

## HOLIDAY HOME WORK (WORK SHEET)

CLASS :: XI

# PHYSICS

## Chapter-2 Unit and dimensions

1. The number of significant figures in 0.06900 is  
(a) 5 (b) 4 (c) 2 (d) 3
2. The sum of the numbers 436.32, 227.2 and 0.301 in appropriate significant figures is  
(a) 663.821 (b) 664 (c) 663.8 (d) 663.82
3. The mass and volume of a body are 4.237 g and  $2.5 \text{ cm}^3$ , respectively. The density of the material of the body in correct significant figures is  
(a)  $1.6048 \text{ g cm}^{-3}$  (b)  $1.69 \text{ g cm}^{-3}$  (c)  $1.7 \text{ g cm}^{-3}$  (d)  $1.695 \text{ g cm}^{-3}$
4. The numbers 2.745 and 2.735 on rounding off to 3 significant figures will give  
(a) 2.75 and 2.74 (b) 2.74 and 2.73 (c) 2.75 and 2.73 (d) 2.74 and 2.74
5. The length and breadth of a rectangular sheet are 16.2 cm and 10.1cm, respectively. The area of the sheet in appropriate significant figures and error is  
(a)  $164 \pm 3 \text{ cm}^2$  (b)  $163.62 \pm 2.6 \text{ cm}^2$  (c)  $163.6 \pm 2.6 \text{ cm}^2$  (d)  $163.62 \pm 3 \text{ cm}^2$
6. Which of the following pairs of physical quantities does not have same dimensional formula?  
(a) Work and torque. (b) Angular momentum and Planck's constant. (c) Tension and surface tension. (d) Impulse and linear momentum.
7. Measure of two quantities along with the precision of respective measuring instrument is  $A = 2.5 \text{ m s}^{-1} \pm 0.5 \text{ ms}^{-1}$   $B = 0.10 \text{ s} \pm 0.01 \text{ s}$   
The value of A B will be  
(a)  $(0.25 \pm 0.08) \text{ m}$  (b)  $(0.25 \pm 0.5) \text{ m}$  (c)  $(0.25 \pm 0.05) \text{ m}$  (d)  $(0.25 \pm 0.135) \text{ m}$
8. You measure two quantities as  $A = 1.0 \text{ m} \pm 0.2 \text{ m}$ ,  $B = 2.0 \text{ m} \pm 0.2 \text{ m}$ . We should report correct value for  $\sqrt{AB}$  as:  
(a)  $1.4 \text{ m} \pm 0.4 \text{ m}$  (b)  $1.41 \text{ m} \pm 0.15 \text{ m}$  (c)  $1.4 \text{ m} \pm 0.3 \text{ m}$  (d)  $1.4 \text{ m} \pm 0.2 \text{ m}$
9. Which of the following measurements is most precise?  
(a) 5.00 mm (b) 5.00 cm (c) 5.00 m (d) 5.00 km.
10. The mean length of an object is 5 cm. Which of the following measurements is most accurate?  
(a) 4.9 cm (b) 4.805 cm (c) 5.25 cm (d) 5.4 cm
11. Young's modulus of steel is  $1.9 \times 10^{11} \text{ N/m}^2$ . When expressed in CGS units of dynes/cm<sup>2</sup>, it will be equal to ( $1\text{N} = 10^5 \text{ dyne}$ ,  $1\text{m}^2 = 10^4 \text{ cm}^2$ )  
(a)  $1.9 \times 10^{10}$  (b)  $1.9 \times 10^{11}$  (c)  $1.9 \times 10^{12}$  (d)  $1.9 \times 10^{13}$
12. If momentum (P), area (A) and time (T) are taken to be fundamental quantities, then energy has the dimensional formula  
▪ (a)  $(P^1 A^{-1} T^1)$  (b)  $(P^2 A^1 T^1)$  (c)  $(P^2 A^{-1/2} T^1)$  (d)  $(P^1 A^{1/2} T^{-1})$

### Multiple Choice Questions (MCQ II)

- On the basis of dimensions, decide which of the following relations for the displacement of a particle undergoing simple harmonic motion is not correct:
  - $y = a \sin 2\pi / T$
  - $y = a \sin vt$
  - $y = \frac{a}{T} \sin \left( \frac{t}{a} \right)$
  - $y = a\sqrt{2} \left( \sin \frac{2\pi t}{T} - \cos \frac{2\pi t}{T} \right)$
- If P, Q, R are physical quantities, having different dimensions, which of the following combinations can never be a meaningful quantity?
  - $(P - Q)/R$
  - $PQ - R$
  - $PQ/R$
  - $(PR - Q^2)/R$
  - $(R + Q)/P$
- Photon is quantum of radiation with energy  $E = hv$  where  $v$  is frequency and  $h$  is Planck's constant. The dimensions of  $h$  are the same as that of
  - Linear impulse
  - Angular impulse
  - Linear momentum
  - Angular momentum
- If Planck's constant ( $h$ ) and speed of light in vacuum ( $c$ ) are taken as two fundamental quantities, which one of the following can, in addition, be taken to express length, mass and time in terms of the three chosen fundamental quantities?
  - Mass of electron ( $m_e$ )
  - Universal gravitational constant ( $G$ )
  - Charge of electron ( $e$ )
  - Mass of proton ( $m_p$ )
- Which of the following ratios express pressure?
  - Force/ Area
  - Energy/ Volume
  - Energy/ Area
  - Force/ Volume
- Which of the following are not a unit of time?
  - Second
  - Parsec
  - Year
  - Light year

### Very Short Answer Type Questions

- Why do we have different units for the same physical quantity?
- The radius of atom is of the order of  $1 \text{ \AA}$  and radius of nucleus is of the order of fermi. How many magnitudes higher is the volume of atom as compared to the volume of nucleus?
- Name the device used for measuring the mass of atoms and molecules.
- Express unified atomic mass unit in kg.
- A function  $f(\theta)$  is defined as:
 
$$f(\theta) = 1 - \theta + \frac{\theta^2}{2!} - \frac{\theta^3}{3!} + \frac{\theta^4}{4!} \dots$$

Why is it necessary for  $q$  to be a dimensionless quantity?

