# Loyola Convent School, Ranchi HOME ASSIGNMENT FOR CLASS -XII

(23rd March, 2020 To 14th April, 2020)

### Subject: Physics (NCERT Book-1)

## Chapter-1 Electric Charges and Fields

# Week -1 [23<sup>rd</sup> March to 28<sup>th</sup> March]

- 1. What is Electrostatics? [ hint-page no-1, Introduction]
- 2. What is electric charge? is it scalar or vector quantity? Name its SI unit. [ hint-page no-2, 3<sup>rd</sup> paragraph]
- 3. Define the term polarity of charge and what are the basic properties of electric charge? [hint-page no-2, 3<sup>rd</sup> & 4<sup>th</sup> paragraphs]
- Write the name of scientist who named the electric charge as positive and negative? [ hint page no-3, 1<sup>st</sup> paragraph]
- 5. What is a gold leaf electroscope? Write its use and draw a labeled diagram. Explain how it works. [hint page no: 3 last paragraph and page no 4 -1<sup>st</sup> and 2<sup>nd</sup> paragraphs]
- 6. How we can electrify /charge a neutral body [page no-4 last paragraph]
- 7. When we say that a neutral body get positively charged and negatively charged [ hint-page no 5- 1<sup>st</sup> paragraph]
- 8. Define the terms conductors and insulators [hint-page no-5- 2<sup>nd</sup> paragraph]
- 9. Explain the term grounding or earthing. [hint-page no-5-last paragraph, page no-6-1<sup>st</sup> paragraph]
- 10. What is the importance of grounding or earthing? [hint-page no-6-1<sup>st</sup> paragraph]
- 11. Explain the term charging by induction. [ hint-page no-6 , topic 1.4, steps (i) to (iv) with fig. no-1.4]
- Example 1.1 How can you charge a metal sphere positively without touching it?
   [hint –page no-7]

# Week -2 [30<sup>th</sup> March to 4<sup>th</sup> April]

- 13. Explain basic properties of electric charge. [ page -no-08, topic no-1.5, 1.5.1, 1.5.2, 1.5.3]
- 14. State coulomb's law of electrostatics and write its mathematical formula in vector form? [ hint -topic no-1.6, page no- 10, 11, and 12]
- 15. Define the term permittivity of free space and write its value [hint -topic no-1.6, page no- 11, ]
- 16. Example 1.4 Coulomb's law for electrostatic force between two point charges and Newton's law for gravitational force between two stationary point masses, both have inverse-square dependence on the distance between the charges/masses. (a) Compare the strength of these forces by determining the ratio of their magnitudes (i) for an electron and a proton and (ii) for two protons. (b) Estimate the accelerations of electron and proton due to the electrical force of their mutual attraction when they are 1 Å (= 10-10 m) apart? (mp = 1.67 × 10–27 kg, me = 9.11 × 10–31 kg) [hint –page no-13, based on coulomb's law]

- 17. Example 1.5 A charged metallic sphere A is suspended by a nylon thread. Another charged metallic sphere B held by an insulating handle is brought close to A such that the distance between their centres is 10 cm, as shown in Fig. 1.7(a). The resulting repulsion of A is noted (for example, by shining a beam of light and measuring the deflection of its shadow on a screen). Spheres A and B are touched by uncharged spheres C and D respectively, as shown in Fig. 1.7(b). C and D are then removed and B is brought closer to A to a distance of 5.0 cm between their centres, as shown in Fig. 1.7(c). What is the expected repulsion of A on the basis of Coulomb's law? Spheres A and C and spheres B and D have identical sizes. Ignore the sizes of A and B in comparison to the separation between their centres. [hint-page no-14 to 15]
- 18. Explain the term principle of superposition of electrostatic forces (force on a charge due to multiple nearby charges). [ hint- topic no-1.7, page –no- 15 to 16, last and 1<sup>st</sup> paragraphs respectively]
- 19. Examples 1.6 and 1.7 [page no- 14 to 16]

# Week -3 [6<sup>th</sup> April to 14<sup>th</sup> April]

# EXERCISES [hint page no-47-use the learned concept and formulae to solve these problems, specially coulomb's law formula and principle of superposition of electrostatics forces]

