Holiday Home Work (2017-2018)
Class-XII

Subject :- ENGLISH

Q.1 Write the review of 1-15 chapters of the Novel "The Invisible Man".

Q.2 Design a poster on "Digital India" or "Make in India".

Q.3 Write an article on any one of the following:

   (a) India and its Foreign policy

   (b) The future of Bio-tech in India

   (c) Demonetization- An aspect of Economic Reform

   (d) Challenges of a Teenage mind

Q.4 You are deeply concerned about the growing apathy of people towards eve teasing in local transports. Write a letter to The Editor of a Newspaper expressing your concern and suggesting ways to ensure Women safety and empowering them.

Subject:- Chemistry

1. Prepare project file on the allotted topic.

2. Learn tests for salt analysis(acid and basic radicals) from the chapter Qualitative analysis given in the lab practical manual.

3. Do the worksheets given.

Subject:- Biology

1. Prepare project file on the allotted topic.

2. Draw the diagrams of unit 1 reproduction in organisms.

3. .Do the worksheets given.

Subject:- Biotech

1. Prepare project file on the allotted topic.

2. .Do the worksheets given.

SUB:- PHYSICS

1. A small test charge is released at rest in an electrostatic field configuration. Will it travel along the electric field line passing through that point?
2. Two point charges +q and -q are placed at a distance d apart. What are the points at which the resultant field is parallel to the line joining the two charges?
3. Under electrostatic conditions, the excess charge on a conductor is uniformly spread over its surface. What is the shape of the surface?
4. Fig. shows electric field lines due to point charges q_1 and q_2 placed at points A and B respectively. Write the nature of charge on them?
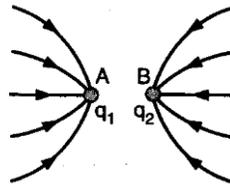

5. Fig. shows electric field lines due to point charges q_1 and q_2. What are the signs of q_1 and q_2. If the lines are drawn in proportion to the charge, what is the ratio q_1/q_2?
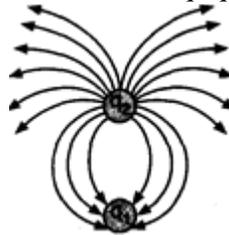

6. What is an ideal electric dipole?
7. Two protons A and B are placed between two
8. parallel plates having a potential difference V [Fig.] Will these protons experience equal or unequal forces?
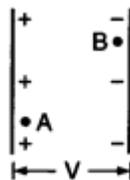
9. An electric dipole is placed in a uniform electric field. What is the net force acting on it?
10. If Coulomb's law involved $1/r^3$ dependence (instead of $1/r^2$), would Gauss's law be still true?
11. An electric dipole of dipole moment 20×10^{-6} C m is enclosed by a closed surface. What is the net flux coming out of the surface?
12. If the radius of the Gaussian surface enclosing a charge is halved, how does the electric flux through the Gaussian surface change?
13. Two charges of magnitudes +4Q and -Q are located at points (a, 0) and (-3a, 0) respectively. What is the electric flux due to these charges through a sphere of radius 2a with its centre at the origin?
14. A metalic sphere is placed in a uniform electric field. Which path is followed by the lines of force [Fig.]?
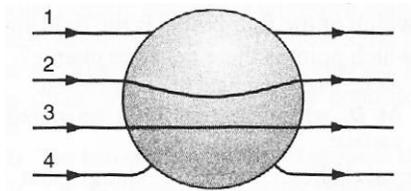
15. A small sphere carrying charge +Q is located at the centre of a spherical cavity in a large uncharged metal sphere [Fig.]. Use Gauss's theorem to find electric field at points P_1 and P_2.
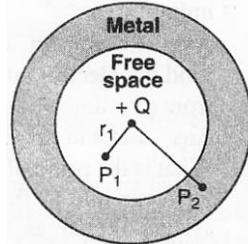
16. A charged plastic ball of mass 8.4×10^{-16} kg is found to remain suspended in a uniform electric field of 2.6×10^4 V/m. Calculate the charge on the ball. Given $g = 10$ m/s^2.
    [Ans. 3.2×10^{-19} C]

17. Two electric charges +q and +4q are placed at a distance of 6a apart on a horizontal plane. Find the locus of the point on the line joining the two charges where the electric field is zero.
    [Ans. 2a from charge q]

18. In a rectangular co-ordinate system, a charge of 25×10^{-9} C is placed at the origin of co-ordinates and a. charge of -25×10^{-9} C is placed at the point $x = 6$ m, y= 0. What is the electric field at: (a) $x = 3$ m, y = 0? (b) x = 3 m, y = 4 m?

