

**D.A.V. PUBLIC SCHOOL, PAKUR (JH)**

**Summer Vacation Home Assignment - 2023-24**

**Class: XII**

**Subject: English**

**HOME ASSIGNMENT**

- 1) What was the reaction of the clerk at the ticket counter to Charley? Why?
- 2) Why did Charley wish to go to Galesburg?
- 3) How was the third level at Grand Central Station different from the other two?
- 4) Why are the young trees described as sprinting?
- 5) Why has the narrator brought in the image of the merry children 'spilling out of their homes'?
- 6) What were the activities that the narrator saw outside the car window?
- 7) Why does the narrator smile and what does she say while bidding goodbye to her mother?
- 8) What was Kamala Das's childhood fear?
- 9) Why did Franz not want to go to school that day?
- 10) How was M. Hamel behaviour contrary to how he would usually behave?
- 11) How did Franz enjoy their lesson in writing?
- 12) What shows M. Hamel's love for the French language?
- 13) Write the format of a formal letter.
- 14) Write the format of a Formal Invitation.
- 15) Write the format of a notice.

**ART INTEGRATED PROJECT**

Constituting a major part of Deccan plateau, Telangana has a pleasing climate, with abundant natural and water resources. Make a stick file using the photographs/illustrations of the plateau.

**D.A.V. PUBLIC SCHOOL, PAKUR (JH)**

**Summer Vacation Home Assignment - 2023-24**

**Class: XII**

**Subject: Hindi**

निम्नलिखित प्रश्नों के उत्तर लिखिए

1. स्त्री के विवाह संबंधी मानवाधिकार को कुचलने की कुपरंपरा का पाठ 'भक्तिन' पाठ में किस प्रकार हो पाया है स्पष्ट कीजिए
2. भक्तिन की चारित्रिक विशेषताओं की व्याख्या कीजिए
3. महादेवी वर्मा की व्यक्तित्व एवं कृतित्व पर प्रकाश डालिए
4. बाजार किसी का लिंग, जाति, धर्म या क्षेत्र नहीं देखता वह देखता है सिर्फ उसकी क्रय शक्ति को। इस रूप में वह एक प्रकार से सामाजिक समता की भी रचना कर रहा है। आप इससे कहाँ तक सहमत हैं?
5. पर्वजिंग पवार से आप क्या समझते हैं स्पष्ट कीजिए।
6. संसार में कष्टों को सहते हुए भी खुशी और मस्ती का माहौल कैसे पैदा किया जा सकता है?
7. 'आत्म परिचय' कविता को दृष्टि में रखते हुए कवि के कथ्य को अपने शब्दों में प्रस्तुत कीजिए
8. बाजार में भगत जी के व्यक्तित्व का कौन सा पहलू उभरकर आता है? क्या आपकी नजर में उनका आचरण समाज में शांति स्थापित करने में मददगार हो सकता है परियोजना कार्य
9. तेलंगाना राज्य का इतिहास, संस्कृति - भाषाएं साहित्य, त्योहार, कला और शिल्प, वेशभूषा एवं व्यंजन आदि पर प्रकाश डालिए

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**Class: XII**

**Subject: Maths**

11. Prove that :  $\frac{d}{dx} \left[ \frac{x}{2} \sqrt{a^2 - x^2} + \frac{a^2}{2} \sin^{-1} \frac{x}{a} \right] = \sqrt{a^2 - x^2}$
12. If  $y = \frac{x \sin^{-1} x}{\sqrt{1-x^2}} + \log \sqrt{1-x^2}$ , prove that :  $\frac{dy}{dx} = \frac{\sin^{-1} x}{(1-x^2)^{3/2}}$
13. If  $(1+x)^n = C_0 + C_1x + C_2x^2 + \dots + C_nx^n$   
Using derivatives, prove that :  
(i)  $C_1 + 2C_2 + \dots + nC_n = n.2^{n-1}$   
(ii)  $C_1 - 2C_2 + 3C_3 + \dots + (-1)^{n-1}nC_n = 0$
14. If  $y\sqrt{1-x^2} + x\sqrt{1-y^2} = 1$ , prove that  $\frac{dy}{dx} = -\sqrt{\frac{1-y^2}{1-x^2}}$
15. If  $x^y - y^x = a^b$ ,  $\frac{dy}{dx} = ?$
16. If  $(x-a)^2 + (y-b)^2 = c^2$  prove that :  $\frac{\left\{1 + \left(\frac{dy}{dx}\right)^2\right\}^{3/2}}{\frac{d^2y}{dx^2}}$  is a constant  
independent of a and b
17.  $x\sqrt{1+y} + y\sqrt{1+x} = 0$ , prove that :  $\frac{dy}{dx} = -\frac{1}{(x+1)^2}$
18. Two schools P and Q want to award their selected student on the values of Tolerance, Kindness and Leadership. The school P want to award Rs. x each, Rs. y Each and Rs. z each for the three respective values to 3,2,1 students respectively with a total award money of Rs. 2200. The school Q want to spend Rs. 3100 to award its 4, 1, 3 students (on the respective values by giving the same award money to the three values as school P). If the total amount of award for one prize on each values is Rs. 1200, using matrices, find the award money for each value.

