

**PRABHU DAYAL PUBLIC SCHOOL, SHALIMAR BAGH**

**HOLIDAY HOMEWORK 2024-25**

**CLASS-XI**

**“Success is the sum of small efforts repeated day in and day out.”**

**Dear Parents,**

Summer Vacation is a time for the children to enjoy and relax. These days are precious and valuable and can be made most from if judiciously used. We should always remind ourselves that children will not remember us for the gifts we shower upon them but will always cherish the time we spent with them. It is time to nurture young minds, inculcate moral values and narrate family anecdotes to keep them in touch with their roots.

It's summertime again! The time to strengthen family bond, tying threads of family tree, sharing joys and sorrows and having a good time together.

*Here are a few tips to make the vacation a fruitful time for your child:*

- Look for interesting books and read as much as you can about the places and people. Take good care of your health and hygiene. Avoid heavy and oily food and increase intake of fresh fruits and water to keep yourself well hydrated and energetic.
- Use Holiday Homework as an opportunity to spend quality time together. The role of the parent is to be a facilitator and guide to steer the child in the right direction.
- Encourage your child to take up yoga or any other form of healthy activity during the vacation.
- Involve children in household chores.
- Enjoy walking with them in parks and appreciate nature.

**General instructions:**

In order to keep our students well engaged and to revise and be thorough with the portions we have completed so far, we are sending the Summer Holiday Homework. We request parents to encourage the kids to finish their homework during the summer holidays. This will help them to have a revision of all the portions without over burdening them. Original work by the child shall be acknowledged and assessed.

Follow the guidelines given by teachers to complete specific activities.

**Happy holidays!**

## ENGLISH

### ALL THE WORK SHOULD BE DONE IN A SEPARATE FOLDER

- 1) Select 2 passages, paste them in the folder and make notes, alongwith summary.
- 2) DRAFT POSTERS ON (any three)
  - the ill effects of binging on junk food.
  - ill-effects of plastics on the environment
  - Blood donation camp
  - Road Safety tips.
  - Save Water
- 3) Paste 4 display advertisements in your folder.

## SUBJECT- PHYSICS

### UNITS

- Q1. The density of a material is  $0.8 \text{ g/cm}^3$ . Express it in  $\text{kg/m}^3$ ?
- Q2. What is the difference between mN, Nm, nm?

### SIGNIFICANT FIGURES

- Q1. Find the number of significant figures in the following:
- |                                      |                          |                       |
|--------------------------------------|--------------------------|-----------------------|
| 1) $9.11 \times 10^{-31} \text{ kg}$ | 4) 6371 km               | 7) $0.53 \text{ A}^0$ |
| 2) 7.0030 cc                         | 5) 80.0s                 | 8) 0.00427 g          |
| 3) 123.7 m                           | 6) $0.23 \times 10^{-3}$ | 9) 80.0               |
- Q2. Round of the following to three significant figures:
- |                |                          |
|----------------|--------------------------|
| (i) 20.968 m   | (iii) 0.003156 kg        |
| (ii) 2.914 m/s | (iv) 411.27 $\text{m}^2$ |
- Q3. State the rules for significant figures followed in the mathematical operations of:
- 1) Multiplication or Division
  - j) Addition or Subtraction
- Q4. Find the value of the following upto appropriate significant figures:
- |                    |                         |
|--------------------|-------------------------|
| (i) $3.27+33.5472$ | (iii) $2.02 \times 23$  |
| (ii) $53.312-53.3$ | (iv) $3.908 \times 5.5$ |
- Q5. A cubic millimetre of blood sample on microscopic examination is found to have  $5 \times 10^6$  corpuscles. If an adult person contains 2.5 litres of blood, find the order of total number of red corpuscles in it.
- Q6. The diameter of a sphere is 2.34 cm. Calculate its surface area and the volume with due regard significant figures given that,  $\pi= 3.14$ .
- Q7. A bus covered a distance of 182 km from Delhi to Roorkee in 5.5 hours. What is the average speed? Express it in appropriate number of significant figures.