- Why length, mass and time are chosen as base quantities in mechanics?

### Short Answer Type Questions

- The earth-moon distance is about 60 earth radius. What will be the diameter of the earth (approximately in degrees) as seen from the moon?
  - Moon is seen to be of  $(\frac{1}{2})^\circ$  diameter from the earth. What must be the relative size compared to the earth?
  - From parallax measurement, the sun is found to be at a distance of about 400 times the earth-moon distance. Estimate the ratio of sun-earth diameters.

2. Which of the following time measuring devices is most precise?  
(a) A wall clock. (b) A stop watch. (c) A digital watch. (d) An atomic clock.  
Give reason for your answer.
3. The distance of a galaxy is of the order of  $10^{25}$  m. Calculate the order of magnitude of time taken by light to reach us from the galaxy.
4. The vernier scale of a travelling microscope has 50 divisions which coincide with 49 main scale divisions. If each main scale division is 0.5 mm, calculate the minimum inaccuracy in the measurement of distance.
5. During a total solar eclipse the moon almost entirely covers the sphere of the sun. Write the relation between the distances and sizes of the sun and moon.
6. If the unit of force is 100 N, unit of length is 10 m and unit of time is 100 s, what is the unit of mass in this system of units?
7. Give an example of  
(a) a physical quantity which has a unit but no dimensions.  
(b) a physical quantity which has neither unit nor dimensions. (c) a constant which has a unit.  
(d) a constant which has no unit.
8. Calculate the length of the arc of a circle of radius 31.0 cm which  $\pi/6$  subtends an angle of at the centre.
9. Calculate the solid angle subtended by the periphery of an area of  $1\text{cm}^2$  at a point situated symmetrically at a distance of 5 cm from the area.
10. The displacement of a progressive wave is represented by  $y = A \sin(\omega t - kx)$ , where  $x$  is distance and  $t$  is time. Write the dimensional formula of (i)  $\omega$  and (ii)  $k$ .
11. Time for 20 oscillations of a pendulum is measured as  $t_1 = 39.6$  s;  $t_2 = 39.9$  s;  $t_3 = 39.5$  s. What is the precision in the measurements? What is the accuracy of the measurement?

### Long Answer Type Questions

1. A new system of units is proposed in which unit of mass is  $\alpha$  kg, unit of length  $\beta$  m and unit of time  $\gamma$  s. How much will 5 J measure in this new system?
2. The volume of a liquid flowing out per second of a pipe of length  $l$  and radius  $r$  is written by a student as

$$v = \frac{\pi P r^4}{8 \eta l}$$

where  $P$  is the pressure difference between the two ends of the pipe and  $\eta$  is coefficient of viscosity of the liquid having dimensional formula  $\text{ML}^{-1} \text{T}^{-1}$ . Check whether the equation is dimensionally correct.

3. A physical quantity  $X$  is related to four measurable quantities  $a$ ,  $b$ ,  $c$  and  $d$  as follows:  
 $X = a^2 b^3 c^{5/2} d^{-2}$ . The percentage error in the measurement of  $a$ ,  $b$ ,  $c$  and  $d$  are 1%, 2%, 3% and 4%, respectively. What is the percentage error in quantity  $X$ ? If the value of  $X$  calculated on the basis of the above relation is 2.763, to what value should you round off the result.
4. In the expression  $P = E l^2 m^{-5} G^{-2}$ ,  $E$ ,  $m$ ,  $l$  and  $G$  denote energy, mass, angular momentum and gravitational constant, respectively. Show that  $P$  is a dimensionless quantity.
5. If velocity of light  $c$ , Planck's constant  $h$  and gravitational constant  $G$  are taken as fundamental quantities then express mass, length and time in terms of dimensions of these quantities.
6. An artificial satellite is revolving around a planet of mass  $M$  and radius  $R$ , in a circular orbit of radius  $r$ . From Kepler's Third law about the period of a satellite around a common central body, square of the period of revolution  $T$  is proportional to the cube of the radius of the orbit  $r$ . Show using dimensional analysis, that

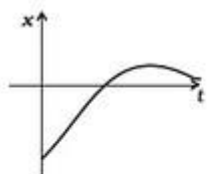
$$T = \frac{k}{R} \sqrt{\frac{r^3}{g}},$$

where  $k$  is a dimensionless constant and  $g$  is acceleration due to gravity.

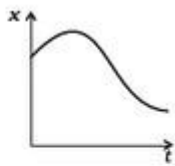
7. In an experiment to estimate the size of a molecule of oleic acid 1 mL of oleic acid is dissolved in 19 mL of alcohol. Then 1 mL of this solution is diluted to 20 mL by adding alcohol. Now 1 drop of this diluted solution is placed on water in a shallow trough. The solution spreads over the surface of water forming one molecule thick layer. Now, lycopodium powder is sprinkled evenly over the film and its diameter is measured. Knowing the volume of the drop and area of the film we can calculate the thickness of the film which will give us the size of oleic acid molecule.  
Read the passage carefully and answer the following questions:
- Why do we dissolve oleic acid in alcohol?
  - What is the role of lycopodium powder?
  - What would be the volume of oleic acid in each mL of solution prepared?
  - How will you calculate the volume of  $n$  drops of this solution of oleic acid?
  - What will be the volume of oleic acid in one drop of this solution?
8. (a) How many astronomical units (A.U.) make 1 parsec?  
(b) Consider a sunlike star at a distance of 2 parsecs. When it is seen through a telescope with 100 magnification, what should be the angular size of the star? Sun appears to be  $(1/2)^\circ$  from the earth. Due to atmospheric fluctuations, eye can't resolve objects smaller than 1 arc minute.  
(c) Mars has approximately half of the earth's diameter. When it is closest to the earth it is at about  $1/2$  A.U. from the earth. Calculate what size it will appear when seen through the same telescope.  
(Comment : This is to illustrate why a telescope can magnify planets but not stars.)
9. Einstein's mass – energy relation emerging out of his famous theory of relativity relates mass ( $m$ ) to energy ( $E$ ) as  $E = mc^2$ , where  $c$  is speed of light in vacuum. At the nuclear level, the magnitudes of energy are very small. The energy at nuclear level is usually measured in MeV, where  $1 \text{ MeV} = 1.6 \times 10^{-13} \text{ J}$ ; the masses are measured in unified atomic mass unit ( $u$ ) where  $1u = 1.67 \times 10^{-27} \text{ kg}$ .
- Show that the energy equivalent of 1  $u$  is 931.5 MeV.
  - A student writes the relation as  $1 u = 931.5 \text{ MeV}$ . The teacher points out that the relation is dimensionally incorrect. Write the correct relation.

