

DAV Public School, Ballabgarh
Summer Vacation Homework – Class X (Session 2020-21)

ENGLISH

- True Liberty is freedom from poverty, deprivation and all forms of discrimination.

-Nelson Mandela

Prepare a PPT on Nelson Mandela and his thoughts on Freedom. You can also include his contribution in the fight against Apartheid.

OR

Prepare a Graphic Organizer / Mind Map on MS Word on the above mentioned topic.

- Speaking assessment for ASL will be done on the basis of the presentation of PPT / Graphic Organizer once the school reopens*
- Read the following stories from Footprints without Feet and answer the questions that follow.
 - a) The Midnight Visitor (By Robert Arthur)
 - b) Footprints without Feet (By H.G.Wells)
 - c) A Question of Trust (By Victor Canning)

Q1 What qualities made Ausable a successful secret agent? (Word Limit - 80)

Q2 'Horace Danby was good and respectable but not completely honest.' Is this an apt description of Horace? Explain.
(Word Limit 120-150)

Q3 Describe the Lady in red. (Word Limit 100-120)

Q4 Griffins is a talented scientist but he misused his invention. The Lesson from his example is that the misuse of a scientific discovery can play havoc with humanity. Analyse the same on the basis of your reading of the story : 'Footprints Without Feet'. Give a suitable title to your write up.
(Word Limit 150-200)

(Integrated Grammar)

- **Pick out the correct answer from the given options and complete the paragraph (Cloze Test):**
 - a) The story is about a 50_____ (year/years) old man who makes locks and _____ (live / lived) with his housekeeper. He is a good citizen _____ (though/but) not an honest one as he commits a robbery every year. He plans his robberies in such a way that the money he gets

from there lasts him for at least a year and he is able to _____
(bought/buy) rare and expensive books with it.

- b) He planned to _____ (commit/committed) a robbery at a grange named Shotover Grange. He _____ (takes/took) all the information about the house like where the family had gone, how many servants _____ (are/were) there in the house, what was the name of the dog, the wiring in the house, the safe in the house and even information like how much worth of jewels were there _____ (at/in) the safe.
- c) Three days later, a police officer _____ (came/comes) and arrests him saying that his fingerprints had been found at the Shotover Grange. He _____ (now/then) realizes that he _____ (has been/had been) fooled by a lady who was herself a thief and from the same background as his. He is sent to the jail and becomes an assistant librarian. He feels angry whenever someone talks about honour among thieves as he had been cheated _____ (of/by) one from his own community.

श्रीषमावकाश गृहकार्य
कक्षा-दसवीं

प्र-1 स्पर्श व संचयन के पाठों को पूरा करें व याद करें।

स्पर्श - बड़े भाईसाहब, डायरी का एक पन्ना, तंतारा-वामीरी
कबीर, मीरा, पर्वत प्रदेश में पावस

संचयन - पाठ - 1 हरिहर काका

प्र-2 व्याकरण प्रवेश की पुस्तक में ही इस कार्य को करें -

समास - पेज नं० 185 से 188 तक

रचना के आधार - पेज नं० 168 से 171 तक

पर वाक्य भेद

प्र-3 आज कोरोना की बढ़ती समस्या ने देशवासियों को चिंतित कर दिया है। यह केवल एक देश की समस्या न होकर वैश्विक समस्या बन गई है। लोगों में इस के विरुद्ध जागृति फैलाने के लिए दैनिक समाचार पत्र के संपादक को पत्र लिखिए।

प्र-4 कोई दो विज्ञापन 114 मॉडल की शीट पर बनाये (सुन्दर व आकर्षक)

प्र-5 किसी एक विषय पर 80-100 शब्दों में अनुच्छेद लिखिए -

(I) सादा जीवन उच्च विचार (II) जल ही जीवन है।

प्र-6 'पर्वत प्रदेश में पावस' कविता के आधार पर एक पी० पी टी तैयार करें। (गतिविधि)

प्र-7 कोई दो दोहे सस्वर वाचन के साथ याद करें। (गतिविधि)

