INDIAN CONVENT SCHOOL

HOLIDAY HOMEWORK

CLASS XII

SUBJECT: ENGLISH

Project :- Visit an area of J.J. Colony near your house and make a project on the hazardous conditions of the people living there. Your project should represent the callousness of society and the political class to the sufferings of the poor & observations of the paradoxes in the society we live in.

SUBJECT : HINDI

1 परियोजन कार्य -

* जनसंचार के माध्यम
* आधुनिक कवि या लेखक
* निबंध लेखन
* नाटक लेखन
* प्रिय पाठ या कविता का मूल्याङ्कन

2 इकाई परीक्षा हेतु पाठ्यक्रम याद करें।

SUBJECT : MATHS

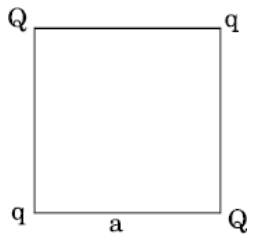
CH 3-Matrices
Examples-2,3,4,6,8,9,11,13,16,19,20,21,24,26,27
Exercise-3.1-Q no-1,4,7,8,10
Exercise-3.2-Q no-1(I,iii,v),2(ii,iii,iv),3(ii,iii,vi),6,7,10,,13,14(ii),16,18,19,20,21,22
Exercise-3.3-Q no-2(i),3(ii),6,10(ii,iv),11
Exercise-3.4-Q no-3,4,8,11,12,15,16,17,18
Exercise Miscellaneous-Q no-1,2,3,4,5,9,10,11,13,14,15
CH-Determinants
Examples-4,9,10,11,15,16,25,29,30,31,32,34,
Exercise-4.1-Q no-2,4
Exercise-4.2-Q no-5,6,9,11,12,13,14,15
Exercise-4.5-4,9,12,16,17,18
Exercise-4.6-Q no-6,8,16
Exercise Miscellaneous-Q no-1,3,4,6,11,12,13,14,15,16,17,19
Learn and write:

- Tables-1-20
- Squares-1-25
- Cubes-1-15
- Square Roots-1-10

SUBJECT : SCIENCE
PHYSICS

TEN YEARS BOARD PROBLEMS
CBSE 2018

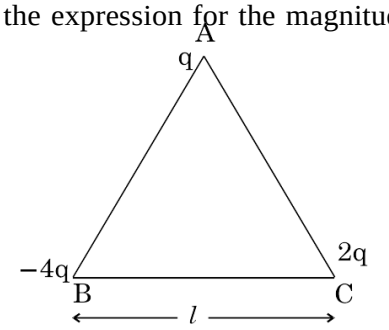
1. Four point charges Q, q, Q and q are placed at the corners of a square of side 'a' as shown in the figure.



(A) Resultant electric force on a charge Q, and
(B) potential energy of this system. **(3)**

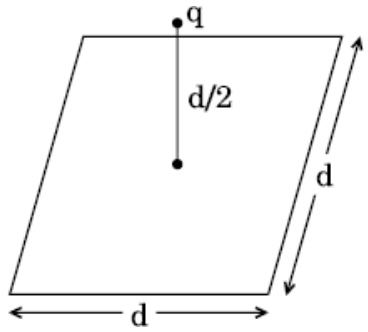
OR

(A) Three point charges q, – 4q and 2q are placed at the vertices of an equilateral triangle ABC of side 'l' as shown in the figure. Obtain the expression for the magnitude of the resultant electric force acting on the charge q.



(B) Find out the amount of the work done to separate the charges at infinite distance. **(3)**

2. **(a)** Define electric flux. Is it a scalar or a vector quantity ? A point charge q is at a distance of d/2 directly above the centre of a square of side d, as shown in the figure. Use Gauss' law to obtain the expression for the electric flux through the square.



(b) If the point charge is now moved to a distance 'd' from the centre of the square and the side of the square is doubled, explain electric flux will be affected. how the the electric flux will be affected. **(5)**

OR

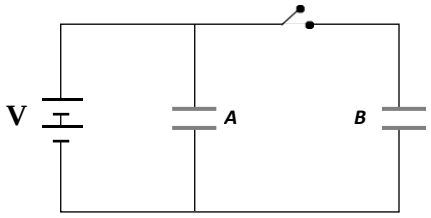
(a) Use Gauss' law to derive the expression for the electric field ( ) due to a straight uniformly charged infinite line of charge density C/m.