### DIMENSIONS ANALYSIS

- Q1. Time period of an oscillation of drop of radius 'r', density ' $\rho$ ' and surface tension 'S' is:  
 $T = k(\rho r^3)/S$   
Check the correctness of the equation.
- Q2. Check the accuracy of the equation,  
 $\lambda =h/(mv^2)$   
Where letters have their usual meanings.
- Q3. Find the dimensions of  $(\alpha/\beta)$  in the equation,  
 $P=(\alpha-t^2)/\beta x$

where 'P' is the pressure, 'x' is the distance and 't' is the time.

Q4. In the equation  $F = \alpha/(\beta+d)$ , find the dimensions of  $\alpha$  and  $\beta$ , where 'F' is force and 'd' is density.

Q5. If the velocity of light 'c', the constant of gravitation 'G' and Planck's constant 'h' be chosen as the fundamental units, find the dimensions of mass, length and time in the newsystem.

Q6. Show dimensionally that the frequency ' $\nu$ ' of a transverse wave in a string of length 'l' and mass per unit length 'm' and under tension 'T' is given by,  
 $\nu = k \sqrt{T/(lm)}$

Q7. The coefficient of viscosity ( $\eta$ ) of a gas depends on the mass 'm', the effective diameter 'D' and mean speed 'v' of the gas molecules. Use dimensional analysis to find  $\eta$ .

Q8. Find the dimensional formulae of,

- i) Kinetic Energy
- ii) Pressure

Q9. Find the dimensions of constants 'a' and 'b' occurring in the Vander-Wall's equation,  
 $(P+a/V^2)(V-b)=RT$

Where P is pressure, V is the volume, T is the absolute temperature and (a, b, R) are constants.

Q10. The Rotational Kinetic Energy of a body is given by  $E = (1/2) I\omega^2$ , where ' $\omega$ ' is the angular velocity of the body. Use the equation to obtain dimensional formulae for moment of inertia I. Also write it's SI Unit.

Q11. Find the value of 60W on a system having 100 g, 20 cm and 1 min as the Fundamental Units.

Q12. By the method of dimensions, find the value of acceleration of  $8 \text{ m/s}^2$  into  $\text{km/h}^2$ ?

Q13. Assuming that escape velocity ' $v_e$ ' from a planet depends upon Gravitational Constant 'G', Radius 'R' of the planet and also it's density ' $\rho$ ', establish a relation for escape velocity.

### **MOTION IN A STRAIGHT LINE**

#### **Case Study Based Questions**

Following questions are case study-based questions. Each question has five sub parts of multiple-choice questions.

In the absence of air resistance, all bodies fall with same acceleration near the surface of the earth. This motion of a body falling towards the earth from a small height is called free fall. The acceleration with which a body falls is called acceleration due to gravity and it is denoted by g.

(i) For a freely falling body, which of the following equation is incorrect.

- |                         |                        |
|-------------------------|------------------------|
| (a) $h-ut = (1/2) gt^2$ | (c) $h = (1/2)ut+gt^2$ |
| (b) $v^2 - u^2 = 2gh$   | (d) $(v-u)/g = t$      |

(ii) The maximum height attained by a body thrown vertically upward with initial velocity u is:

- |                |                 |
|----------------|-----------------|
| (a) $h=u^2/2g$ | (c) $h=u^2/g$   |
| (b) $h=u/2g$   | (d) $h= 2u^2/g$ |

(iii) The time of ascent of a body thrown vertically upward with initial velocity u is

- |               |                |
|---------------|----------------|
| (a) $t= u/2g$ | (c) $t= u^2/g$ |
| (b) $t= u/g$  | (d) $t= u/g^2$ |

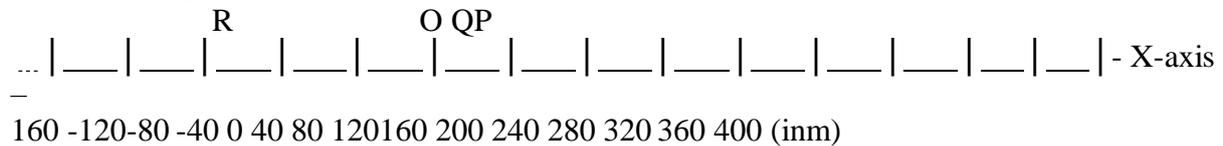
(iv) The total time of flight to come back to the point of projection of a body thrown vertically upward with initial velocity u is