10. Find product  $\begin{bmatrix} -4 & 4 & 4 \\ -7 & 1 & 3 \\ 5 & -3 & -1 \end{bmatrix} \begin{bmatrix} 1 & -1 & 1 \\ 1 & -2 & -2 \\ 2 & 1 & 3 \end{bmatrix}$  and use it to solve the system of equation

$$x - y + z = 4, x - 2y - 2z = 9, 2x + y + 3z = 1$$

**PROJECT WORK:**

Prepare an art integrated project on Mathematics relating Telangana state in a scrap book

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**D.A.V. PUBLIC SCHOOL, PAKUR (JH)**

**Summer Vacation Home Assignment - 2023-24**

**Class: XII**

**Subject: Biology**

Answer following questions:

1. Draw a schematic representation of spermatogenesis and Oogenesis.
2. Enlist any three out breeding devices adapted by flowering plants to prevent self
3. Pollination.
4. Differentiate between Dicot and Monocot embryo.
5. Draw a labeled diagram of sperm
6. Mention function of :
7. i) Sertoli Cell                      ii) tapetum  
iii) Acrosome
8. iv) Endometrium                  v) Corpus luteum
9. Project work (Group Activity : 3 – 4 studnets)
10. Prepare a project report on 3 major 'microbial industrial plants' of Telangana state
11. (Submit in soft copies)

**D.A.V. PUBLIC SCHOOL, PAKUR (JH)**

**Summer Vacation Home Assignment - 2023-24**

**Class: XII**

**Subject: Physical Education**

1. Physical fitness test: - SAI Khelo India, Brockport physical fitness test (BPFT).
2. Procedure for Asanas, Benefits and Contraindication for any two Asana for each lifestyle disease

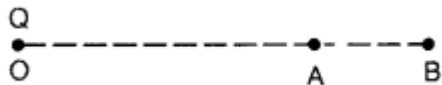
## D.A.V. PUBLIC SCHOOL, PAKUR (JH)

### Summer Vacation Home Assignment - 2023-24

Class: XII

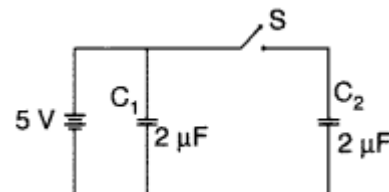
Subject: Physics

- 1 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, if  $Q$  is
- positive
  - negative? (Delhi 2011)

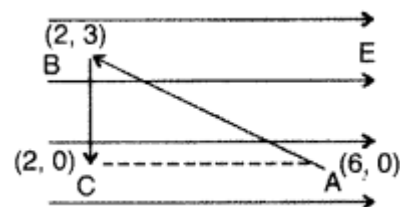


- 2 Why must the electrostatic potential inside a hollow charged conductor be the same at every point?
- 3 Two-point charges  $20 \times 10^{-6} \text{ C}$  and  $-4 \times 10^{-6} \text{ C}$  are separated by a distance of 50 cm in air.
- Find the point on the line joining the charges, where the electric potential is zero.
  - Also find the electrostatic potential energy of the system.
- 4 Draw 3 equipotential surfaces corresponding to a field that uniformly increases in magnitude but remains constant along Z-direction. How are these surfaces different from that of a constant electric field along Z-direction?
- 5 Two uniformly large parallel thin plates having charge densities  $+\sigma$  and  $-\sigma$  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?
- 7 Two small identical electrical dipoles AB and CD, each of dipole moment ' $p$ ' are kept at an angle of  $120^\circ$  as shown in the figure. What ' $X'$ ' is the resultant dipole moment of this combination? If this system is subjected to electric field ( $E \rightarrow$ ) directed along + X direction, what will be the magnitude and direction of the torque acting on this?