(b) Draw a graph to show the variation of E with perpendicular distance r from the line of charge.

(c) Find the work done in bringing a charge q from perpendicular distance r_1 to r_2 ($r_2 > r_1$). **(5)**

CBSE 2017

1. Two identical parallel plate capacitor A and B are connected to a battery of V volts with the switch S closed. The switch is now opened and the free space between the plates of the capacitors is filled with a dielectric of dielectric constant K. Find the ratio of the total electrostatic energy stored in both capacitors before and after the introduction of the dielectric.



2. **(a)** Derive an expression for the electric field E due to a dipole of length '2a' at a point distance r from the centre of the dipole on the axial line.

(b) Draw a graph of E versus r for .

(c) If the dipole were kept in a uniform external field E_0 , diagrammatically represent the position of the dipole in stable and unstable equilibrium and write the expression for the torque acting on the dipole in both case.

OR

(a) Use Gauss's theorem to find the electric field due to a uniformly charged infinitely large plane thin sheet with surface charge density

(b) An infinitely large plane thin sheet has a uniform surface charge density . Obtain the expression for the amount of work done in bringing a point charge q from infinite to a point, distance r , in front of the charged plane sheet.

CBSE 2016

1. Find the expression of electric field due to charge spherical shell. Plot the graph of electric field with distance from the centre of the shell.

2. What is the amount of work done in moving a point charge Q around a circular arc of radius 'r' at the centre of which another point charge 'q' is located ?

3. (a) Distinguish , with help of a suitable diagram , the difference in the behaviour of a conductor and a dielectric placed in external electric field. How does polarised dielectric modify the original external field? (b)A capacitor of capacitance C is charged fully by connecting it to a battery of emf E. It is then disconnected from the battery. If the separation of plates of the capacitor is now doubled, how will the following change

(i) charge stored by the capacitor.

(ii) Field strength between the plates.

(iii) energy stored by the capacitor. Justify your answer in each case.

OR

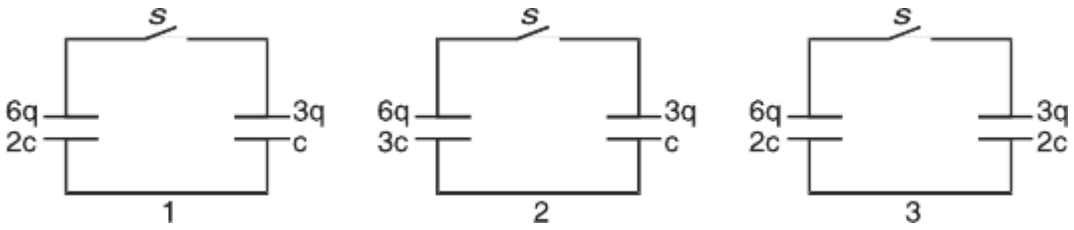
(a) Explain why , for any charge configuration, the equipotential surface through a point is normal to the electric field at that point.
Draw a sketch of equipotential surface due to a single –q charge, depicting the electric field lines due to the charge.

(b) Obtain the expression of work done to dissociate the system of three charges , and are placed at the vertices of an equilateral triangle of side 'a'

CBSE 2015

1. Define dielectric constant of a medium. What is it's S.I unit?

2. Figure shows three circuits. Each consisting of a switch and two capacitors initially charged as indicated. After the switch has been closed, in which circuit (if any) will the charges on the left hand capacitor (i) increase (ii) decrease (iii) remain same?



3. **(a)** State gauss's law in electrostatics. Show that, with the help of a suitable example along with the figure , that the outward flux due to a point charge 'q' , in vacuum with in a closed surface, is independent of it's

size or shape and is given by . —

(b) Two parallel uniformly charged infinite plane sheets , '1' and '2' have charge densities and respectively. Give the magnitude and direction of the ne electric field at a point

(i) in between the two sheets

(ii) outside near the sheet '1'

4. **(a)** Define electrostatics potential at a point . Write it's S.I unit?
Three point charges q_1 ,q_2 and q_3 are kept at vertices A, B and C of triangle respectively. Derive the expression for the electrostatics potential energy of system. If AB = r_{12} , BC = r_{23} and AC = r_{13}

(b) Depict the equipotential surface due to

(i) an electric dipole

(ii) two identical positive charges separated by a distance

CBSE 2014

1. Why do the electrostatic field lines not form closed loops?

2. 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.

