THE SOUTH POINT

Holidays' Homework, 2023-24
Class:XI- Science

Subject- English (Core)

Section- A (Reading Skills)

(Let's Read, Comprehend and Answer)

1) Select the Articles/ Write -Ups in about 200-250 words on each of the following from the English newspaper. Paste the cuttings in your notebook, frame 8 questions on each of them and write their answers also.

"Cleanliness" , "Sports" , "Food Habits", "Obesity" , "Women Empowerment" , "Politics"

Section- B:(Grammar)

(Let's Hone Grammar Skills)

Practise "Subject _Verb Agreement", "Tenses" and Re-arrangement of jumbled-up words to make meaningful sentences.(Any 20 sentences on each)

Make a beautiful chart on 'Tenses'.

Section- B (Creative Writing Skills)

(Let's Compose)

1) Design any 5 Posters on A-4 size coloured sheet.
2) Draft any 5 Advertisements.
3) Write Articles on the following in your fair notebook:
a) "Women Empowerment"
b) "Health Awareness"
c) "New Education Policy"
d) "Character Building; Need of The Hour"
4) Write any 5 Speeches in your fair notebook.
5) Make a beautiful Poster on the 'Mother's Day'.

Section- C (Literature)

(Let's Check Literary Flavour)

Learn and write the textual exercises of the following:

Hornbill : 1) "A Portrait of a Lady"
2) "We 're Not Afraid to Die If We Are Together"

Poem- "The Photograph"

Snapshot - 1) "The Summer of Beautiful White Horse"
2) "The Address"

Define 10 Literary Devices alongwith examples on A-4 size coloured sheets.

(Art-Integrated Activity)

Select any 02 English Dramatists of Manipur and Haryana each. Paste their photographs on A-4 size sheets. Write about their life, education, works and awards & honours.

4. The position of a particle at time t is given by the relation $x(t)=\left(\frac{v_0}{\alpha}\right)(1-e^{-\alpha t})$, where v_0 is a constant and $\alpha>0$. The dimensions of v_0 and α are respectively

(a) $[M^0L^1T^{-1}]$ and $[T^{-1}]$ (b) $[M^0L^1T^0]$ and $[T^{-1}]$

(c) $[M^0L^1T^{-1}]$ and $[LT^{-2}]$ (d) $[M^0L^1T^{-1}]$ and $[T]$

5. A physical quantity x depends on quantities y and z as follows: $x = Ay + B\tan Cz$, where A, B and C are constants. Which of the following do not have the same dimensions?

(a) x and B (b) C and z^{-1}

(c) y and B/A (d) x and A

6. The frequency of vibration of string is given by $\nu=\frac{p}{2l}\left[\frac{F}{m}\right]^{1/2}$. Here p is number of segments in the string and l is the length. The dimensional formula for m will be

(a) $[M^0LT^{-1}]$ (b) $[ML^0T^{-1}]$

(c) $[ML^{-1}T^0]$ (d) $[M^0L^0T^0]$

7. The Vander Waal's equation of state for real gases is given as $\left(P+\frac{a}{V^2}\right)(V-b)=nRT$ which of the following terms has dimensions different from that of energy

(a) PV (b) $\frac{a}{V^2}$

(c) $\frac{ab}{V^2}$ (d) bP

8. Frequency is the function of density (ρ), length (a) and surface tension (T). Then its value is

(a) $k\rho^{1/2}a^{3/2}/\sqrt{T}$ (b) $k\rho^{3/2}a^{3/2}/\sqrt{T}$

(c) $k\rho^{1/2}a^{3/2}/T^{3/4}$ (d) None of these

9. The velocity of a freely falling body changes as g^ph^q where g is acceleration due to gravity and h is the height. The values of p and q are

(a) $1,\frac{1}{2}$ (b) $\frac{1}{2},\frac{1}{2}$

(c) $\frac{1}{2},1$ (d) $1, 1$

10. If P represents radiation pressure, c represents speed of light and Q represents radiation energy striking a unit area per second, then non-zero integers x, y and z such that $P^xQ^yc^z$ is dimensionless, are