संस्कृत

1. अनुच्छेदलेखन- सत्संगति: अथवा अनुशासनम् में से किसी एक विषय पर संस्कृत में पाँच वाक्य लिखें।

2. चित्रवर्णन- प्राकृतिकस्थल अथवा गुरुकुलः/आश्रमः में से किसी एक पर पाँच वाक्य संस्कृत में लिखें (सचित्र)।

3. श्लोकपाठ- - पर्यावरणम्/व्यायामः से सम्बद्ध कोई तीन श्लोक अथवा कोई एक संस्कृत-गीत सस्वर स्मरणार्थ।

4. व्याकरण- सन्धि, समास, प्रत्यय, समयलेखन आदि कराया गया सम्पूर्ण व्याकरण स्मरण-अभ्यास हेतु।

नोट- उपर्युक्त में से 1 और 2 का कार्य A4 शीट पर अथवा कम्प्यूटर द्वारा सुन्दर ढंग से बनाकर प्रस्तुत करेंगे।

SOCIAL SCIENCE

- Do Project Work on Consumers Rights. (L-5 : Economics)
Project should be 15-20 pages with relevant images.
It should be hand written.
Do as directed by us.
- Do the following Art Integration Activity in Scrap book.
 - a) L-1: Eco- Find out your BMI
 - b) Do the following map-work in colourful way & paste it:
 - L-1 : Types of soil
 - L-3 : Major Dams with river
 - L-4 : Major producing regions of Crops like Rice, Wheat, Sugar cane, Cotton, Jute, Tea & Coffee
- L-3 : History : Make a collage highlighting Civil Disobedience Movement or Non Co-operation Movement.
- Learn Question-Answers of all lessons done for Pre-Mid Term exam

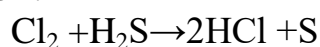
SCIENCE

CHEMISTRY

- Read and learn ch-1 & ch-2 (upto pH)taught for a class test.
- Do all intext qns. Of ch-2 and complete your class notes.
- Write experiment- 2. To study the properties of acid (HCl) and base (NaOH)
Experiment-3. To find pH of the given solutions
In your practical file.
- Do assignment given, in your chemistry copy.

Assignment Chapter– Chemical Reaction and Equation

1. Which substance act as reducing agent and an oxidizing agent in the following reaction?



(2)

2. A brown substance 'X' on heating in air forms a substance 'Y' when hydrogen gas is passed over heated 'Y', it again changes back into 'X'.

- (i) Name the substances X and Y
- (ii) Name the chemical processes occurring during the two changes.
- (iii) Write the chemical equations.

(2)

3. Aluminium or copper wire required for electricity are coated with a rubber like material.

Why?

(2)

4. What type of chemical reactions take place when :-

- (i) Sulphuric Acid is added into barium chloride solution
- (ii) Electric current is passed through water.
- (iii) Limestone is heated.
- (iv) Digestion of food occurs in the body.

(2)

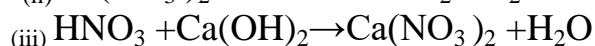
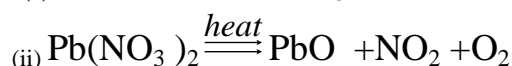
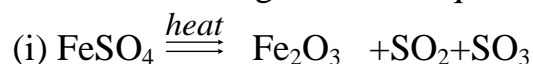
5. Taking the example of the following reaction, explain what important informations are conveyed by this balanced equations?

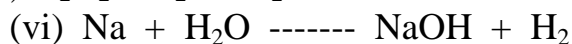
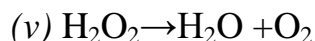
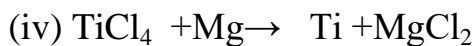


(2)

6. Why potato chips manufacturers filled the packets of chips with nitrogen gas?

7. Balance the following chemical equations :-





(3)

8. Express the following statements as chemical equations and then balance the equations :-

(a) Barium chloride reacts with zinc sulphate to produce zinc chloride and a precipitate a barium sulphate.