- |                |                 |
|----------------|-----------------|
| (a) $t= 2u/3g$ | (c) $t= 2u/g$   |
| (b) $t= u/2g$  | (d) $t= u^2/2g$ |

(v) Velocity of fall at the point of projection of a body thrown vertically upward with initial velocity u is,

- (a)  $v = u$  (c)  $v = 3u$   
 (b)  $v = 2u$  (d)  $v = 4u$

If the position of an object is continuously changing w.r.t. its surrounding, then it is said to be in the state of motion. Thus, motion can be defined as a change in position of an object with time. It is common to everything in the universe. In the given figure, let P, Q and R represent the position of a car at different instant of time



- (i) With reference to the given figure, the position coordinates of point P and R are  
 (a)  $P = (+360, 0, 0)$ ;  $R = (-120, 0, 0)$  (c)  $P = (+360, 0, 0)$ ;  $R = (+120, 0, 0)$   
 (b)  $P = (0, +360, 0)$ ;  $R = (-120, 0, 0)$  (d)  $P = (0, 0, +360)$ ;  $R = (0, 0, -120)$
- (ii) Displacement of an object can be:  
 (a) Positive (b) Negative  
 (c) Zero (d) All of these
- (iii) The displacement of car in moving from O to P and its displacement in moving from P to Q are  
 (a) +360 m and -120 m (c) +360 m and +120 m  
 (b) -120 m and +360 m (d) +360 m and -600 m
- (iv) If the car goes from O to P and returns back to O, the displacement of the journey is:  
 (a) 0m (c) 420 m  
 (b) 720m (d) 340 m
- (v) the path length of journey from O to P and back to O is  
 (a) 0m (c) 360m  
 (b) 720m (d) 480m

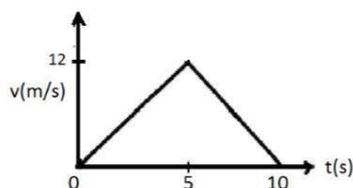
The acceleration of an object is said to be uniform acceleration if its velocity changes by equal amount in equal interval of time, however small these time intervals may be. A particle is moving with uniform acceleration in x-direction, the displacement  $x$  of particle varies with time  $t$  as,

$$x = 4t^2 - 15t + 25. \text{ m}$$

- (i) The position of particle at  $t = 0$ ,  
 (a) 14m (c) 20m  
 (b) 18m (d) 25m
- (ii) Velocity of particle at  $t = 2$  s  
 (a) -15 m/s (b) 1 m/s  
 (c) 3 m/s (d) 31 m/s
- (iii) Acceleration of particle at  $t = 2$  s:  
 (a)  $0 \text{ ms}^{-2}$  (d)  $20 \text{ ms}^{-2}$   
 (b)  $8 \text{ ms}^{-2}$  (c)  $10 \text{ ms}^{-2}$
- (iv) The velocity of particle will become zero at time  $t$  equal to:  
 (a) 2.975 s (c) 2s  
 (b) 1.875 s (d) 1s
- (v) The particle has a uniform acceleration 'a' when  
 (a) acceleration does not depend on time  $t$   
 (b) acceleration depends on time  $t$   
 (c) velocity changes by unequal amount in equal interval of time,  
 (d) None of these

The time rate of change of position of the object in any direction is called speed of the object. If an object covers equal distances in equal intervals of time, then its speed is called

uniform speed and if it covers unequal distances in equal intervals of time, then its speed is called non-uniform or variable speed. The ratio of the total distance travelled by the object to the total time taken is called average speed of the object. The speed may be positive or zero but never negative. The speed-time graph of a particle moving along a fixed direction is shown in following Fig.



- (i) Distance travelled by the particle between 0 to 10 seconds:
- (a) 60 m (c) 120 m  
(b) 50 m (d) zero
- (ii) Average speed between time interval 0 to 10 s:
- (a) 12 m/s (c) 10 m/s  
(b) 6 m/s (d) 60 m/s
- (iii) The time when the speed was minimum:
- (a) at  $t = 0$  s and  $t = 5$  s (c) at  $t = 0$  s and  $t = 10$  s  
(b) at  $t = 5$  s and  $t = 20$  s (d) at  $t = 5$  s and  $t = 10$  s
- (iv) The time when speed was maximum
- (a)  $t = 0$  s (c)  $t = 5$  s  
(d)  $t = 12$  s (d)  $t = 10$  s
- (v) Speed is positive at time interval:
- (a)  $t = 0$  to  $t = 5$  s (b)  $t = 5$  to  $t = 10$  s  
(b)  $t = 0$  to  $t = 10$  s (d) All of these