### Chapter-3 Motion in a straight line

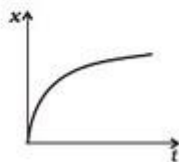
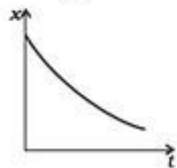
1. Among the four graphs (Fig. 3.1), there is only one graph for which average velocity over the time interval  $(0, T)$  can vanish for a suitably chosen  $T$ . Which one is it?



(a)



(b)



2. A lift is coming from 8th floor and is just about to reach 4th floor. Taking ground floor as origin and positive direction upwards for all quantities, which one of the following is correct?  
(a)  $x < 0, v < 0, a > 0$  (b)  $x > 0, v < 0, a < 0$  (c)  $x > 0, v < 0, a > 0$  (d)  $x > 0, v > 0, a < 0$
3. In one dimensional motion, instantaneous speed  $v$  satisfies  $0 \leq v < v_0$ .  
(a) The displacement in time  $T$  must always take non-negative values.  
(b) The displacement  $x$  in time  $T$  satisfies  $-v_0 T < x < v_0 T$ .

- (c) The acceleration is always a non-negative number.
- (d) The motion has no turning points.
4. A vehicle travels half the distance  $L$  with speed  $V_1$  and the other half with speed  $V_2$ , then its average speed is
- (a)  $\frac{V_1 + V_2}{2}$
- (b)  $\frac{2V_1 + V_2}{V_1 + V_2}$
- (c)  $\frac{2V_1 V_2}{V_1 + V_2}$
- (d)  $\frac{L(V_1 + V_2)}{V_1 V_2}$
5. The displacement of a particle is given by  $x = (t - 2)^2$  where  $x$  is in metres and  $t$  in seconds. The distance covered by the particle in first 4 seconds is  
 (a) 4 m (b) 8 m (c) 12 m (d) 16 m
6. At a metro station, a girl walks up a stationary escalator in time  $t_1$ . If she remains stationary on the escalator, then the escalator take her up in time  $t_2$ . The time taken by her to walk up on the moving escalator will be  
 (a)  $(t_1 + t_2)/2$  (b)  $t_1 t_2 / (t_2 - t_1)$  (c)  $t_1 t_2 / (t_2 + t_1)$  (d)  $t_1 - t_2$

### Multiple Choice Questions (MCQ II)

1. The variation of quantity A with quantity B, plotted in Fig. 3.2 describes the motion of a particle in a straight line.

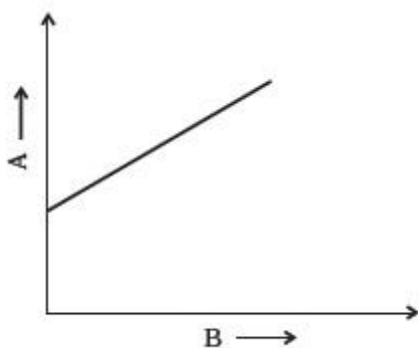


Fig. 3.2

- (a) Quantity B may represent time. (b) Quantity A is velocity if motion is uniform. (c) Quantity A is displacement if motion is uniform. (d) Quantity A is velocity if motion is uniformly accelerated.
2. A graph of  $x$  versus  $t$  is shown in Fig. 3.3. Choose correct alternatives from below.

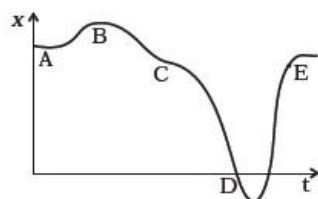


Fig. 3.3

- (a) The particle was released from rest at  $t = 0$ . (b) At B, the acceleration  $a > 0$ . (c) At C, the velocity and the acceleration vanish. (d) Average velocity for the motion between A and D is positive. (e) The speed at D exceeds that at E.

3. For the one-dimensional motion, described by  $x = t - \sin(t)$ 
  - (a)  $x(t) > 0$  for all  $t > 0$ . (b)  $v(t) > 0$  for all  $t > 0$ . (c)  $a(t) > 0$  for all  $t > 0$ . (d)  $v(t)$  lies between 0 and 2.
4. A spring with one end attached to a mass and the other to a rigid support is stretched and released.
  - (a) Magnitude of acceleration, when just released is maximum. (b) Magnitude of acceleration, when at equilibrium position, is maximum.
  - (c) Speed is maximum when mass is at equilibrium position. (d) Magnitude of displacement is always maximum whenever speed is minimum.
5. A ball is bouncing elastically with a speed 1 m/s between walls of a railway compartment of size 10 m in a direction perpendicular to walls. The train is moving at a constant velocity of 10 m/s parallel to the direction of motion of the ball. As seen from the ground,
  - (a) the direction of motion of the ball changes every 10 seconds.
  - (b) speed of ball changes every 10 seconds.
  - (c) average speed of ball over any 20 second interval is fixed.
  - (d) the acceleration of ball is the same as from the train.