(b) Aluminium metal replaces iron from ferric oxide giving aluminium oxide and iron.

(c) Hydrogen sulphide gas burns in air to form water and sulphur dioxide.

(3)

9. Explain two effects of oxidation reactions in everyday life.

10. Anhydrous copper sulphate (CuSO_4) was dissolved in one beaker and hydrated copper sulphate ($\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$) was dissolved in another beaker. What heat changes do you expect in these beakers and why?

(3)

11. A green salt on heating decomposes to produce a colourless suffocating gas and leave behind a reddish brown residue. Name the salt and write the decomposition reaction. (3)

12. A housewife wanted her house to be white washed. She bought 10 kg of quick lime from the market and dissolved it in 30 litres of water. On adding lime to water, she noticed that the water started boiling even when it was not being heated. Give reason for her observation. Write the corresponding chemical equation and name the product formed. (3)

13. There are different types of chemical reactions occurring around us or being carried out for the benefit of mankind e.g. combination reactions, decomposition reactions, displacement reactions, precipitation reactions, neutralization reaction, reduction – oxidation (redox) reaction, photochemical reactions etc.

Now answer the following questions :-

(i) Combustion of coke is a combination reaction. CO_2 is not a pollutant. Then why is combustion of coke harmful?

(ii) Which decomposition reaction followed by combination reactions are involved in white wash of walls?

(iii) Give one example of photochemical reaction.

(3)

14. We have often seen that oily food if not used within a limited time gets stale and gives bad smell and become unfit for consumption. This is due to oxidation of oils and fats present in the food.

Now answer the following questions :-

- (i) On marriage or other celebrations, a lot of food goes waste. What methods do you suggest to prevent this wastage?
 - (ii) After preservatives are added to certain food stuffs so that they can stay consumable for a longer time but these preservatives are chemical which may be harmful, what alternatives do you suggest?
 - (iii) What method of preservation of food items should be followed at home?
- (3)

15. A large number of physical and chemical changes are taking place around us. Some of these are natural while some others are due to human activity. Some of these cause pollution. Answer the following questions :-

- (i) In early times, quick lime was used for white-wash. Now a days, use of paints has become very common. Do you think it is a better in all respects or you think it is not?
- (ii) Cooking of food is a chemical reaction. Cooking can be done using cow-dung cakes / wood or LPG cylinder or solar cooker or microwaves oven. Which one do you think is the best and why?
- (iii) What value is conveyed from the above?

(3)

Q16. A light sensitive compound 'X' of silver is used in black and white photography. On exposure to sunlight its color changes to grey. Identify X.

- (a) Write a chemical equation to express the above change.
- (b) Identify the type of chemical reaction.

Q 17. When potassium iodide solution is added to a solution of lead (ii) nitrate in test tube, a precipitate is formed.

- a) What is the color of this precipitate?
- b) Name the compound precipitated.
- c) Write the balanced chemical equation for this reaction.
- d) What type of reaction is this?

Q 18. Balance the equation-

- a) $P + HNO_3 \rightarrow H_3PO_4 + H_2O + NO_2$
- b) $NaOH + Cl_2 \rightarrow NaClO_3 + NaCl + H_2O$
- c) $Mg_3N_2 + H_2O \rightarrow Mg(OH)_2 + NH_3$
- d) $Ca_3P_2 + H_2O \rightarrow Ca(OH)_2 + PH_3$
- e) $C + H_2SO_4 \rightarrow CO_2 + SO_2 + H_2O$
- f) $Cu + HNO_3 \rightarrow Cu(NO_3)_2 + NO + H_2O$

Q 19. A metal nitrate 'A' on heating gives yellowish brown coloured metal oxide along with brown gas 'B' and a colourless gas 'C'. Aqueous solution of A on reaction with Potassium Iodide forms a yellow precipitate of compound 'D'. Metal present in A is used as an alloy which is used for soldering purposes.

- a) Identify A, B, C, D.
- b) Also identify types of both the reactions.

