery. The distance between the plates is 6mm . If a glass plate (dielectric constant $K = 9$) of 4.5 mm is introduced between them, then the capacity will become (a) 2 times.

MATHEMATICS

ASSIGNMENT - 1

1. What are the possible orders for a matrix having 53 elements?
2. Construct a 2×2 matrix, where:
 - a. $a_{ij} = (i-2j)^2 / 2$
 - b. $a_{ij} = |-2i+3j|$
3. Find the value of x if
$$\begin{vmatrix} 2 & 4 \\ 5 & 1 \end{vmatrix} = \begin{vmatrix} 2x & 4 \\ 6 & x \end{vmatrix}$$
4. By using the properties of determinants show that,
$$\begin{vmatrix} 1 & a & a^2 \\ 1 & b & b^2 \\ 1 & c & c^2 \end{vmatrix} = (a-b)(b-c)(c-a)$$
5. Determine the value of k, if the area of triangle is 4 units. The vertices are (k,0), (4,0), (0,2).
6. If A is an invertible matrix of order 2, then $\det(A^{-1})$ is equal to:
 - a. $\det(A)$
 - b. $1/\det(A)$
 - c. 1
 - d. 0
7. Given $3 \begin{bmatrix} x & y \\ z & w \end{bmatrix} = \begin{bmatrix} x & 6 \\ -1 & 2w \end{bmatrix} + \begin{bmatrix} 4 & x+y \\ z+w & 3 \end{bmatrix}$, determine the values of x,y,z,w.
8. Using elementary transformations, find the inverse of $\begin{bmatrix} 2 & 0 & -1 \\ 5 & 1 & 0 \\ 0 & 1 & 3 \end{bmatrix}$ if it exists.
9. Determine the inverse of $\begin{bmatrix} 2 & -3 & 3 \\ 2 & 2 & 3 \\ 3 & -2 & -2 \end{bmatrix}$ if it exists.
10. Express the given matrix as the sum of the symmetric and the skew-symmetric matrix.
$$\begin{bmatrix} 3 & 5 \\ 1 & -1 \end{bmatrix}$$
11. If $A = \begin{bmatrix} \cos\lambda & -\sin\lambda \\ \sin\lambda & \cos\lambda \end{bmatrix}$ and $A+A'=I$, then the value of λ is
 - a. $\pi/6$
 - b. π
 - c. $\pi/3$
12. Determine the values of the variables such as a, b, c and d from the given equation:
$$\begin{bmatrix} a-b & 2a+c \\ 2a-b & 3c+d \end{bmatrix} = \begin{bmatrix} -1 & 5 \\ 0 & 13 \end{bmatrix}$$
13. If $A = \begin{bmatrix} 3 & -2 \\ 4 & -2 \end{bmatrix}$ and $I = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$, find k so that $A^2 = KA - 2I$
14. If $A = \begin{bmatrix} 3 & -4 \\ 1 & -1 \end{bmatrix}$, then prove that $A^n = \begin{bmatrix} 1+2n & -4n \\ n & 1-2n \end{bmatrix}$, where n is an any positive integer.
15. If $A = \begin{bmatrix} 2 & 2 & -4 \\ -4 & 2 & -4 \\ 2 & -1 & 5 \end{bmatrix}$ and $B = \begin{bmatrix} 1 & -1 & 0 \\ 2 & 3 & 4 \\ 0 & 1 & 2 \end{bmatrix}$ then find BA and use this to solve the system of equations $y+2z+7, x-y=3$ and $2x+3y+4z=17$.
16. Using the matrix method, solve the system of equation $3x+2y-2z=3, x+2y+3z=6, 2x-y+z=2$.

ASSIGNMENT -2

1. By using the properties of determinants show that,

$$\begin{vmatrix} 3a & -a+b & -a+c \\ -b+a & 3b & -b+c \\ -c+a & -c+b & 3c \end{vmatrix} = 3(a+b+c)(ab+bc+ca)$$

2. A matrix A of order 3×3 has determinant 5. What is the value of $|3A|$?

3. If $\begin{vmatrix} 3x & 7 \\ 2 & 4 \end{vmatrix} = 10$, determine the values of x

4. Using elementary transformations, find the inverse of $\begin{bmatrix} 2 & -1 & 4 \\ 4 & 0 & 2 \\ 3 & -2 & 7 \end{bmatrix}$ if it exists.

5. Determine the inverse of $\begin{bmatrix} 3 & -2 & 3 \\ 2 & 1 & -1 \\ 4 & -3 & 2 \end{bmatrix}$ if it exists.

6. Express the given matrix as the sum of the symmetric and the skew-symmetric matrix.

$$\begin{bmatrix} 1 & 3 & 5 \\ -6 & 8 & 3 \\ -4 & 6 & 5 \end{bmatrix}$$

7. If $A = \begin{bmatrix} 0 & 0 \\ 4 & 0 \end{bmatrix}$, then the value of A^{16}

8. If $f(x) = x^2 - 4x + 1$ find $f(A)$ when $A = \begin{bmatrix} 2 & 3 \\ 1 & 2 \end{bmatrix}$

9. If A is non-singular matrix of order 3 and $|Adj A| = A^K$, then write the value of K.

10. If $A = \begin{bmatrix} 3 & -4 \\ 1 & -1 \end{bmatrix}$, then prove that $A^n = \begin{bmatrix} 1+2n & -4n \\ n & 1-2n \end{bmatrix}$, where n is any positive integer.

11. If $A^{-1} = \begin{bmatrix} 3 & -1 & 1 \\ -15 & 6 & -5 \\ 5 & -2 & 2 \end{bmatrix}$ and $B^{-1} = \begin{bmatrix} 1 & 2 & -2 \\ -1 & 3 & 0 \\ 0 & -2 & 1 \end{bmatrix}$ then find $(AB)^{-1}$

12. Using the matrix method, solve the system of equation $3x-y+3z=1$, $x+2y-z=2$, $5y-5z=3$.

13. Using properties of determinants, solve for x $\begin{vmatrix} x+a & x & x \\ x & x+a & x \\ x & x & x+a \end{vmatrix} = 0$

PHYSICAL EDUCATION

Prepare a practical file in a lab manual of Physical Education. Write about the motor fitness test of all seven items, Yoga and its importance, five diseases and two asanas for each disease, and specialised sports.

Complete the given assignment in your notebook.

ASSIGNMENT

1. Draw a knockout picture of 21 teams.
2. Draw a knockout fixture of 24 teams in which two teams are special seeded.
3. Draw a league fixture of 9 teams through the cyclic method.
4. Prepare a flowchart of micro and macronutrients
5. Maintain your physical education notebook and do all the question answers of unit no-1,2,3, and make notes of all 3 units.