#### Very Short Answer Type Questions

1. Refer to the graphs in Fig 3.1. Match the following.

Graph	Characteristic
(a)	(i) has $v > 0$ and $a < 0$ throughout.
(b)	(ii) has $x > 0$ throughout and has a point with $v = 0$ and a point with $a = 0$ .
(c)	(iii) has a point with zero displacement for $t > 0$ .
(d)	(iv) has $v < 0$ and $a > 0$ .

2. A uniformly moving cricket ball is turned back by hitting it with a bat for a very short time interval. Show the variation of its acceleration with time. (Take acceleration in the backward direction as positive).
3. Give examples of a one-dimensional motion where
  - (a) the particle moving along positive x-direction comes to rest periodically and moves forward.
  - (b) the particle moving along positive x-direction comes to rest periodically and moves backward.
4. Give example of a motion where  $x > 0$ ,  $v < 0$ ,  $a > 0$  at a particular instant.
5. An object falling through a fluid is observed to have acceleration given by  $a = g - bv$  where  $g$  = gravitational acceleration and  $b$  is constant. After a long time of release, it is observed to fall with constant speed. What must be the value of constant speed?

#### Short Answer Type Questions

1. A ball is dropped and its displacement vs time graph is as shown Fig. 3.4 (displacement  $x$  is from ground and all quantities are +ve upwards).

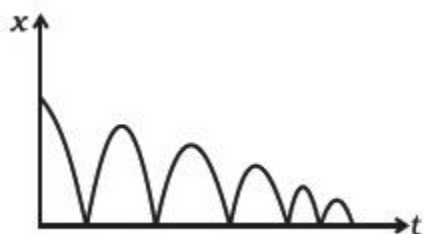
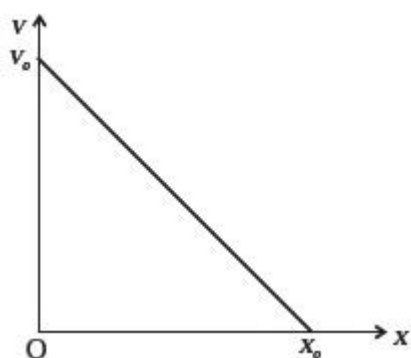


Fig. 3.4

- (a) Plot qualitatively velocity vs time graph.
  - (b) Plot qualitatively acceleration vs time graph.
2. A particle executes the motion described by  $x(t) = x_0 (1 - e^{-\gamma t})$ ;  $t \geq 0$ ,  $x_0 > 0$ .
    - (a) Where does the particle start and with what velocity?
    - (b) Find maximum and minimum values of  $x(t)$ ,  $v(t)$ ,  $a(t)$ . Show that  $x(t)$  and  $a(t)$  increase with time and  $v(t)$  decreases with time.
  3. A bird is tossing (flying to and fro) between two cars moving towards each other on a straight road. One car has a speed of 18 m/h while the other has the speed of 27km/h. The bird starts moving from first car towards the other and is moving with the speed of 36km/h and when the two cars were separated by 36 km. What is the total distance covered by the bird? What is the total displacement of the bird?
  4. A man runs across the roof-top of a tall building and jumps horizontally with the hope of landing on the roof of the next building which is of a lower height than the first. If his speed is 9 m/s, the (horizontal) distance between the two buildings is 10 m and the height difference is 9 m, will he be able to land on the next building ? (take  $g = 10 \text{ m/s}^2$ )
  5. A ball is dropped from a building of height 45 m. Simultaneously another ball is thrown up with a speed 40 m/s. Calculate the relative speed of the balls as a function of time.
  6. The velocity-displacement graph of a particle is shown in Fig. 3.5.



- (a) Write the relation between  $v$  and  $x$ .
- (b) Obtain the relation between acceleration and displacement and plot it.

### Long Answer Type Questions

1. It is a common observation that rain clouds can be at about a kilometre altitude above the ground.
  - (a) If a rain drop falls from such a height freely under gravity, what will be its speed? Also calculate in km/h. ( $g = 10 \text{ m/s}^2$ )
  - (b) A typical rain drop is about 4mm diameter. Momentum is mass  $\times$  speed in magnitude. Estimate its momentum when it hits ground.

- (c) Estimate the time required to flatten the drop.
- (d) Rate of change of momentum is force. Estimate how much force such a drop would exert on you.
- (e) Estimate the order of magnitude force on umbrella. Typical lateral separation between two rain drops is 5 cm. (Assume that umbrella is circular and has a diameter of 1m and cloth is not pierced through !!)
2. A motor car moving at a speed of 72km/h can not come to a stop in less than 3.0 s while for a truck this time interval is 5.0 s. On a highway the car is behind the truck both moving at 72km/h. The truck gives a signal that it is going to stop at emergency. At what distance the car should be from the truck so that it does not bump onto (collide with) the truck. Human response time is 0.5s.  
(Comment : This is to illustrate why vehicles carry the message on the rear side. "Keep safe Distance")
3. A monkey climbs up a slippery pole for 3 seconds and subsequently slips for 3 seconds. Its velocity at time  $t$  is given by  $v(t) = 2t(3-t)$ ;  $0 < t < 3$  and  $v(t) = -(t-3)(6-t)$  for  $3 < t < 6$  s in m/s. It repeats this cycle till it reaches the height of 20 m.
- (a) At what time is its velocity maximum? (b) At what time is its average velocity maximum?
- (c) At what time is its acceleration maximum in magnitude? (d) How many cycles (counting fractions) are required to reach the top?
4. A man is standing on top of a building 100 m high. He throws two balls vertically, one at  $t = 0$  and other after a time interval (less than 2 seconds). The later ball is thrown at a velocity of half the first. The vertical gap between first and second ball is +15 m at  $t = 2$  s. The gap is found to remain constant. Calculate the velocity with which the balls were thrown and the exact time interval between their throw.