Q 20. Identify the oxidising agent (oxidant) in the following reactions

- a) $Pb_3O_4 + 8HCl \rightarrow 3PbCl_2 + Cl_2 + 4H_2O$

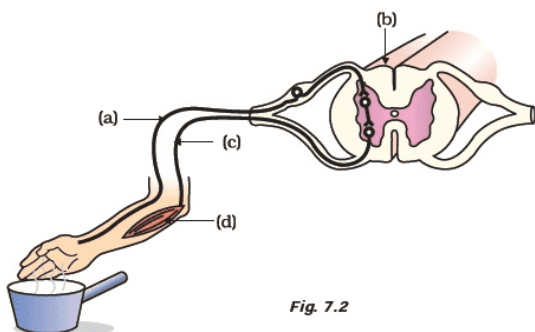
- b) $2\text{Mg} + \text{O}_2 \rightarrow 2\text{MgO}$
- c) $\text{CuSO}_4 + \text{Zn} \rightarrow \text{ZnSO}_4 + \text{Cu}$
- d) $\text{V}_2\text{O}_5 + 5\text{Ca} \rightarrow 2\text{V} + 5\text{CaO}$
- e) $3\text{Fe} + 4\text{H}_2\text{O} \rightarrow \text{Fe}_3\text{O}_4 + 4\text{H}_2$
- f) $\text{CuO} + \text{H}_2 \rightarrow \text{Cu} + \text{H}_2\text{O}$

BIOLOGY

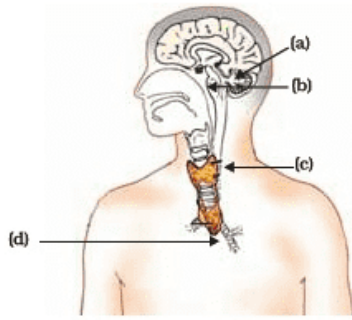
- Learn ch-6 and ch-7 and prepare for test after vacations.
- Do the given assignment in fair copy

ASSIGNMENT - CONTROL AND COORDINATION

1. What are gustatory and olfactory receptors?
2. Draw a diagram of structural and functional unit of Nervous system and label the part
 - (a) where information is acquired
 - (b) through which information travels as an electrical impulse
3. State the meaning of the term synapse?
4. What is reflex arc?
5. Label the parts (a), (b), (c) and (d) and show the direction of flow of electrical signals in the following figure -



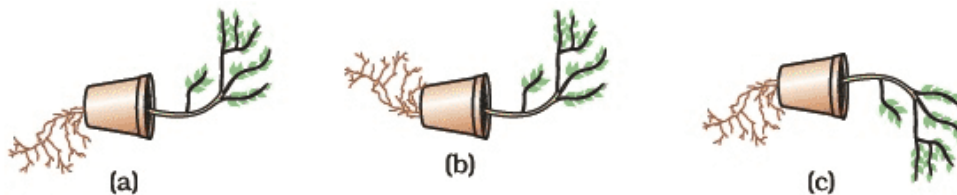
6. What does CNS comprise of? Write its function.
7. What is peripheral nervous system? Write its functions.
8. Name the three parts and regions of brain.
9. Why forebrain is main thinking part of brain?
10. How sensation of feeling full stomach is felt?
11. Draw a diagram of brain and label its different parts.
12. How are involuntary actions controlled?
13. Write the functions of cerebellum.
14. What makes the muscles change their shapes while movements?
15. How do leaves of touch me not mimosa pudica respond when we touch it? What is this movement called?
16. How does pea plant show it movement?
17. What are phototropic movements?
19. What is geotropism? Give an example.
20. What is hydrotropism? Give an example.
21. Write the functions of auxin in detection of light.
22. Write the functions of gibberellins, cytokinins, and abscisic acid.
23. Where is adrenal gland located? Where it pours its secretion? What is its target organ and where it works?
24. Label the endocrine glands in the following figure -