- 20. 1.1 What is the force between two small charged spheres having charges of  $2 \times 10-7C$  and  $3 \times 10-7C$  placed 30 cm apart in air?
- 21. 1.2 The electrostatic force on a small sphere of charge 0.4  $\mu$ C due to another small sphere of charge –0.8  $\mu$ C in air is 0.2 N. (a) What is the distance between the two spheres? (b) What is the force on the second sphere due to the first?
- 22. 1.3 Check that the ratio ke2 /G memp is dimensionless. Look up a Table of Physical Constants and determine the value of this ratio. What does the ratio signify?
- 23. 1.4 (a) Explain the meaning of the statement 'electric charge of a body is quantised'. (b) Why can one ignore quantisation of electric charge when dealing with macroscopic i.e., large scale charges?
- 24. 1.5 When a glass rod is rubbed with a silk cloth, charges appear on both. A similar phenomenon is observed with many other pairs of bodies. Explain how this observation is consistent with the law of conservation of charge.
- 25. 1.6 Four point charges  $qA = 2 \mu C$ ,  $qB = -5 \mu C$ ,  $qC = 2 \mu C$ , and  $qD = -5 \mu C$  are located at the corners of a square ABCD of side 10 cm. What is the force on a charge of 1  $\mu$ C placed at the centre of the square?
- 26. 1.11 A polythene piece rubbed with wool is found to have a negative charge of 3 × 10–7 C. (a) Estimate the number of electrons transferred (from which to which?) (b) Is there a transfer of mass from wool to polythene?
- 27. 1.12 (a) Two insulated charged copper spheres A and B have their centres separated by a distance of 50 cm. What is the mutual force of Electric Charges and Fields 47 electrostatic repulsion if the charge on each is 6.5 × 10–7 C? The radii of A and B are negligible compared to the distance of separation. (b) What is the force of repulsion if each sphere is charged double the above amount, and the distance between them is halved?

#### Week 1

Ch1. Reproduction in organisms.

1.which is better mode of reproduction : sexual or asexual? Why ? (pg 8 NCERT)

2.what is vegetative propagation? Give two suitable examples.( pg 6 NCERT)

3. Higher organisms have resorted to sexual reproduction in spite of its complexity. Why? (Pg 9 NCERT)

4. Why are offspring of oviparous animals at a greater risk as compared to offspring of viviparous animals. (pg 14 NCERT)

5 Draw following diagrams :

A. Fig 1.2 a, b (pg 5 NCERT)

B. Fig 1.3 (pg 6 NCERT)

C. Fig 1.4 ( pg 7 NCERT)

D. Fig 1.5 (pg10 NCERT)

#### Week 2

Ch. 5 Principles of inheritance and variation.

1.what do you understand by test cross? Design a test cross. (Pg 75 NCERT)

2.what is incomplete dominance ? Give example. (Pg 76 NCERT)

3. How does the gene 'I' control ABO blood groups in humans? Write the effect the gene has on the structure of red blood cells. (Pg77 NCERT)

4.who proposed chromosomal theory of inheritance ? Point out any two similarities in the behaviour of chromosomes and genes. (Pg 81 NCERT )

5. Draw the following diagrams :

A. Fig 5.1 (pg 70 NCERT )

B. Fig 5.2 (pg 71 NCERT)

C.Fig 5.5 (pg 75 NCERT)

#### Week 3

- Ch. 5 Principles of inheritance and variation.
- 1. Explain mechanism of sex determination in birds.(pg 85 NCERT)
- 2. What is pedigree analysis? Suggest how such analysis can be useful.( pg 87 NCERT)
- 3.Explain the following Mendelian disorders: (pg 89 NCERT)
- A.Haemophilia
- B.Sickle cell anaemia
- 4. Explain the following chromosomal disorders: (pg 91 NCERT)
- A. Down's syndrome
- B. Klinefelter' syndrome
- C. Turner's syndrome
- 5.Draw the fillowing diagrams :
- A. Fig 5.9 ( pg 82 NCERT)
- B. Fig 5.11 (pg 84 NCERT)

#### Home assignment for class -XII, Chemistry,

#### Work for 23rd March to28th March:

1.Discuss the types of solutions (Table-2.1,page-36)with examples.2.Define the different terms to express the concentration of solutions:(a)W/w,(b)V/V,(c)w/v(d)ppm,(e) Mole fraction (f)molarity(g)molality,define them and write their formulas,

#### Work for 30th March to 4th April:

1.Solve:a.Intext questions solved\_2.1,2.2,2.3,& b.Intext questions unsolved:2.1 to 2.5 (page\_39). 2.Discuss the Henry's law & express it as contemporary of Dalton's law.3.Write the application of Henry law.4.Solve:a.Intext questions solved\_2.4. & Intext questions unsolved\_2.6 to 2.7 (page-43)

#### Work for 6th April to 14th April:

1.State Raoult's law and Raoult's as a special case of Henry's law, solve intext solved question 2.5.2.Discuss the Ideal solutions and Non ideal solutions .3.Solve, Ex questions 2.1 to 2.5 (exercise questions).4.Do intext questions solved:10.1 &10.2, and intext questions unsolved 10.1 -All from chapter 10, NCET book -II (Haloalkanes & Haloarenes)

#### **Holiday Home Work**

# Class 12<sup>th</sup>, English

#### Date: 23rd to 27th March

Literature: Flamingo: Read chp-1 & write the summary of the chapter.