### SUBJECT- CHEMISTRY

1. To inculcate scientific temperament and for understanding the conceptual knowledge of chemistry, students have to prepare a "**GLOSSARY OF CHEMISTRY**". Add relevant pictures, diagrams and related to these discoveries. Use A-4 size sheets and write in neat handwriting. Glossary must comprise of 10 Chemistry terms (with their definitions) of each alphabet including Laws, formulas, principles and microscale chemistry apparatus.

2. Complete the assignment questions of Chapter – 1,2 to be done in class notebook.

### **CHAPTER – 1 : SOME BASIC CONCEPTS OF CHEMISTRY**

- How many moles of NaOH are contained in 27 ml of 0.15 M?
- Calculate the number of atoms in each of the following: a) - 52 moles of He b) - 52 u of He
- Calculate the molarity of 1 L of solution of ethanol in water in which the mole fraction of ethanol is 0.040.
- If ten volumes of dihydrogen gas reacts with five volumes of dioxygen gas, how many volumes of water vapour could be produced?
- Calculate the molarity of NaOH in the solution prepared by dissolving its 4gms in enough water to form 250mL of the solution.
- The density of 2 molal solution of NaOH is 1.10 g per ml. Calculate the molarity of the solution.

7. How many atoms and molecules of phosphorous are present in 124gms of phosphorous (P<sub>4</sub>)?
8. A 6.9M solution of KOH in water contains 20% by weight of KOH. Calculate the density of solution.
9. Calculate the molality and molarity of 1 L solution of 93% H<sub>2</sub>SO<sub>4</sub>(Wt. /Vol). The density of solution is 1.84g/ml.
10. Chlorophyll the green coloring matter of plants responsible for photosynthesis contains 2.68% of magnesium by weight. Calculate the number of magnesium atoms in 2.0 g of chlorophyll.
11. Calculate molality, Molarity and mole fraction of KI if the density of 20% aqueous KI solution is 1.202 g/ml.
12. What volume of O<sub>2</sub> at N.T.P is needed to cause the complete combustion of 200 ml of acetylene? Also calculate the volume of CO<sub>2</sub> formed.
13. Butyric acid contains only C, H and O. A 4.24 mg sample of butyric acid is completely burned. It gives 8.45mg of CO<sub>2</sub> and 3.46 mg of H<sub>2</sub>O.The molecular mass of butyric acid was determined by experiment to be 88amu.What is its molecular formula?
14. The density of water at room temperature is 1.0 g/ml. How many molecules are there in a drop of water if its volume is 0.05 ml?
15. Potassium Bromide contains 32.9% by mass of potassium. If 6.40 gm of bromine reacts with 3.60 gm of Potassium. Calculate the no. of moles of potassium which combines with bromine to form KBr.

### **CHAPTER – 2 : STRUCTURE OF ATOM**

1. A bulb emits light of wavelength 4500 Å<sup>0</sup>. The bulb is rated as 150 watt and 8% of the energy is emitted as light. How many photons are emitted by the bulb per second
2. Define the following terms:
  - I. Black body radiation II. Photo electric effect III. Threshold frequency IV. Work function
3. What is the number of photons of light with a wavelength of 4000pm that provide 1J of energy?
4. What is the difference between quanta and a photon?
5. What is the main difference between electromagnetic theory and Planck's quantum theory?
6. Which of the following are isoelectronic species i.e., those having the same number of electrons? Na<sup>+</sup>, K<sup>+</sup>, Mg<sup>2+</sup>, Ca<sup>2+</sup>, S<sup>2-</sup>, Ar.

### **COMPUTER SCIENCE**

Programming language-python

1. Revise all the topics covered in the class so far.
2. Write a short note on the following in CS notebook:-
  - Conditional statements-if
  - Looping statements-while and for
  - Nested loops(while, for)
  - Jumping statements
3. Practice 3 python programs based on the following topics :
  - Conditional statements-if,nested if,if... elif
  - Looping statements-while and for
  - Nested loops(while, for)
- 4 Design PPT containing around 10 slides on the topic “unidentified gadget /App/site used for noble cause”
- 5 Design a A4 size colourful poster on any one topic related to IT.