25. Why it is important to have iodised salt ?
26. What is dwarfism and gigantism? How it occurs?
27. Name the hormone responsible for puberty in male and female.
28. How the levels of organ rise in the body? Name the hormone responsible for it.
29. Name the part of the brain in which hypothalamus is located.
30. Arrange the following sequences on the basis of their location from midbrain: Spinal cord, pons, medulla
31. Ranveer rides a bicycle maintaining posture and body equilibrium. Identify the part of the brain which controls this activity.
32. Which part of brain is responsible for precision of voluntary actions?
33. What is the impact of nervous electrical impulse upon muscle proteins?
34. Which part of brain is concerned with memory?
35. Why is salvation considered to be involuntary action?
36. How is brain protected from shock and injuries/
37. Name the most important organ related to control and coordinate our activities.
38. Define reflex action.
39. Name the neuron that links motor and sensory neurons.
40. Write the components of peripheral nervous system.
41. Write the name of the thinking part of the brain.
42. Which two organs receive the information from all body parts and integrate it?
43. Name the two plant hormones that help in stem growth.
44. How our growth is associated with thyroxin?
45. Where the adrenal gland in the body is located?
46. Which nutrient of foods associated with muscular action?
47. Movement of which chemical compound help plants in changing shape?
48. Which part of brain would you associate with smell of delicious food?
49. Which organ secretes a hormone when blood sugar rises? Name one digestive enzyme released by this organ.
50. Deficiency of a particular hormone in childhood leads to dwarfism. Name the hormone and its source gland.
51. How do endocrine glands help in maintaining feedback control?
52. Why endocrine glands are called ductless glands? How do they send hormones to the target hormones?
- 53.

Column (A)	Column (B)
(a) Olfactory receptors	(i) Tongue
(b) Thermo receptors (temperature receptors)	(ii) Eye
(c) Gustatoreceptors	(iii) Nose
(d) Photoreceptors	(iv) Skin

54. How does nervous tissue cause action ?
55. Compare electrical impulse with respect to chemical impulse.
56. What is the affect of adrenaline in our body?
57. How does chemical coordination take place in animals?
58. Differentiate between:
- Nastic/tropic movement
 - Sensory/motor nerve
 - Phototropism/geotropism
 - Electrical impulse/chemical impulse
 - Sneezing /walking
59. Name different types of phytohormones and their functions.
60. In the following figure (a), (b) and (c), which appears more accurate and why ?

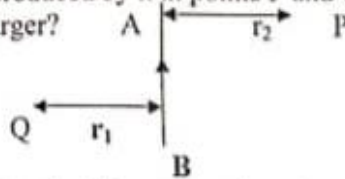


PHYSICS

- **Revise chapter 12 electricity, chapter 13 magnetic effect of electric current for test after vacation.**
- **Do complete your note book in all respect.**

ASSIGNMENT CH : MAGNETIC EFFECTS OF ELECTRIC CURRENT

1. Why should a fuse with defined rating not be replaced by one with larger rating?
2. Why is the earth pin thicker and longer than the live and the neutral pins?
3. Distinguish between AC and DC.
4. A cylindrical bar magnet is kept along the axis of a circular coil. Will there be a current induced in a coil if the magnet is rotated about the axis?
5. AB is a current-carrying conductor in the plane of the paper as shown in figure. What are the directions of magnetic fields produced by it at points P and Q? Given $r_1 > r_2$, where will the strength of the magnetic field be larger?



6. It is established that an electric current through a metallic conductor produces a magnetic field around it. Is there a similar magnetic field produced around a thin beam of moving (i) alpha particles, (ii) neutrons. Justify your answer.
7. Meena draws magnetic field lines of field close to the axis of current-carrying circular loop. As she moves away from the centre of the circular loop, she observes that the lines keep on diverging. How will you explain her observation?
8. What is the direction of magnetic field at the centre of a circular coil carrying current (i) anticlockwise direction (ii) clockwise direction? *North pole*
9. A vertical wire is carrying a current in upward direction. It is placed in a magnetic field pointing towards east. Find direction of force on the wire.
10. A wire dropped towards the earth. Will any potential difference be induced across its ends if wire is initially in (i) N-S direction *N-S force no current* (ii) E-W direction *current will be induced*
11. A wire is placed between N and S poles of a magnet as shown in figure. If the current is allowed to flow in the wire as shown, in which direction does the wire tend to move?