Writing: Design a poster inviting people to an E- learning Fair.

#### Date: 30th March to 3rd April.

Literature: Vistas: Chp-1. Read the Chp & write its summary.

Writing: Draft a matrimonial advertisement for a convent educated Punjabi Khatri girl, inventing relevant particulars in about 50 words.

#### Date: 6th to 14th April.

Literature: Flamingo: Chp-2 (poem-1) Read the poem & write its summary.

Writing: Your thinking is different from your parents about food, films and lifestyle. Prepare a speech on "Generation Gap- A Myth or Reality" in about 100-120 words. You are Hema/ Hemant.

SUB: Mathematics ( class 12th) Home ASN' greenent CLASSMATE 238d March to 30 Harch Э Show that the Relation R in the set 2 & integers given by 4 1. R= { (a, b): 2 divides a-b} is an equivalence 3 3 Relation 3 3 Show that the Relation R in R defined as R= { (a,b): a 56} 2. 3 no reflexine and to any fine but not symmetric. 3 29 that A be the set & all lines in my plane and that R be a 3 23 held fion in A defined by R= { (L, L2) : 2, 11 22 } Show that K is an 10 and equivalence relation in A. Find the set of all lines 3 related to the line y: 3215 2.3 4' alt S be the set of all real Numbers and Ket R be a relation 3 in S defined by R= { (a,b) ' a < b2}. Show that R satisfies 3 - none Z peflexinity. Symmetry and to annitivity. 2 3 3 but N be the set of all Natural Numbers and but R 5 3 be a Relation in N defined by R= { (a,b): a ne multiple 2 b} -3 -3 Show that R is put the kine and to any the but not sy methic 6. Kit A = {xcz: 0 < x ≤ 12} Show that R = { [a,b): [ab] in ma multiple fys is is reflexine III) Symmetric III) to annitime. Find the set of elements related to 1.

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CLASSMALE BIMACH to 6th April 13 777777777777777 poor that the function f: R > R, f(2) = 22 m are are 1. and outo. 2. Show that f! M-SN ginen by -foo: (acti. if xmodd 2-1 if x in even in both one-are and arto. 3' Check the injectivity and Shrietivity & the tollohing function (a) f: NAN; for ... n2 (b) f: Z>z ; f(z)= 22 (c)  $f: R \rightarrow R$ ;  $f(x) = \chi^2$ (d) f: N->N; fcx): 23 e f: 2->2; f(x):x2 dit A = R- 33 and B = R- 213 cavider the function 4. f: A>B defined by fox = (x-2) is f are and anto Justify' Find the principal value of the towning 5 (a) Sint (-12) (b) cost (53) (c) coseet (2) (d) tark (53) (e) cost (-1) f tent (-1)