Biology

1. Learn the concepts taught in class.
2. Read and understand the concept of taxonomy and systematics .
3. Solve HOTS questions from the chapter taught in class.
4. Complete writing down the practical exercises in record file.
5. Practice drawing the diagrams and labeling them.

## MATHEMATICS

- Q1. Find the value of  $i^2 + i^4 + i^6 + \dots + i^{2n+1}$ .
- Q2. Find the value of  $x$  so that  $\left(\frac{1+i}{1-i}\right)^x$  is real.
- Q3. Find the value of  $\alpha$  for which the expression  $\frac{1-i\sin\alpha}{1+2i\sin\alpha}$  is purely real.
- Q4. Find the value of  $a^2 + b^2$  if real value of  $x$  that satisfies the equation  $\frac{3-4ix}{3+4ix} = a - ib$ .
- Q5. Find the  $\text{Re}(z)$  and  $\text{Im}(z)$  if the complex number  $z$  satisfies the equation  $\left|\frac{i+z}{i-z}\right| = 1$ .
- Q6. If  $f(z) = \frac{z-z}{1-z^2}$ , where  $z = 1 + 2i$ , then find modulus of  $f(z)$ .
- Q7. Three positive numbers form an increasing G.P. If the middle term in this G.P. is doubled, The new numbers are in A.P. Find the common ratio.
- Q8. Consider an infinite geometric series with first term  $a$  and common ratio  $r$ . If its sum is 4 and the second term is  $\frac{3}{4}$ , then find  $a$  and  $r$ .
- Q9. If  $x, y, z$  are distinct positive integers, then find the minimum value of  $(x+y)(y+z)(z+x)$ .
- Q10. If  $x, 2x+2$  and  $3x+3$  are in G.P. then find the fourth term.
- Q11. The lengths of three unequal edges of a rectangular solid block are in G.P. The volume of the block is  $216 \text{ cm}^3$  and the total surface area is  $252 \text{ cm}^2$ . Find the length of the longest edge.
- Q12. One side of equilateral triangle is 28cm. The mid points of its sides are joined to form another triangle whose mid-points, in turn, are joined to form still another triangle. The process is continued indefinitely. Find the sum of all perimeters of all the triangles.
- Q13. Find the value of  $9^{1/29} 1/49^{1/8} \dots \infty$ .
- Q14. Find the mean deviation of the data 3,10,10,4,7,10,5 from mean.
- Q15. Find the mean deviation of the data 50,69,20,33,53,39,40,65,59 from median.
- Q16. Find the standard deviation of the observations 6,5,9,13,12,8,10.
- Q17. Find the variance of first 10 natural numbers.
- Q18. The variance of the data 2,4,5,6,8,17 is 23.33. then find the variance of 4,8,10,12,16,34.
- Q19. Consider the numbers 1,2,3,4,5,6,7,8,9,10. If 1 is added to each number, then find the standard deviation of the numbers so obtained.
- Q20. In an experiment with 15 observations,  $\Sigma x^2 = 2830$ ,  $\Sigma x = 170$ . One observation '20' was found wrong and was replaced by the correct value 30. Find the corrected variance.

Note : IN ADDITION TO ABOVE PROBLEMS, KINDLY DO THE FOLLOWING:

- (1) Make one power point presentation on any topic from class XI Maths, elaborating its applications and also its link with ART.  
(ART INTEGRATED ACTIVITY).

## Physical Education

**Practical 1-** Labelled diagram of 400 M Track and Field with computation.

**Practical 2-** One IOA recognized sports/game of your choice, labelled diagram of field and equipment. Also mention its rules, terminology and skills.

### **Instructions.**

- Do the practical in your practical file.
- All the Diagram should be clear.
- Labelled all the photos related to Terminology and Skills.

## ECONOMICS

\*These questions are to be done in the class registers itself.

### CH-4

#### ORGANISATION OF DATA

**Q 1.** Convert the following series into a simple frequency distribution:

<b>Mid-value</b>	5	15	25	35	45	55
<b>Frequency</b>	2	8	15	12	7	6

## **CH-5**

### **TEXTUAL AND TABULAR PRESENTATION**

**Q 2.** There were 160 persons in a trip organized by a school. Out of which 120 were students, 28 were teachers and 12 (all males) were peons. Out of total persons, 32 were females including two lady teachers. Present the above information in a table.