12. An electrician assembling a household circuit uses a long thick copper wire with green insulation and a short wire made up of copper-tin alloy. What are the two wires called? Mention the importance of each wire in an electric circuit. How are the two wires connected in the circuit?
13. State right hand thumb rule to find the direction of magnetic field around a current-carrying straight conductor. How will this magnetic field be affected on (a) Increasing the current through the conductor. (b) Changing the direction of flow of current in the conductor.
14. Show a domestic electric circuit with fuse, a bulb, a geyser, two pin plug and a three pin plug from main electric line.
15. (a) Explain the significance of the following in a house circuiting. (i) kWh Meter (ii) Main Switch (iii) Fuse wire
(b) What is the direction of magnetic field at the centre of a circular coil carrying current in (i) anticlockwise direction (ii) clockwise direction.

MATHEMATICS

1. Make a (hand written) project report on any of the following topics :

Roll no

TOPIC

- Algebra in daily life(Roll no.1 to 12)
- Mathematical Principles in the World of Art.(Roll no. 13 to Roll no. 24)
- Faster calculations – Tips and Tricks
(Roll no. 25 to Roll no. 42)

General layout of the project report should have the following format:

Page Number	Content
Cover Page	Name of the student, Title of the project
1	Index(or table of content)
3_10 (may change)	Procedure(with pictures)
11	Mathematics used/involved
12	Conclusion/Result
13	List of resources
14	Acknowledgement

2) Do the given assignment in a separate Assignment Register:

CHAPTER – 2 (POLYNOMIALS)

- Q1 Find the zeros of the polynomial $p(x) = x^2 + 2\sqrt{2}x - 6$ and verify the relationship between the zeros and their coefficients.
- Q2 Find the zeros of the $g(x) = x^2 - (\sqrt{3}+1)x + \sqrt{3}$ and verify the relationship the zeros and their coefficients.
- Q3 Find the zeros of the polynomial $f(x) = a(x^2 + 1) - x(a^2 + 1)$ and verify the relationship the zeros and their coefficients.
- Q4 Verify that 3, -1 and $-1/3$ are the zeros of the cubic polynomial $P(x) = 3x^3 - 5x^2 - 11x - 3$ and verify the relationship the zeros and their coefficients.
- Q5 If α and β are the zeroes of the quadratic polynomial $x^2 - x - 6$, then find the values of
a) $\alpha^3 + \beta^3$ b) $\alpha^4 + \beta^4$ c) $\alpha - \beta$
- Q6 If α and β are the zeroes of the quadratic polynomial $p(x) = x^2 - (k+6)x + 2(2k-1)$, find the value of k if $\alpha + \beta = \frac{1}{2} \alpha \beta$.
- Q7 If one zero of the polynomial $p(x) = (a^2 + 9)x^2 + 45x + 6a$ is the reciprocal of the other, find the value of a.
- Q8 If α and β are the zeroes of quadratic polynomial $p(x) = 21x^2 - x - 2$, find a quadratic polynomial whose zeroes are 2α and 2β
- Q9 If α and β are the zeros of quadratic polynomial $f(x) = x^2 - 2x + 3$, find the polynomial whose roots are (1) $\alpha + 2, \beta + 2$ (2) $\alpha - 1, \beta - 1$
- Q10 Find the value of a and b so that $x^3 + 8x^2 + ax + b$ is divisible by $x^2 + 1$.