6 Show that  
(a) Sivil 
$$\frac{1}{2}$$
: conset  $\chi$   $\chi \ge 1\pi - \frac{1}{2}$   
(b)  $\cos^{1} \frac{1}{2}$ :  $\sin^{1} \pi$   $\chi \ge 1\pi - \chi \le 1$   
(c)  $+\pi - \frac{1}{2} = e^{-1}\pi$ ,  $\chi \ge 0$   
(d)  $\sin^{1}(-\pi) = -\pi - \cos^{1}\pi$ ,  $\pi \in [-1, 1]$   
(e)  $\cos^{1}(-\pi) = \pi - \cos^{1}\pi$ ,  $\pi \in [-1, 1]$   
(f)  $\sin^{1}\pi + \cos^{1}\pi = \pi/2$ ,  $\pi \in [-1, 1]$   
(g)  $+\cos^{1}\pi + \pi - \frac{\pi}{2}$ ,  $\pi \in [-1, 1]$   
(g)  $+\cos^{1}\pi + \tan^{1}\pi + \tan^{2}\pi + \pi - \frac{\pi}{2}$   
(g)  $+\cos^{1}\pi + \tan^{1}\pi + \tan^{2}\pi + \tan^{2}\pi + \frac{\pi}{2}$   
(g)  $e^{\chi} p \ge 1 + \tan^{-1}\frac{2}{\pi} + \tan^{-1}\frac{2}{\pi} = -4\pi^{-1}\frac{2}{\pi}$   
(g)  $e^{\chi} p \ge 1 + \tan^{-1}\frac{2}{\pi} - \pi^{-1}(-\frac{1}{2})^{2}$   
(g)  $h^{1}\pi^{1}h^{1}h^{1}\pi^{0}(0)$   
(g)  $h^{1}\pi^{1}h^{1}\pi^{0}(0)$   
(g)  $h^{1}\pi^{1}h^{1}\pi^{0}(0)$   
(g)  $h^{1}\pi^{1}\left[2\cos^{1}\frac{\pi}{2}\right]$   
(h)  $p^{1}\ln\left[2\cos^{1}\frac{\pi}{2}\right]$   
(h)  $p^{1}\ln\left[2\cos^{1}\frac{\pi}{2}\right]$   
(h)  $p^{1}\ln\left[2\cos^{1}\frac{\pi}{2}\right]$   
(h)  $p^{1}\ln\left[2\cos^{1}\frac{\pi}{2}\right]$   
(h)  $p^{1}\ln\left[2\cos^{1}\frac{\pi}{2}\right] = -\frac{\pi}{2}$   
(h)  $\sin^{1}\pi^{1}e^{\chi} + \tan^{1}3\pi = \frac{\pi}{2}$   
(h)  $\sin^{1}\pi^{1}e^{\chi} + \tan^{1}3\pi = \frac{\pi}{2}$   
(h)  $\sin^{1}\pi^{1}e^{\chi} + \tan^{1}\left(\frac{\cos^{1}\pi}{\cos^{1}\pi^{1}m^{1}}\right) = (\pi_{1}-\pi); \pi < \pi$ 

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(5) CLASSMALE 1 222 provethal taut (J1+22 + J1-22) = 74 + 1 costn2 (1+22 - J1-22) = 74 + 2 costn2 13 provided Cos [tau" [sin (cotin)] - [n'+1] 14. 2 15 The April to 14th April construct 2×2 matrin A: [ais] - whose elements are 1. 3 3 given by (i) ais = liti) 2 (i) ais = 1 .....  $(1^{n})$   $Q_{13} = (1+2)^{2}$ -2. Find the value of 2, yard 2 from -7+y 2 - 6 2 5+z xy - 58Find the No Z all possible materices Z order 3x3 Thick entry 3. are and 1 -Jb A = 80 and B= 2-2 then find matrix X 4 36 Such that 2 A+3X=5B

5. simplify 
$$Coop \begin{bmatrix} cno & sind \\ -nino & coo \end{bmatrix} + nino \begin{bmatrix} sind & -coop \\ cno & nino \end{bmatrix}$$
  
6. Find X if  $Y = \begin{bmatrix} 3 & 2 \\ 1 & y \end{bmatrix} = \begin{bmatrix} 2 & 0 \\ 1 & y \end{bmatrix} = \begin{bmatrix} 2 & 0 \\ -3 & 2 \end{bmatrix}$   
7. Given  $3\begin{bmatrix} x & y \\ -2 & 0 \end{bmatrix} = \begin{bmatrix} 2 & 0 \\ 1 & 2 & y \end{bmatrix} + \begin{bmatrix} 4 & xry \\ 2tw & 3 \end{bmatrix}$  find the Value  $z$   
 $3t, 4, 2$  and  $W$   
8. Find  $A^2 = SA + 6i = 1$   $A = \begin{bmatrix} 2 & 0 & 1 \\ 2 & 1 & 3 \\ 1 & -1 & 0 \end{bmatrix}$   
9.  $3f = A = \begin{bmatrix} 0 & -ton & x \\ ton & x \end{bmatrix}$  and I no the gden fitty matrix  $z$   
 $or dur 2, Show that I + A = (I - A) \begin{bmatrix} coox & -nind \\ nind & cox \end{bmatrix}$   
10.  $Q \times press the matrix  $A = \begin{bmatrix} 2 & -2 & -4 \\ -1 & 3 & 4 \end{bmatrix}$  as the flow  $z$$ 

Symmetrie and skew symmetrie matrix.