3. Draw a labeled diagram of Van of Graaff generator. State its working principle to show how by introducing a small charged sphere into a larger sphere, a large amount of charge can be transferred to the outer sphere. State the use of this machine and also point out its limitations.

OR

(a) Deduce the expression for the torque acting on dipole of dipole moment P in the presence of a uniform electric field E.

(b) Consider two hollow concentric spheres, and enclosing charges 2Q and 4Q respectively. (i) Find out the ratio of the electric flux through them. (ii) How will the electric flux through the sphere change if a medium of dielectric constant is introduced in the space inside in place of air? Deduce the necessary expression.

CBSE 2013

1. Two charges of magnitudes-3Q and +2Q are located at points (a,0) and (4a,0) respectively. What is the electric flux due to these charges through a sphere for radius '5a' with its centre at the origin?

2. A slab of material of dielectric constant K has the same are as that of plates of a parallel pate capacitor but has the thickness d/3, where d is the separation between the plates. Find out the expression for its capacitance when the slab is inserted between plates of the capacitor.

3. **(a)** Define electric dipole moment. Is it a scalar or a vector? Derive the expression for the electric field of dipole at a point on the equatorial plane of the dipole.

(b) Draw the equipotential surface due to an electric dipole. Locate the points where the potential due to the dipole is zero.

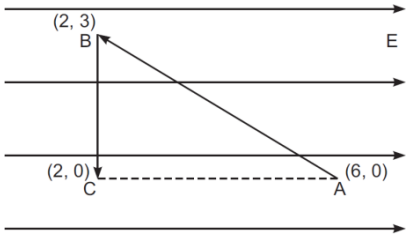
OR

Using Gauss' law deduce the expression for the electric field due to a uniformly charged spherical conducting shell of radius RT at a point (i) outside and (ii) inside the shell. Plot a graph showing variation of electric field as a function of r (r being the distance from the centre of the shell)

CBSE 2012

1. A charge 'q' is placed at the centre of a cube of side l. What is the electric flux passing through each face of the cube?

2. 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. (i) Calculate the potential difference between A and C. (ii) At which point (of the two) is the electric potential more and why?



3. An electric dipole is held in a uniform electric field. Show that the net force acting on it is zero. The dipole is aligned parallel to the field. Find the work done rotating it through the angle of 180^0

4. Deduce the expression for the electrostatic energy stored in a capacitor of capacitor 'C' and having charge 'Q'. How will the (i) energy stored and (ii) the electric field inside the capacitor be affected when I completely filled with a dielectric material of dielectric constant 'K'?

CBSE 2011

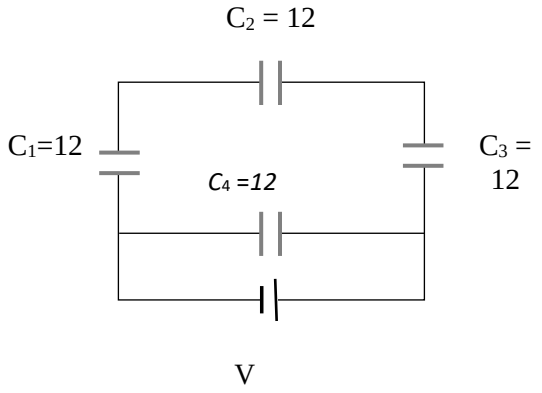
1. A hollow metal sphere of radius 10 cm is charged such that the potential on its surface is 5 V. What is the potential at the centre of the sphere?
2. Define electric dipole moment. Write its S.I. unit.
3. Net capacitance of three identical capacitors in series is 2pF. What will be their net capacitance if connected in parallel? Find the ratio of energy stored in the two configurations if they are both connected to the same source.
4. Plot a graph showing the variation of coulomb force F verses

   —— ,where r is the distance between the two charges of each pair of charges: (1) and (2). Interpret the graphs obtained.