Chapter -3 Linear Equations

- Q1 Draw the graphs of the following equations
 $2x - y - 2 = 0$, $4x + 3y - 24 = 0$, $y + 4 = 0$

- Obtain the vertices of the triangle so obtained .Also determine its area.
- Q2 Solve graphically: $5x-3y=5$ and $3x-y=3$.Also find the coordinates of the points of the triangle formed by these lines and the axis of y .
- Q3 Solve the following pairs of linear equations in x and y :
- 1) $a(x+y) + b(x-y) = a^2-ab+b^2$
 $a(x+y)- b(x-y) = a^2+ab+b^2$
 - 2) $x/a + y/b = a+b$, $x/a^2 + y/b^2 = 2$
 - 3) $\frac{22}{x+y} + \frac{15}{x-y} = 5$, $\frac{55}{x+y} + \frac{45}{x-y} = 14$
 - 4) $ax+by = 1$, $bx + ay = (a+b)^2 - 1$
- Q4 Solve graphically: $4x - 3y + 4 = 0$, $4x + 3y - 20 = 0$. Find the area bounded by these lines and x axis.
- Q5 A Man has only 20 paise coins and 25 paise coins in his purse. If he has 50 coins in all totaling Rs11.25, how many coins of each kind does he have?
- Q6 On selling a T.V. at 5% gain and a fridge at 10% gain, a shopkeeper gains Rs 2000. But if he sells the T.V. at 10% gain and the fridge at 5% loss, he gains Rs1500 on the transaction. Find the actual prices of T.V. and fridge.
- Q7 A two digit number is obtained by either multiplying the sum of digits by 8 or adding 1 or by multiplying the difference of digits by 13 and adding 2. Find the number.
- Q8 A father's age is three times the sum of ages of his two children. After 5 years, his age will be twice the sum of ages of his two children. Find the age of father.
- Q9 After covering a distance of 30 km with uniform speed, there is some defect in a train engine and its speed is reduced to $4/5$ of its original speed. Consequently the train reaches its destination late by 45 minutes. Had it happened after covering 18 km more, the train would have reached 9 minutes earlier. Find the speed of the train and the distance.
- Q10 A person invested some amount at the rate of 12% simple interest and some other amount at the rate of 10% simple interest. He received yearly interest of Rs 130. But if he had interchanged the amounts invested, he would have received Rs 4 more as interest. How much amount did he invest at different rates?

Ch- 7 Coordinate Geometry

- Q1. Prove that area of the triangle whose vertices are $(x, x - 2)$, $(x + 2, x + 2)$ and $(x + 3, x)$ is independent of x .
- Q2 Prove that the points $(a, 0)$, $(0, b)$ and $(1, 1)$ are collinear if $\frac{1}{a} + \frac{1}{b} = 1$.
- Q3. If two vertices of an equilateral triangle be $(0, 0)$ and $(3, 0)$, find the third vertex.
- Q4. The line segment joining the points $(3, - 4)$ and $(1, 2)$ is trisected at the points P and Q . If coordinates of P and Q are $(p, - 2)$ and $(5/3, q)$ respectively, find the value of p and q .
- Q5. Find the lengths of medians of triangle whose vertices are $(1, -1)$, $(0, 4)$ and $(-5, 3)$.
- Q6. 20. If $P(2, -1)$, $Q(3, 4)$, $R(-2, 3)$ and $S(-3, -2)$ be four points in a plane, show that $PQRS$ is a rhombus but not a square.
- Q7. Find the coordinates of the remaining angular points of a square whose opposite angular points are $(3, 4)$ and $(1, -1)$.

- Q8. Find the coordinates of a point on the line joining A(4, -6) and B(-12, 10) that is thrice as far from A as from B
- Q9. Prove that the midpoint of the hypotenuse of a right angled triangle is equidistant from its vertices
- Q10. Prove that the diagonals of a rectangle bisect each other and are equal.
- Q11. Show that the points (a,a) , (-a,-a) and ($-\sqrt{3}a$, $\sqrt{3}a$) are the vertices of an equilateral triangle and also find its area.
- Q12. Find the coordinates of the circumcentre of a triangle whose vertices are A (4.6), B(0,4) and C (6,2), also find its circumradius.
- Q13. If two vertices of an equilateral triangle are (0,0) , (3, $\sqrt{3}$) , find the third vertex .
- Q15. Find the coordinates of a point on the line joining A(4, -6) and B(-12, 10) that is thrice as far from A as from B