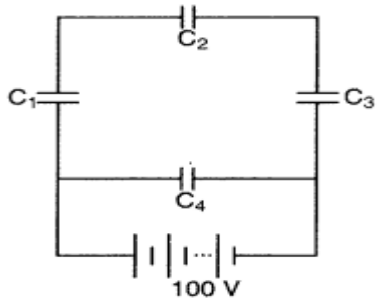
8. Figure shows two identical capacitors  $C_1$  and  $C_2$ , each of  $2 \mu\text{F}$  capacitance, connected to a battery of 5 V. Initially switch 'S' is left open and dielectric slabs of dielectric constant  $K = 5$  are inserted to fill completely the space between the plates of the two capacitors. How will the charge and



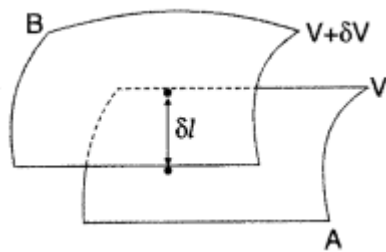
- 9 Draw a plot showing the variation of
- electric field ( $E$ ) and
  - electric potential
- with distance  $r$  due to a point charge  $Q$
- 10 A test charge ' $q$ ' is moved without acceleration from A to C along the path from A to B and then from B to C in electric field  $E$  as shown in the figure.



- Calculate the potential difference between A and C.
  - At which point (of the two) is the electric potential more and why?
- 11 A network of four capacitors, each of capacitance  $15 \mu\text{F}$ , is connected across a battery of 100 V, as shown in the figure. Find the net capacitance and the charge on the capacitor  $C_4$ .
- Answer:  $C_1, C_2$  and  $C_3$  are in series as shown in the figure, we have



- 12 An electric dipole of length 2 cm, when placed with its axis making an angle of  $60^\circ$  with a uniform electric field, experiences a torque of  $8\sqrt{3}$  Nm. Calculate the potential energy of the dipole, if it has a charge of  $\pm 4$  nC.
- 13 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.
- 14 Two closely spaced equipotential surfaces A and B with potentials  $V$  and  $V + \delta V$ , (where  $\delta V$  is the change in  $V$ ), are kept  $\delta l$  distance apart as shown in the figure.



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.

- 15 Two parallel plate X and Y 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 medium of  $\epsilon_r = 4$ .
- Calculate capacitance of each capacitor if equivalent capacitance of the combination is  $4 \mu\text{F}$ .
  - Calculate the potential difference between the plates of X and Y.
  - What is the ratio of electrostatic energy stored in X and Y?
- 16 A parallel plate capacitor is charged by a battery. After some time, the battery is disconnected and a dielectric slab of dielectric constant  $K$  is inserted between the plates. How would
- the capacitance,
  - the electric field between the plates and
  - the energy stored in the capacitor, be affected? Justify your answer.
- 17 a) A charge  $+Q$  is placed on a large spherical conducting shell of radius  $R$ . Another small conducting sphere of radius  $r$  carrying charge ' $q$ ' is introduced inside the large shell and is placed at its centre. Find the potential difference between two points, one lying on the sphere and the other on the shell.
- (b) How would the charge between the two flow if they are connected by a conducting wire?
- 18 A parallel plate capacitor, each with plate area  $A$  and separation  $d$ , is charged to a potential difference  $V$ . The battery used to charge it remains connected. A dielectric slab of thickness  $d$  and dielectric constant  $k$  is now placed between the plates. What change, if any, will take place in:
- charge on plates?
  - electric field intensity between the plates?
  - capacitance of the capacitor?
- Justify your answer in each case
- 19 A capacitor of unknown capacitance is connected across a battery of  $V$  volts. The charge stored in it is  $360 \mu\text{C}$ . When potential across the capacitor is reduced by  $120$  V, the charge stored in it becomes  $120 \mu\text{C}$ .
- Calculate:
- The potential  $V$  and the unknown capacitance  $C$ .
  - What will be the charge stored in the capacitor, if the voltage applied had increased by  $120$  V?

- 20 A slab of material of dielectric constant  $K$  has the same area as that of the plates of a parallel plate capacitor but has the thickness  $d/2$ , where  $d$  is the separation between the plates. Find out the expression for its capacitance when the slab is inserted between the plates of the capacitor

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**Class: XII** **Subject: Chemistry**

1. Explain.
  - A) Ebullioscopic and cryoscopic constant.
  - B) Osmosis and Reverse osmosis.
  - C) Equilibrium constant from Nernst Eqn.
  - D) Products of Electrolysis.
  
2. Calculate Half-life Period for
  - a) F.O.R.
  - b) Zero order Rkn
  
3.
  - i) The Half life Period of the f.O.R is 10 s. Calculate its Rate constant.
  
  - ii) If half life Period of an F.O.R is 2 min, how long will it take to reach
    - a) 25% of its initial concentration
    - b) 10% if it's initial concentration.
  
4. Project:-

Construct a electrochemical cell (Galvanic cell)

\*\* working model