**Q 3.** In a sample study about coffee habits in two towns, following data were observed:

**Town X:** 52% persons were males, 25% were coffee drinkers, and 16% were male coffee drinkers.

**Town Y:** 55% persons were males, 28% were coffee drinkers, and 18% were male coffee drinkers.

Represent the above data in a tabular form.

**Q 4.** There were 80 persons in a trip organized by a school. Out of which 60 were students, 14 were teachers and 6 (all males) were peons. Out of total persons, 16 were females including one lady teacher. Present the above information in a table.

## **CH-6**

### **DIAGRAMMATIC PRESENTATION OF DATA**

**Q 5.** Represent the following data by a deviation bar diagram:

Year	2013	2014	2015	2016	2017	2018
Saving/Deficit (Rs. in '000s)	30	-20	10	15	-25	20

**Q 6.** Represent the following data, using a pie diagram:

Brands of Sets	Samsung	LG	Panasonic	Sony	Total
Units sold in Panipat	480	360	240	120	1,200
Units sold in Ambala	600	500	400	300	1,800

**Q 7.** Represent the following data, using a percentage bar diagram:

Items of Expenditure	Food	Clothing	House Rent	Fuel and Lighting	Total
Family A	480	360	240	120	1,200
Family B	600	500	400	300	1,800

**Q 8.** Represent the following data by a simple bar diagram:

Year	2014	2015	2016	2017	2018
Strength of the School	500	600	500	700	750

## **CH-7**

### **FREQUENCY DIAGRAMS**

**Q 9.** Draw the 'less than' and 'more than' ogives on the same

Weekly Wages (Rs.)	0-20	20-40	40-60	60-80	80-100
Number of Workers	10	20	40	20	10

**Q 10.** Draw the 'less than' and 'more than' ogives on the same graph:

Marks	0-20	20-40	40-60	60-80	80-100
Number of Students	40	51	64	38	7

## **CH-8**

### **TIME SERIES GRAPHS**

**Q 11.** The table shows the exports and imports of a country in different years:

Years	2011	2012	2013	2014	2015	2016	2017
Exports (in Rs. crores)	300	350	400	380	450	280	250
Imports (in Rs. crores)	420	460	600	480	550	450	400

Represent the data graphically using Arithmetic-Line-Graphs.

**Q 12.** The table shows the population (in '000s) of men and women in a village in different years:

Year	2012	2013	2014	2015	2016	2017	2018
Number of Men	10	13	15	14	17	18	21
Number of Women	12	18	16	17	20	22	24

Represent the data graphically using Time-Series-Graphs.

## **MASS MEDIA STUDIES**

### **I. Prepare a project file which should include the below listed assignments:-**

1. Prepare a photo feature on any topic by clicking photographs from the following shots and angles:-
  - Extreme Wide Shot
  - Wide Shot
  - Medium Shot
  - Close up Shot
  - Extreme close up Shot
  - High Angle
  - Low Angle
  - Eye level angle
2. Write the names of Top 10 Advertising Agencies in India and World. Also paste relevant pictures.
3. Paste the following advertisements from the newspaper:-
  - Cross Promotion
  - Informative Ads
  - Institutional Ads
  - Public Service Advertising
  - Point of Purchase Advertising
  - Financial Ads
  - Classified Ads
4. Do a case study of Pepsi and Coca Cola and make a comparative study on the same.
5. Identify and paste the following features of an advertisement:-
  - Logo
  - Headline
  - Tagline
  - Sub Headline
  - Copy
  - Image
6. Identify and paste the following contents of a newspaper:-
  - Headline
  - Cartoons
  - News Story
  - Feature
  - Editorial
  - Letter to the editor
  - Photograph
7. Differentiate between a cinema and television.
8. Prepare a journal on the topic of your choice.

## **BIOLOGY**

1. Learn the concepts taught in class.
2. Read and understand the concept of taxonomy and systematics .
3. Solve HOTS questions from the chapter taught in class.
4. Complete writing down the practical exercises in record file.
5. Practice drawing the diagrams and labeling them.