## **BUSINESS STUDIES**

### **CHAPTER 1: NATURE AND PURPOSE OF BUSINESS**

#### **Match the following:**

- |                                   |                                   |
|-----------------------------------|-----------------------------------|
| i. Banking                        | a. no capital investment          |
| ii. Manager performance           | b. processing industry            |
| iii. Famine c. genetic industries |                                   |
| iv. Fish hatchery                 | d. objective of business          |
| v. Paper industry                 | e. auxiliary to trade             |
| vi. Uncertainty of return         | f. feature of business activity   |
| vii. Profession                   | g. natural cause of business risk |
| viii. Employment                  | h. economic activity              |

#### **State whether true or false**

- Teaching in a school is a non-economic activity.
- Commerce is wider term than trade?
- Trade includes buying and selling of services?
- Profession involves greater risk than business.

#### **Very short answer questions:**

- Give two examples of manufacturing industry.
- Which two types of activities classify under the head 'commerce'?
- Define 'Profitability'.



- D. Give the examples of social objectives of a business concern.
- E. What is business risk.?

**Short answer questions:**

- a. Risk in business is not by choice but a compulsion. Comment.
- b. What is the relationship between industry and commerce.?
- c. How does auxiliaries to trade help in the removal of hindrances in the process of exchange?
- d. How does productivity contribute towards business growth?

**VALUE BASED QUESTIONS**

**Q.** Ramneek is working as a Sales Manager in Sell Well Ltd. He has authority to meet customers, offer them various schemes and finalize orders. He has three executives working under him. He is enjoying good salary and company appreciates his efforts in the form of additional incentives based on his annual performance. The Director ensures that Ramneek has full information about prices so that he can work efficiently. Ramneek's employment contract clearly mentions that no employee will work for competitors, appoint any relative as company distributor or sell company products to anyone without informing the owner. Despite signing the contract and agreeing to all the terms and conditions, Ramneek appointed Medichack (Pvt.) Ltd. as company's distributor and did not disclose to company that director of Medichack is his real brother.

- (a) State the values Sell well Ltd follows with respect to employees.
- (b) State the values Ramneek as a company employee has ignored.

**CHAPTER 2 : FORMS OF BUSINESS ORGANISATION**

**Fill in the blanks :**

- a. Sole proprietorship is most suitable form for ----- business.
- b. The liability of the *karta* in a joint Hindu family business is -----
- c. Partnership is governed by the ----- Act, 1932.
- d. A public company can have minimum ----- members.
- e. A private company can have minimum ----- directors.
- f. In case of a banking business maximum numbers of partners allowed are -----
- g. A company is legally ----- from its members.

**Very short answer type questions:**

- a. What is 'separate legal entity'?
- b. Where is the principle of 'one man one vote' followed
- c. How are the affairs of a company managed?

**B. Short answer questions:**

- a. Explain the term unlimited liability in brief.

- b. If registration is optional, why do partnerships get themselves registered? Explain.
- c. What is meant by 'partner by holding out' . Explain.
- d. List all important matters discussed while preparing a partnership deed.
- e. What is meant by mutual agency.
- f. Write any four privileges that a private limited company enjoys over a public limited company.
- g. Classify and differentiate the partnership business on the basis of liability.

### **VALUE BASED QUESTIONS**

**Q1** “One man control is best in the world if that man is big enough to manage everything”. Discuss.

What is a joint stock company? Discuss its main features.

Distinguish between a company and partnership firm.

Discuss in detail the various factors which must be considered while selecting the form of organisation.

How are cooperative societies differentiated on the basis of their nature of operations.

Shilpa wanted to pitch in to reduce the financial crisis prevailing in her house and thought of working as a cook. She started working in three different households, one Punjabi, one Gujrati and one South Indian family. She soon realized that all the three households had different cuisine. It was indeed a challenge for her to learn the techniques of the cuisine. All the families greatly appreciated the time frame within which she had mastered the local cuisine. After working for them for a year, she decides to open a small eating point of her own along with two of her friends by the name ‘ApnaBhoj’. They decided to share profits equally and that each of them will be liable for acts performed by the other two. Soon the eatery became a hot spot because of the fusion platter which was being offered.

- a. Identify the kind of business organisation which was set up by Shilpa and her friends.
- b. Quoting the lines from the paragraph, state the features of this form of business organization.

**Q2** Manisha after graduating from college went back to her home town in Meghalaya. It was a small town with very few job opportunities. The Karbi tribal women in that area were uneducated but still practiced the method of obtaining traditional colors from natural wild herbs.

Their most popular dye was indigo obtained from the leave called ‘sibu’. Using these colors they added variety to their textiles. The women were mainly confined to their homes and they did not know how to make a living out of their talent. Manisha went from door to door to analyse the problem that existed. She thought of setting up a voluntary association of rural women who would be able to join and leave the organisation at their own will without any coercion or intimidation.

- a. Name the process which helped Manisha in converting an idea into an opportunity.
- b. Identify the kind of organisation that Manisha has decided to set up.

c. State any two values which Manisha wants to communicate to the society.

**Q3** Kareem after completing his XII class from his village school joined the course of electrician in an ITI in a town near his village. On completion of this course he tried for a government job but could not get the same. He, therefore, decided to work as a helper to a renowned electrician of the area. After working with him for two years he decided to start his own electrician shop in the village. For this he purchased equipments of ₹ 10,000 and hired a shop at a monthly rent of ₹ 2,000. He himself managed the shop.

a. Identify the kind of business organisation set up by Kareem.

b. State any four characteristics of the identified form of business organisation.