    [Ans. (a) 50 N/C (b) 10.8 N/C]

19. Calculate the magnitude of the electric field which can just balance a deuteron of mass 3.2×10^{-27} kg.

    [Ans. 19.6×10^{-8} V/m]

20. Calculate the electric field strength required just to support a water drop of mass 10^{-7} kg and having a charge 1.6×10^{-19} C.
    [Ans. 6.125×10^{12} V/m]

21. Two point charges of 2μC and 8μC are placed 12 cm apart. Find the position of the point where the electric field intensity will be zero. **[Ans. 4 cm from 2μC charge, towards right]**

22. Two point charges of +16μC and -9 μC are placed 8 cm apart in air. Determine the position of the point at which the resultant electric field is zero. **[Ans. 24 cm to the right of -9μC charge]**

23. Two point charges of magnitude 2×10^{-7}C and 8.5×10^{-8}C are 0.1 m apart. Calculate the electric field intensity that each charge produces at the site of the other. **[Ans. 1.8×10^5 N/C, 7.65×10^4 N/C]**

24. Two fixed point charges $+4 \times 10^{-16}$ C and $+10^{-16}$ C are separated by a distance of 10 cm. Where should a third point charge q be placed for it to be in equilibrium?
    [Ans. 6.6 cm from $+4 \times 10^{-16}$ C]

25. Two charges +20μC and -20μC are placed 1 cm apart. Calculate the electric field at a point on the axial line at a distance of 20 cm from the centre of the dipole.
    [Ans. 4.5×10^5 N/C]

26. Two charges +20μC and -20μC are placed 1 cm apart. Calculate the electric field at a point on the equatorial line at a distance of 20 cm from the centre of the dipole.
    [Ans. 2.25×10^5 N/C]

27. (a) Calculate the maximum torque experienced by a water molecule whose electric dipole moment is

6.2×10^{-30} C m, when it is placed in an electric field of intensity 10^6 N/C. (b) Find the work that must be done to take a water molecule aligned with the above field and set it antiparallel to the field. **[Ans. (a) 6.2×10^{-24} Nm (b) 1.24×10^{-23}J]**

28. Two charges of $+0.2\mu\mu$ C and $-0.2\mu\mu$C are placed 10^{-6} cm apart. Calculate electric field at an axial point at a distance of 10cm from their middle point.
    [Ans. 3.6×10^{-8} N/C]

29. An electric dipole of length 10 cm having charges $\pm 6 \times 10^{-3}$ C, placed at 30° with respect to a uniform electric field, experiences a torque of $6\sqrt{3}$ Nm. Calculate : (a) magnitude of electric field (b) the potential energy of the dipole.
    [Ans. (a) $2\sqrt{3} \times 10^4$N/C (b) -18 J]

30. An electric dipole is placed at an angle of 60° with an electric field of intensity 10^5 N/C. It experiences a torque equal to $8\sqrt{3}$ N m. Calculate : the charge on the dipole, if dipole length is 2cm. .
    [Ans. 8×10^{-3}C]

31. An electric dipole of length 2 cm is placed with its axis making an angle of 30° to a uniform electric field of $10\sqrt{3}$ N/C. If it experiences a torque of $10\sqrt{3}$ N m, calculate: (a) magnitude of charge on dipole and (b) potential energy of dipole.
    [Ans. (a) $\sqrt{3} \times 10^{-2}$ C (b) - 30 J]

32. Three charges, +q, +q and -2q are placed at the vertices of an equilateral triangle. What is the dipole moment of the system? **[Ans. $\sqrt{3}$qa,along bisector of angle at -2q]**

33. Suppose that two small surfaces of equal areas are drawn in an electric field, one a plane surface passing through a point A and perpendicular to field lines there and other a spherical surface passing through a point B. Suppose that 9 lines pass through the plane surface and 72 pass through the spherical surface. If the strength of the field at A is 200 N/C, what is it at B?
    [Ans. 1600 N/C]

Subject:- I.Pr.

Prepare the soft copy of CBSE prescribed project work of java for practical exams. The details of it has already been discussed in the class .

Subject: Mathematics

Revise the Chapter 1,2 ,3and 4. Do the practice questions from P.K.Garg or other reference book.

Subject: Psychology

- Record an in depth Mental Status Examination(MSE).
- Students are required to choose a patient, whom you want to do a MSE. The patient suffer from learning disorder/should be a mentally retarded patient or should suffer from any psychiatric disorder.
- Take only those disorders which are mentioned in your syllabus.

Take a field visit to any Psychiatric center, hospital or Psychologist's clinic.