(a) $x=1, y=1, z=-1$ (b) $x=1, y=-1, z=1$

(c) $x=-1, y=1, z=1$ (d) $x=1, y=1, z=1$

11. The frequency of vibration f of a mass m suspended from a spring of spring constant K is given by a relation of this type, $f=Cm^xK^y$; where C is a dimensionless quantity. The value of x and y are

(a) $x=\frac{1}{2}, y=\frac{1}{2}$ (b) $x=-\frac{1}{2}, y=-\frac{1}{2}$

(c) $x=\frac{1}{2}, y=-\frac{1}{2}$ (d) $x=-\frac{1}{2}, y=\frac{1}{2}$

12. The velocity of water waves v may depend upon their wavelength λ, the density of water ρ and the acceleration due to gravity g. The method of dimensions gives the relation between these quantities as

(a) $v^2\propto \lambda g^{-1}\rho^{-1}$ (b) $v^2\propto g\lambda\rho$

(c) $v^2\propto g\lambda$ (d) $v^2\propto g^{-1}\lambda^{-3}$

13. If mass is measure in units of α kg, length in βm and time in γs then calorie would be

(a) $4.2\alpha\beta^2\gamma^{-2}$ (b) $4.2\alpha^{-1}\beta^2\gamma^2$

(c) $4.2\alpha^{-1}\beta^{-2}\gamma^2$ (d) $4.2\alpha^{-2}\beta^{-1}\gamma^{-2}$

14. A small steel ball of radius r is allowed to fall under gravity through a column of a viscous liquid of coefficient of viscosity η. After some time, the velocity of the ball attains a constant value known as terminal velocity v_T. The terminal velocity depends on (*i*) the mass of the ball m, (*ii*) η, (*iii*) r and (*iv*) acceleration due to gravity g. Which of the following relations is dimensionally correct?

(a) $v_T\propto\frac{mg}{\eta r}$ (b) $v_T\propto\frac{\eta r}{mg}$

(c) $v_T\propto\eta rmg$ (d) $v_T\propto\frac{mgr}{\eta}$

15. In a system of units if force (F), acceleration (a)and time (T) are taken as fundamental units then the dimensional formula of energy is

(a) FA^2T (b) FAT^2

(c) F^2AT (d) FAT

16. If the speed of light (c), acceleration due to gravity (g) and pressure (p) are taken as the fundamental quantities, then the dimension of gravitational constant is

(a) $c^2g^0p^{-2}$ (b) $c^0g^2p^{-1}$

(c) cg^3p^{-2} (d) $c^{-1}g^0p^{-1}$

17. If the time period (T) of vibration of a liquid drop depends on surface tension (S), radius (r) of the drop and density (ρ) of the liquid, then the expression of T is

(a) $T=k\sqrt{\rho r^3/S}$ (b) $T=k\sqrt{\rho^{1/2}r^3/S}$

(c) $T=k\sqrt{\rho r^3/S^{1/2}}$ (d) None of these

HOME BASED QUESTIONS

1. Distance and Displacement

1. An aeroplane flies 400*m* north and 300*m* south and then flies 1200 *m* upwards then net displacement is

(a) 1200 m (b) 1300 m

(c) 1400 m (d) 1500 m

2. An athlete completes one round of a circular track of radius R in 40 *sec*. What will be his displacement at the end of 2 *min*. 20 *sec*

(a) Zero (b) $2R$

(c) $2\pi R$ (d) $7\pi R$

2. Uniform Motion

1. A man walks on a straight road from his home to a market 2.5 *km* away with a speed of 5 *km/h*. Finding the market closed, he instantly turns and walks back home with a speed of 7.5 *km/h*. The average speed of the man over the interval of time 0 to 40 *min*. is equal to

(a) 5 km/h (b) $\frac{25}{4}$ km/h

(c) $\frac{30}{4}$ km/h (d) $\frac{45}{8}$ km/h

2. A particle covers half of its total distance with speed v_1 and the rest half distance with speed v_2. Its average speed during the complete journey is

(a) $\frac{v_1^2 v_2^2}{v_1^2 + v_2^2}$ (b) $\frac{v_1 + v_2}{2}$

(c) $\frac{v_1 v_2}{v_1 + v_2}$ (d) $\frac{2v_1 v_2}{v_1 + v_2}$

3. A cat moves from X to Y with a uniform speed v_u and returns to X with a uniform speed v_d. The average speed for this round trip is