In Find the inverse bring elementry sou operation

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277777777 1 CLASSMALE Date Evaluate 2 4 (11) 2-2+1 2-1 (1) -5-1 (11) 2+1 2+1 12. 13 9 A= [101 0 1 2 then Show that 3A = 27 A -77 0 04 77 14. hsing opsoperties of determinant prove that 77777777777 (0)a 'atb atbtc  $= a^3$ 26 39+26 49+36+2C 39 66+36 109+66+36 b+c Q (6) a Ь 6+9 6 - yabc 9th C 1 1+0 ١ ۱ (C) 1 Itc x x2 (d)  $|x| = (1 - x^3)^2$ 72  $\chi^2$  1 n 0

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(c) If 
$$A = \begin{bmatrix} 2 & -3 & 5 \\ 3 & 2 & -4 \\ 1 & 1 \end{bmatrix}$$
 Find the formulation of the formulation

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CLASSMALE Defterentiate the following Worf 2 () (a) pinn3 (b) cos3 x (c) tou5x d (axtb)m (e) (2x13,5 (2) Jar2+26x1e 18) 1-101 (R) 1 (l) sinleisn2) (1) sin printena 1Ky 3 Ainon D J J = etcor find dydr 2 OB 7: log tax find doldz 3 Jog - leg log no find dyld. J. J. J. log log no find dyld. J. J. log sint find dyld. J. log sint find dyld. 3 Jog - Very find ayor O It y: log log y3 find dy/dx a. It my - ex log (sinza) find dolder DIGJ: log It Ainin find doldz 10 R J: Mi+1 - log 5 t + 1+ t2 { find dy/dy

Accountancy)

Week-1

Chapter :- Accounting of NPO:-1) What is a Not-boz- Profit Organisation. ② Crive 2 examply of NPU €. State the main alm of NPO.  $(\mathfrak{I})$ ூ State the 2 characteristics of NPO. ( What are subscriptions ? 6 What is Endowment Fund 7 Distinguish blu Receipts and Payment A/C & Income and enfenditur A/C. Stylain the bollowing terms: a) ratify 0 1 as capital fund. b) Ligacy. <) specific fund. d) Donchions. Week - 2 Chapter 2 -> Fundamental of Portnership firms: -O State the Liddility of a partner in a partmenship from. @ what is meant by mutual agency in case of partnership? (5) What is moant by "Unlimited Lidbility of a Partner"? 4) What is the maximum number of partners in a partnership firms 5) Define : a) fixed copy tal A/C b) Fluctuating rapital P/K

is Partners ament A/c

I what is the Perpose of allowing interest on rapital to partners!

aleek - 3 Chapter - 3 Change in PSR  $\mathcal{O}$ What is Reconstitution of Partnership firm ? What is change in PSR 1.
 What is sacrificing Ration.
 What is Gaining Nation. O Réfine noudwill. Cuille 2 characteristics of housduill.

BUSINESS STUDIES NCERT/VKPUB	1] )NS
Week-1 (23rd March to 28th March)	
Ch-1	
QU Prepare a note on management. (Pg-11)	
93 Mention some of the characteristics of Hanagement (Pg-14 (with flowchart)	J
(with slowchard) (19-11)	
Qy What do you understand by the Nature of Hanagement Ellobe	ovat
Weck-2 (30th March to 4th April)	
Q 5) Explain the various levels of management with examples.	i.
QG Explain the different functions of Management (1g-31)	
Q7) Prepare a note on Coordination (Pg-33)	
Meek-3 (6th April to 14th Appril)	-
Wick of the least was an importance of	23
(8) Mention some of the features or importance of coordination (Pg - 35, 36)	
<u>Ch-2</u> lovetour 1 hu "Houseon out Principles"	
Qq) What do you understand by management macipics	1
Principles. (19-53,54)	
Differentiate between Paylons & Fayols contributions	
(1) Disserviniare of their originales of Management.	
(Pg-90)	

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	CLASS - XII ECONOMICS (MACROECONOMICS) -V.K.PUBLICATION
Q1.)	NEEK - 1 [23 <sup>rd</sup> March to 28 <sup>th</sup> March Define Durable and Semi-durable goods with atleast five examples.
Q2·>	A car covering a distance of 300 km in 5 hours includes both stock as well as flow variable. Show the stock and flow variable in this statement.
<i>હ</i> રને	What do you know about the evolution of money? Give historical origin of money.
ઉત્ત∙ે	Explain the various forms of money with examples. WEEK-2 [30th March to 4th April]
Q5->	Explain C-C exchange. Also give examples of such exchange in C-C economy.
ଓ୧୬	What is the history of banks? Make a list of banks with their date of establishment in India.

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013> 99 CRR is scrapped as a legal requirement, do you think the banks can create unlimited amount of money supply?

(324) If Reserve Requirement = 25% of depositer, the credit multiplier = 10. state exhether it is true or galse. Give readons.

Oss. J. Liquid Assets include :as Unencombered approved securities. B) Cash c) Gold dy RU of these.

016) In India, who issues Coins and notes. Explain properly.