**Q4** Lalita Devi did her post-graduation from Manipur University, Imphal. She had offers to join reputed firms in metropolitan cities like Delhi and Mumbai. Instead of joining any of these firms she decided to do some creative work in Imphal. She observed that a special type of chilli is grown by the farmers of most of the villages around Imphal. This chilli has a distinct flavour and the pickle made from it has a taste that may be liked by many people in other parts of the country. But the farmers were neither trained in the farming of the kind of chilli on a large scale nor was there a secured market for their produce. Lalita Devi met eighteen like-minded women of the area and formed an organization for doing the business of pickle manufacturing. Each of them contributed ₹ 2,00,000 towards its capital and were equally responsible for its management. On one hand they assured the farmers to purchase the chilli produced by them and on the other hand, the organization with the help of the local agriculture department arranged for the training of the farmers. They also employed 10 local unemployed graduate girls for doing the various operations of pickle manufacturing.

a. Identify the kind of organization that Lalita Devi had decided to set up.

b. State any two values which Lalita Devi wants to communicate to the society.

## **POLITICAL SCIENCE**

- Make a digital poster which you can use for election campaigning (as you are a candidate in any election process)
- Make a video on whole election process of India

Or

Make a skit on the different electoral reform related to Indian election process

## **ECONOMICS**

### **Assignment 1**

Prepare a questionnaire on a topic of your choice keeping in mind, the characteristics of a good questionnaire. The questionnaire should contain a minimum of 15 questions & should be given to 15 people.

Based on the questionnaire follow the accounting process, i.e. collect the data required, present, analyze and interpret the data.

## **Assignment 2**

Attempt all Questions of the Question Bank shared below. All Questions are Objective Type Questions and need to be answered in not more than one line.

### **Chapter 1 :: Introduction to Statistics :: Question Bank**

- Question 1. Define statistics.
- Question 2. What are the stages of statistical study?
- Question 3. What are the tools used, related to statistical study?
- Question 4. What are the scopes of statistics?
- Question 5. Define statistics as a singular noun.
- Question 6. Define statistics as a plural noun.
- Question 7. What is inferential statistics?
- Question 8. What are the two components of the subject matter in statistics?
- Question 9. What are the three components of economics?
- Question 10. What is descriptive statistics?

### **Chapter 2 :: Collection of Data :: Question Bank**

- Question 1. Define primary data.
- Question 2. Define secondary data.
- Question 3. What are the two sources of data?
- Question 4. Mention two sources of secondary data.
- Question 5. In what parameters is the statistical information published in the census of India?
- Question 6. Mention two demerits of indirect oral investigation.
- Question 7. The progress report of a railway published by the railway department is what kind of data?
- Question 8. When is a direct personal investigation suitable for primary data collection?
- Question 9. When are the qualities of a good questionnaire?
- Question 10. Why is a pilot survey important?
- Question 11. What is the universe in statistics?
- Question 12. Define sample.
- Question 13. Define the census method.
- Question 14. Explain the sample method.
- Question 15. What do you mean by random sampling?
- Question 16. What is purposive or deliberate sampling?
- Question 17. Define stratified and mixed sampling?
- Question 18. Explain systematic sampling.
- Question 19. What is quota sampling?
- Question 20. What is convenience sampling?

### **Chapter 3 :: Organisation of Data :: Question Bank**

- Question 1. What is classification?
- Question 2. Define variables.
- Question 3. Define individual series.
- Question 4. Explain discrete series.
- Question 5. What do you mean by frequency distribution or frequency series?
- Question 6. What is frequency?
- Question 7. Define class limit.
- Question 8. Explain the magnitude of a class interval.
- Question 9. What is an exclusive series?

Question 10. What is an inclusive series?

## Chapter 4 :: Presentation of Data :: Question Bank

Question 1. Define presentation of data.

Question 2. What is tabulation?

Question 3. Define table.

Question 4. Define a simple table.

Question 5. What is a complex table?

Question 6. Define a derived table.

Question 7. What are the two principal parts of a table?

Question 8. How can tables be classified?

Question 9. What are the two types of a complex table?

Question 10. What are the different forms of presentation of data?

### Assignment 3

Prepare a comprehensive project based on the following CBSE guidelines / expectations:

- Introduction of topic/title
- Identifying the causes, consequences and/or remedies
- Various stakeholders and effect on each of them
- Advantages and disadvantages of situations or issues identified
- Short-term and long-term implications of economic strategies suggested in the course of research
- Validity, reliability, appropriateness and relevance of data used for research work and for presentation in the project file
- Presentation and writing that is succinct and coherent in project file
- Citation of the materials referred to, in the file in footnotes, resources section, bibliography etc.

Following is a list of suggested topics:

• Micro and Small Scale Industries	• Food Supply Channel in India
• Contemporary Employment situation in India	• Disinvestment policy of the government
• Goods and Services Tax Act and its Impact on GDP	• Health Expenditure (of any state)
• Human Development Index	• Inclusive Growth Strategy
• Self-help group	• Trends in Credit availability in India
• Monetary policy committee and its functions	• Role of RBI in Control of Credit
• Government Budget & its Components	• Trends in budgetary condition of India
• Exchange Rate determination – Methods and Techniques	• Currency War – reasons and repercussions
• Livestock – Backbone of Rural India	• Alternate fuel – types and importance
• Sarva Siksha Abhiyan – Cost Ratio Benefits	• Golden Quadrilateral- Cost ratio benefit
• Minimum Support Prices	• Relation between Stock Price Index and Economic Health of Nation
• Waste Management in India – Need of the hour	• Minimum Wage Rate – approach and Application
• Digital India- Step towards the future	• Rain Water Harvesting – a solution to water crises
• Vertical Farming – an alternate way	• Silk Route- Revival of the past
• Make in India – The way ahead	• Bumper Production- Boon or Bane for the farmer
• Rise of Concrete Jungle- Trend Analysis	• Organic Farming – Back to the Nature
• Any other newspaper article and its evaluation on basis of economic principles	• Any other topic

## SOCIOLOGY

The subject, Sociology studies everyday life. Sociologists aim to raise questions about social life and our world today – about how people live and why people live as they do and issues about how we live.