5. A thin straight infinitely long conducting wire having charge density is enclosed by a cylindrical surface of radius r and length / , its axis coinciding with the length of the wire. Find the expression for the electric flux through the surface of the cylinder.

CBSE 2010

1. Name of the physical quantity whose S.I. unit is JC^{-1} . Is it a scalar or a vector quantity?
2. A spherical conducting shell of inner radius and outer radius has a charge 'Q'. A charge 'q' is placed at the centre of the shell.
   (a) What is the surface charge density on the (i) inner surface, (ii) outer surface of the shell?
   (b) Write the expression for the electric field at a point x> from the centre of the shell.
3. Show that the electric field at the surface of a charged conductor is given by E = , where is the —— surface charge density and is a unit vector normal to the surface in the outward direction.
4. A network of four capacitors each of 12 capacitance is connected to a 500 V supply as shown in the figure. Determine (a) equivalent capacitance of the network and (b) charge on each capacitor. 12



CBSE 2009

1. What is the work done in moving test charge q through a distance of 1 cm along the equatorial axis of an electric dipole?
2. Draw 3 equipotential surfaces corresponding to a field that uniformly increases in magnitude but remains constant along Z-direction. How are these surface different from a constant electric field along Z- direction?
3. Define electric flux. Write its S.I. unit.

   A charge q is enclosed by a spherical surface of radius R. If the radius is reduced to half, how would the electric flux through the surface change?

4. Use Gauss's law to derive the expression for the electric field between two uniformly charged large parallel sheets with surface charge densities and – respectively.

OR

(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' 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 flows if they are connected by a conducting wire? Name the device which works on this fact?

CHEMISTRY

1. Do all questions of unit 9 Halo-alkane, haloarene (Organic chemistry).
2. Make project on any of these topics for CBSE final examination in 10 to 12 sheets
    - Different content in cold drinks
    - Different content in toothpaste.
    - Different content in fruit juices.
    - Different contents of banana like carbohydrate, protein, starch, calcium etc.
    - Project on analysis of fertilizers.
    - Amount of caffeine in tea.

BIOLOGY

Assignment -1

HUMAN REPRODUCTION

Q.1 What is the function of scrotum?
Q.2 What are the functions of male germ cells,sertoli cells and leydig cells?
Q.3 What is the function of epididymis?
Q.4 Name the three male accessory glands and their functions.
Q.5 Where does fertilisation take place in humans?
Q.6 Write the functions of fimbriae,endometrium and myometrium.
Q.7 Define spermiogenesis and spermiation.
Q.8 What is the role of FSH and LH in spermatogenesis?
Q.9 Differentiate between spermatogenesis and oogenesis.
Q.10 Schematically represent spermatogenesis and oogenesis.
Q.11 Draw a well labelled diagram of human sperm. Also mention the function of each part.
Q.12 What is the identifying feature of a tertiary follicle?
Q.13 At which stage is primary oocyte and secondary oocyte temporarily arrested?
Q.14 What is a graafian follicle?
Q.15 Explain the different phases of menstrual cycle and its hormonal regulation.
Q.16 When does a secondary oocyte complete its second meiotic division?
Q 17 What is implantation? Explain the key events after fertilisation up to implantation.
Q.18 What is the identifying feature of a blastocyst?
Q.19 What is placenta? How does it acts as an endocrine tissue?
Q 20 What are the various features of embryonic development at various months of Pregnancy?
Q 21 What is the function of oxytocin and relaxin?
Q 22 Define parturition and lactation.
Q.23 How is parturition achieved in human females?
Q 24 What is coloustrum? Why is breast feeding advised in initial periods of infant growth?
Q 25 What is foetal ejection reflex?

1. Complete the investigatory project as per C.B.S.E guidelines.
2. Complete the given assignments.
3. Revise the syllabus completed so far

Assignment -1

REPRODUCTIVE HEALTH

Q.1 Elaborate the terms:
a) GIFT b) ZIFT c) ICSI d) ET e) AI f) IUI
Q.2 What do you understand by ART ? How does ART help an infertile couple to have a child?
Q.3 What is amniocentesis? Why is it banned in India?
Q.4 What are the steps taken by government and non - government agencies in
order to set up a reproductively healthy society?
Q.5 What are the various methods to prevent conception?
Q.6 What is AIDS? Name its causative agent.
Q.7 What are the modes of transmission of HIV?
How can it be prevented?