(a) $\frac{2v_d v_u}{v_d + v_u}$ (b) $\sqrt{v_u v_d}$

(c) $\frac{v_d v_u}{v_d + v_u}$ (d) $\frac{v_u + v_d}{2}$

4. Select the incorrect statements from the following

S1: Average velocity is path length divided by time interval

S2: In general, speed is greater than the magnitude of the velocity

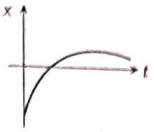
S3: A particle moving in a given direction with a non-zero velocity can have zero speed

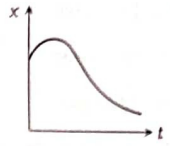
S4: The magnitude of average velocity is the average speed

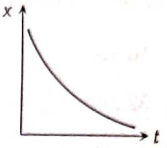
(a) S2 and S3 (b) S1 and S4

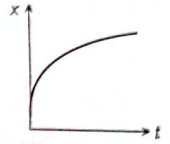
(c) S1, S3 and S4 (d) All four statements

5. Among the four-graph shown in the figure 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) 

(c) 

(d) 

6. In one dimensional motion, instantaneous speed v satisfies $0 \le v < v_0$

(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

7. A particle is moving such that its position coordinates (x, y) are

(2 m, 3 m) at time $t = 0$,

(6 m, 7 m) at time $t = 2\ s$ and

(13 m, 14 m) at time $t = 5\ s$

Average velocity vector $(\vec{V}_{av})$ from $t = 0$ to $t = 5s$ is

(a) $2(\hat{i} + \hat{j})$ (b) $\frac{11}{5}(\hat{i} + \hat{j})$

(c) $\frac{1}{5}(13\hat{i} + 14\hat{j})$ (d) $\frac{7}{3}(\hat{i} + \hat{j})$

3. Non-uniform Motion

1. A particle moves along a straight line such that its displacement at any time t is given by

$S = t^3 - 6t^2 + 3t + 4$ meters. The velocity when the acceleration is zero is

(a) $3\ ms^{-1}$ (b) $-12\ ms^{-1}$

(c) $42\ ms^{-1}$ (d) $-9\ ms^{-1}$

2. The position x of a particle varies with time t as $x = at^2 - bt^3$. The acceleration of the particle will be zero at time t equal to

(a) $\frac{a}{b}$ (b) 7.5 km/ *h*

(c) $\frac{a}{3b}$ (d) Zero

3. The motion of a particle is described by the equation $x = a + bt^2$ where $a = 15$ cm and $b = 3$ cm/s^2. Its instantaneous velocity at time 3 sec will be

(a) 36 cm/sec

(b) 18 cm/sec

(c) 16 cm/sec

(d) 32 cm/sec

4. Equation of displacement for any particle is $s = 3t^3 + 7t^2 + 14t + 8$ m. Its acceleration at time $t = 1$ sec is

(a) 10 m/s^2 (b) 16 m/s^2

(c) 25 m/s^2 (d) 32 m/s^2

5. The displacement of a particle is given by $x = (t-2)^2$ where x is in meter and t in second. The distance covered by the particle in first 4 seconds is

(a) 4 m (b) 8 m

(c) 12 m (d) 16 m

6. The motion of a particle along a straight line is described by equation: $x = 8 + 12t - t^3$ where x is in meter and t in second. The retardation of the particle when its velocity becomes zero, is

(a) 24 ms^{-2} (b) Zero

(c) 6 ms^{-2} (d) 12 ms^{-2}

7. The distance travelled 'S' by an accelerated particle of mass M is given by the following relation (in MKS units) $S = 6t + 3t^2$. The velocity of the particle after 2 seconds is

(a) 6 (b) 12

(c) 18 (d) 24

8. The position of a particle x (in meters) at a time t seconds is given by the relation $\vec{r} = (3t\hat{i} - t^2\hat{j} + 4\hat{k})$. Calculate the magnitude of velocity of the particle after 5 seconds

(a) 3.55 (b) 5.03

(c) 8.75 (d) 10.44

9. The displacement x of a particle varies with time t, $x = ae^{-\alpha t} + be^{\beta t}$, where a, b, α and β are positive constants. The velocity of the particle will

(a) Go on decreasing with time

(b) Be independent of α and β

(c) Drop to zero when $\alpha = \beta$

(d) Go on increasing with time

10. The position x of a particle with respect to time t along x-axis is given by $x = 9t^2 - t^3$ where x is in metres and t in second. What will be the position of this particle when it achieves maximum speed along the $+x$ direction?