Sociology is concerned with people, groups, cultures, societies and their patterns, variations and problems. It aims to understand and explain human actions. It employs a wide range of interesting research methods such as interviews, questionnaires and observations to investigate and answer crucial questions about society and social life. It tries to link past, present and future. It is about the experiences we have, living our lives with other people in contemporary society.

(I) As you will study the topics of Family and Households and Education – both things that you have experienced and know about – think though: this should be a big advantage – but why might it also be a disadvantage to your learning?

You will also study the Research Methods and how sociologists find out things and how certain they can feel about their knowledge.

The following work should get you thinking sociologically .

1) Do some research!!

**Investigate:** talk to someone of a different generation– parents or grandparents or both– about how they feel the family has changed – how were things different in the past to what things are like now? Why do they think these changes have happened? What are the positive and the negative effects of these changes? What do they think might happen to the family in the future?

(2) Use similar research methods for investigating the education institution.

(3) Do a Print Media Search

(4) Look at some newspapers and find out what they report about family and education. Cut out some examples. Are the reports positive or negative or neutral? What viewpoint is the writer taking?

(5) **Gender Roles:** Think!!

How do boys become boys and girls become girls?

Think about your own family experiences and those of your friends.

What toys did you play with?

What toys do you consider ‘boys’ and ‘girls’ toys?

What kind of games do boys and girls play? How are they similar or different?

Does childhood and play prepare boys and girls for different roles in adult life?

What expectations are there of boys and girls in your experience?

Think about the language that is used when parents talk to boys and girls is it different? How?

What role does socialization play in the formation of gender roles? Which agents are involved in this?

**Note : You can choose any social topic of your choice . Bring out new element into light .**

# ACCOUNTANCY

## Topic : Introduction to Accounting.

**Q.1** Define Book keeping.

**Q. 2** Name any two branches of accounting.

**Q. 3** List any two demerits of accounting.

**Q. 4** Name any two external users of accounting.

**Q. 5** Distinguish between loss and expense.

**Q. 6** Define the following accounting terms with example :

i. Capital

ii. Assets

iii. Liability

## Topic: Accounting Equation.

### Objective Type Questions

**Q.1.** Give an imaginary transaction that will lead to:

- a. Increase in one asset and decrease in another asset.
- b. Decrease in an asset and decrease in a liability.
- c. Increase in liabilities and decrease in owner's capital.
- d. Increase in asset and increase in owner's capital.
- e. Increase and decrease in capital only.

**Q.2** Calculate total equity if:

- a. Owner's equity is ` 1,80,000
- b. Creditors equity is ` 1,50,000
- c. Revenue earned during the period ` 2,00,000
- d. Expenses during the period , ` 80,000.

**Q.3** "Accounting equation is true under all circumstances". Justify this statement with the help of few illustrations.

**Q.4** What do you mean by external equity.

**Q.5** Calculate the amount of external equities as on 31st March ' 2015:

Amit started a business with a capital of ` 20,000 on 1st April,2014.On the same day, he also borrowed ` 5,000 from a friend to invest in business. During 2014-15, he earned a profit of ` 10,000, introduced an additional capital of ` 12,000 and had withdrawn ` 6,000 for his personal use. On 31st March, 2015, the total assets were ` 1,00,000.

**Q.6** Rajan started a business on 1st Jan, 2015 with a capital of ` 2,00,000 and loan ` 1,00,000 from the bank. On 31st Dec. 2015 his assets were ` 3,50,000. Find out capital as on 31st Dec. 2015 and profit earned during the year.

**Q. 7** Suresh has the following assets and liabilities as on 31st March 2015. Ascertain his capital : Cash ` 25000, Bank ` 47500, Debtors ` 18000, Creditors ` 22000, Plant and Machinery ` 80,000, Building ` 2,00,000, Furniture ` 24000, Bill Receivable ` 56500, Bill Payable ` 23500. **(Ans. ` 4,05,500)**

**Q.8** If total assets of a business are ` 5,00,000 and net worth is ` 2,40,000. Calculate total liabilities.

**Practical Questions:**

**Q.9** Which of the following equations are correct?

- i. Assets = Capital + Liabilities
- ii. Assets = Capital – Liabilities
- iii. Assets = Liabilities – Capital
- iv. Capital = Assets – Liabilities
- v. Capital = Assets + Liabilities
- vi. Liabilities = Capital + Assets

**Q.10** What will be the effect of the following on the Accounting Equation :

- i. Purchased goods for ₹ 80,000 from Amit on Credit.
- ii. Sold goods to Kamal costing ₹ 16,000 for ₹ 20,000 in cash.
- iii. Paid wages ₹ 1000.
- iv. Withdrew in cash for personal use ₹ 3,000.
- v. Paid to creditors ₹ 10,000.

**Q.11** Prepare accounting equation from the following:

- i. Nimish started business with cash ₹ 2,50,000.
- ii. Bought goods for cash ₹ 1,80,000 and on credit for ₹ 40,000.
- iii. Goods costing ₹ 75,000, sold at a profit of 10%, half of the payment received in cash.
- iv. Goods costing ₹ 10,000 sold for ₹ 12,000 on credit.
- v. Paid for rent ₹ 2,000 and for salaries Rs 4,000.
- vi. Accrued commission, ₹ 500.

**Q.12** Jatin has the following assets and liabilities :

Cash ₹ 3,000; Furniture ₹ 2,000; Deepak (Debtors for goods sold) ₹ 4,000; Stock of Goods ₹ 6,000, Prakash (creditors for goods purchased) ₹ 1,000.

- i. Prepare the Accounting equation and find out his capital.
- ii. Amend the Accounting Equation on the basis of the following :
  - a. Goods worth ₹ 2,000 sold for ₹ 2,500.
  - b. Paid to Prakash ₹ 500.
  - c. The proprietor took goods for personal use ₹ 500.
  - d. Nitin made part payment of ₹ 2,000.