ECONOMICS

ASSIGNMENT 1
UNIT-2 DETERMINATION OF INCOME AND EMPLOYMENT
1. Why aggregate supply is equal to national income?
2. Draw a diagram showing inflationary gap in case of equilibrium level of income is achieved by the economy. What are its implications? How the RBI can control inflationary pressure using various tools?
3. Why the income is not determined where aggregate demand is more than aggregate supply?
4. What is the meaning of break even point? Draw a consumption curve showing APC=1,
APC > 1 and APC < 1.
5. What can be the maximum and minimum value of MPC and why?
6. Define induced savings and induced consumption.
7. Outline the steps taken in deriving saving curve from the consumption curve. Use diagram.
8. Explain the working of investment multiplier with the help of numerical example.

ASSIGNMENT 2
UNIT-2 DETERMINATION OF INCOME AND EMPLOYMENT
1. Given the savings function, S= -500 + 0.2Y. Find consumption at income level of
(a)10,000 (b)20,000
2. Find income level at break even point if savings function is:
S= -1000 + 0.25Y
3. Find consumption level and income level if APC=0.8 and consumption function is
C= 5000 + 0.75Y
4. From the following information, compute equilibrium level of income.
C= 1000 + 0.6Y
I= 7000
5. If the savings function of an economy is S= -2000 + 0.25Y and autonomous investments
are Rs.10,000. Find:
a) Equilibrium level of income.
b) Consumption at equilibrium level of income.
c) Savings at equilibrium level of income.
d) Break even point.
6. From the following information, derive the consumption function as well as savings

function.
APC= 1.5 at income level of 20,000
MPC= 0.75
7. Find deflationary gap from the following information:
C= 5000 + 0.8Y

I= 20000
8. Find inflationary gap with the help of following information:
Autonomous consumption: 20,000
MPC: 0.8
Autonomous Investment: 50,000
Full employment level of income: 3,00,000
9. C= 2000 + 0.75Y
Present Income Level= 20,000
Addition in Investment= 5000
(a) Find new income level
(b) Find consumption level after change in investments.
10. Find addition in investments if level of income rises from 20,000 to 50,000. Given
C= 2000 + 0.75Y

POLITICAL SCIENCE

- Make notes on Chapters – 5,6,7,8 and 9 (Contemporary South Asia, International Organization, Security in Contemporary World, Environment and Natural Resources and Globalization).
- Learn and Revise the work done in school notebook.
- Take the last 10 years CBSE Board Question Papers and do the questions in a thin Register pertaining chapters 1 to 9 of the book 'Contemporary World Politics'.

HISTORY

Prepare an assignment with following details:

- The total length of the assignment should not be more than 15 pages of (A4 size) sheet.
- The assignment should be handwritten.
- The assignment should be developed and presented in this order

i) Cover page showing assignment details, student information, school, and year.
ii) Chapters with relevant headings.
iii) Summary and conclusions based on findings.

SUGGESTED TOPICS {Choose any two topics out of these}

- Town planning and artifacts of the Harappan civilisation.
- Mahabharata through the eyes of a reader.
- Revolt of 1857.
- Buddhism and Jainism.
- The partition in 1947- not just division of territory but also hearts.
- Understanding the Bhakti – Sufi movement in India.

SUBJECT: BUSINESS STUDIES

As per classroom discussion complete the task according to the groups divided.

Group1: Principles of management

Group 2: Consumer Protection

Group 3: Child Labour

Group 4: Marketing Management

SUBJECT: ACCOUNTANCY

Do the questions from the chapter given below:

Chapter: Accounting for Partnership Firms – Fundamentals

From Page no.2.85 - 2.97

Exercise Question No.- 28, 33, 34, 35, 36, 37, 38, 47, 51, 53, 57, 58, 62, 63, 34, 72, 75, 76, 78, 80, 82, 86, 88, 91.

SUBJECT: INFORMATICS PRACTICES

- Do the revision of all Java and Sql basic fundamentals and on the basis of your understanding, work on your project.
- Do all the research required to complete the project given to you.