Chapter -8 (Introduction to Trigonometry)

- Q1. In ΔABC , if $\sin(A + B - C) = \sqrt{3}/2$ and $\cos(B + C - A) = 1/\sqrt{2}$, find A, B and C.
- Q2. If $\sin\theta + \cos\theta = \sqrt{2}\cos\theta$, show that $\cos\theta - \sin\theta = \sqrt{2}\sin\theta$
- Q3. If $\sqrt{3}\cot^2 A - 4\cot A + \sqrt{3} = 0$, find the value of $\cot^2 A + \tan^2 A$.
- Q4. If $\sec B = x + \frac{1}{4x}$, prove that $\sec B + \tan B = 2x$ or $\frac{1}{2x}$
- Q5. Evaluate :
$$\frac{-\tan A \cot(90^\circ - A) + \sec A \operatorname{cosec}(90^\circ - A) + \sin^2 35^\circ + \sin^2 55^\circ}{\tan 10^\circ \tan 20^\circ \tan 30^\circ \tan 70^\circ \tan 80^\circ}$$
- Q6. If $\sin\theta + \cos\theta = p$ and $\sec\theta + \operatorname{cosec}\theta = q$, show that $q(p^2 - 1) = 2p$.
- Q7. If $\sec\theta + \tan\theta = p$, show that $\frac{p^2 - 1}{p^2 + 1} = \sin\theta$.
- Q8. If $\operatorname{Cosec}\theta - \sin\theta = m$ and $\sec\theta - \cos\theta = n$, prove that $(m^2 n)^{2/3} + (mn^2)^{2/3} = 1$.
- Q9. If $\tan a = n \tan b$ and $\sin A = m \sin B$, prove that $\cos^2 A = \frac{m-1}{n-1}$.
- Q10. Prove that $\sin^6 A + \cos^6 A = 1 - 3 \sin^2 A \cos^2 A$.
- Q11. If $\tan^2 x = 1 - a^2$, prove that $\sec x + \tan^3 x \operatorname{cosec} x = (2 - a^2)^{3/2}$

Ch- 14 (Statistics)

- Q1. Which measure of central tendency is given by the x - coordinate of the point of intersection of the more than ogive and less than ogive?
- Q2. The following is the distribution of weights (in kg) of 40 persons:

Weight(in kg)	40-45	45-50	50-55	55-60	60-65	65-70	70-75	75-80
No. of persons	4	4	13	5	6	5	2	1

Construct a cumulative frequency distribution (of less than type) table for the data above and hence obtain the median from the graph.

- Q3. Find the unknown entries a, b, c, d, e, f in the following distribution of heights of students in a class:

Height(in cm)	150-155	155-160	160-165	165-170	170-175	175-180
Frequency	12	b	10	d	e	2
Cumulative Frequency	a	25	c	43	48	f

Q4 Draw less than and more than ogive for the following frequency distribution:

Marks	0 – 10	10 – 20	20 – 30	30 – 40	40 – 50	50 – 60
Number of	8	5	10	6	6	6

Also find the median from the graph and verify that by using the formula.

Q5. The mode of the following data is 36. Find the values of x.

Class	0-10	10-20	20-30	30-40	40-50	50-60	60-70
Frequency	8	10	x	16	12	6	7

Q6. Find the missing frequencies in the following frequency distribution table, if the total frequency is 100 and mode is 46—.

Class	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80
Frequency	5	8	7	x	28	20	10	y

Q7

. Find the mean, mode and median marks for the following frequency distribution.

Marks	Less than 10	Less than 20	Less than 30	Less than 40	Less than 50	Less than 60
No. of Students	2	3	6	7	14	20

Q8

. Find the mean, mode and median for the following frequency distribution.

Class	25-29	30-34	35-39	40-44	45-49	50-54	55-59
Frequency	14	22	16	6	5	3	4