**Q.13** Develop accounting equation from the following transactions :

- |                                       |          |
|---------------------------------------|----------|
| i. Varun commenced business with cash | 1,50,000 |
| ii. Purchased goods for cash          | 30,000   |
| iii. Purchased goods on credit        | 20,000   |
| iv. Sold goods (cost ₹ 10,000) for    | 12,000   |
| v. Bought furniture on credit         | 5,000    |
| vi. Paid cash to a creditor           | 15,000   |



**Q.14** Harsh started a real estate agency business with cash investment of ₹ 7,000 the following business transactions have been recorded:-

- i. Paid three months advance rent for office accommodations ₹ 2100.
- ii. Purchased office furniture ₹ 7,000
- iii. Bought office typewriter from standard supply company ₹ 3000.
- iv. Sold extra office furniture at cost to Aman for ₹ 1,000. Aman paid ₹ 600 in cash and accepted a bill at three months for the balance.
- v. Jiwan paid the amount of the bill at maturity and Ashok paid half the amount he owed to standard supply company.
- vi. Collected ₹ 6000 as commission.

**Q.15** Show the effect of the following:- transactions on assets, liabilities and capital using the accounting equation. Also prepare a balance sheet.

- i. Started business with cash ₹ 60,000.
- ii. Rent received ₹ 1500.
- iii. Outstanding wages ₹ 700.
- iv. Accrued interest ₹ 550.
- v. Commission received in advance ₹ 1,000.
- vi. Invested in shares (personal), ₹ 1500.
- vii. Invested in shares (for business purposes), ₹ 1000.

**Q.16** Show the accounting equation on the basis of following transactions:-

- i. Twinkle commenced business with cash, ₹ 2,00,000.
- ii. Purchased machinery worth ₹ 10,000.
- iii. Depreciation on machinery 5%.
- iv. Bought car for personal use ₹ 3000.
- v. Interest on drawings charged @ 10%.
- vi. Introduced fresh capital ₹ 25000.
- vii. Purchased goods on credit ₹ 50000.
- viii. Raised a bank loan of ₹ 70,000 from 'IDBI' Bank, Delhi.

#### **Topic: Journal & Ledger**

**Q.1** Is Journal a book of original entry? Discuss.

**Q.2** What are compound journal entries. Give an example.

**Q.3** What is an opening entry? Give an example.

**Q.4** What is the difference between cash discount and trade discount?

**Q.5** State with reasons whether the following statements are true or false :

- i. Withdrawal of money by the owner is an expense for the business.
- ii. Balancing of ledger is necessary.
- iii. Furniture purchased for cash is debited to purchases a/c.
- iv. Goods distributed as charity decreases the purchases a/c.

**Q.6** Select the best answer :

- i. The amount brought in by the owner in the business should be credited to  
a. Cash Account                      b. Capital Account                      c. Drawings Account
- ii. The amount of Salary paid to Kamlesh should be debited to  
a. The account of Ramesh   b. Salaries Account                      c. Cash Account
- iii. The return of goods by a customer should be debited to  
a. Customer's Account   b. Return inward Account   c. Goods Account
- iv. Sales made to Tej for Cash should be debited to  
a. Cash Account                      b. Tej                      c. Sales Account
- v. The rent paid to the landlord should be credited to  
a. Landlord's Account                      b. Rent Account                      c. Cash Account
- vi. The cash discount received from a supplier should be debited to  
a. Discount Account                      b. Supplier's Account                      c. Sales Account
- vii. In case of a debt becoming bad, the amount should be credited to  
a. Debtor's Account                      b. Bad Debtors Account                      c. Sales Account

**.7** Enter the following transactions in the journal of Darbari Lal :

March 1	Sunder started business with cash	90,000
2	Purchased furniture for cash	10,000
4	Purchased goods for cash	25,000
5	Bought goods from Vimal	15,000
6	Sold goods for cash	40,000
8	Sold goods to Hari	30,000
10	Paid cash to Vimal	15,000
14	Received cash from Hari	18,000
16	Purchased goods from Ramesh	6,000
18	Purchased goods from Ramesh for cash	8,000
20	Paid rent for the office	1,000
26	Received Commission	750
27	Paid Salary to Narender	1,000
29	Withdrew cash from office for private use	3,000
30	Wages paid	7,200
30	Bought Furniture for Cash	8,000

**Q.8** Give the journal entries corresponding to the narration given below :

S.No.	Particulars	L.F.	Amount Dr.	Amount Dr.
(i)	Dr. Dr. To (For goods of the list price of ₹ 5,000 sold at 10% trade discount and 2% cash discount)			
(ii)	(For the purchase of Motor Car for ₹ 80,000 and and the payment of ₹ 5,000 is repair charges on it)			
(iii)	Dr. To Cash A/c To (For Chaturvedi's account settled, cash discount three (percent)			4,850
(iv)	Cash A/c Dr. Dr. To (For 30 paise per rupee received from the estate of Ashok on his insolvency)		2,520	
(v)	Dr. To (For goods used by proprietor for personal use)		3,000	3,000
(vi)	Dr. To (For rent due to landlord)		2,000	2,000

**Q.9** The following entries have been passed by a student. You have to state whether these entries are correctly passed. If not so, pass the correct journal entries.

		L.F.	Amount Dr.	Amount Dr.
(i)	Cash Account To Interest Account (Being interest paid)		7,000	7,000
(ii)	Mohan To Purchases Account (Being purchase of goods from Mohan)		10,000	10,000
(iii)	Hari To Sales Account (Being cash sale of goods to Hari)		5,000	5,000
(iv)	Mukesh To Bank Account (Being salary paid to Mukesh)		1,000	1,000
(v)	Freight Account To Cash Account (Being freight paid)		1,000	1,000
(vi)	Repairs Account To Cash Account (Being charges paid for overhauling an old machine purchased)		1,000	1,000