(a) 32 m (b) 54 m

(c) 81 m (d) 24 m

11. A particle moves a distance x in time t according to equation $x = (t+5)^{-1}$. The acceleration of particle is proportional to

(a) (velocity)$^{2/3}$ (b) (velocity)$^{3/2}$

(c) (distance)^2 (d) (distance)$^{-2}$

12. A particle of unit mass undergoes one-dimensional motion such that its velocity varies according to $v(x) = bx^{-2n}$. Where b and n are constants and x is the position of the particle. The acceleration of the particles as function of x, is given by

(a) $-2nb^2x^{-4n-1}$ (b) $-2b^2x^{-2n+1}$

(c) $-2nb^2e^{-4n+1}$ (d) $-2nb^2x^{-2n-1}$

13. The acceleration of a particle is increasing linearly with time t as bt. The particle starts from the origin with an initial velocity v_0 The distance travelled by the particle in time t will be

(a) $v_0t + \frac{1}{3}bt^2$ (b) $v_0t + \frac{1}{3}bt^3$

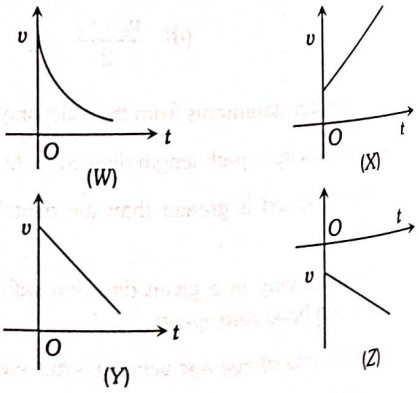
(c) $v_0t + \frac{1}{6}bt^3$ (d) $v_0t + \frac{1}{2}bt^2$

14. 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) $x < 0, v > 0, a < 0$

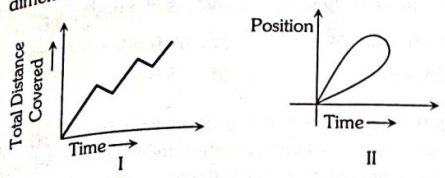
15. Given below are four curves describing variation of velocity with time of a particle. Which one of these describe the motion of a particle initially in positive direction with constant negative acceleration

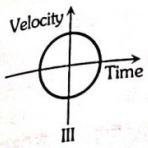


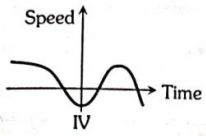
(a) (W) (b) (X)

(c) (Y) (d) (Z)

16. Which of the following graphs can not possibly represent one dimensional motion of a particle



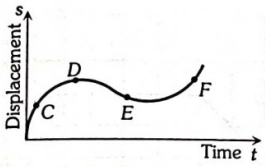




(a) I and II (b) II and III

(c) II and IV (d) All four

17. The displacement-time graph of moving particle is shown below



The instantaneous velocity of the particle is negative at the point

(a) D (b) F

(c) C (d) E

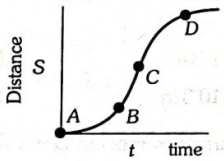
18. A particle shows distance – time curve as given in this figure. The maximum instantaneous velocity of the particle is around the point

(a) D

(b) A

(c) B

(d) C



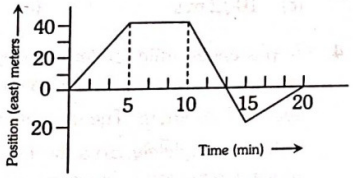
19. A boy begins to walk eastward along a street in front of his house and the graph of his position from home is shown in the following figure. His average speed for the whole time interval is equal to

(a) 8 m/ min

(b) 6 m/min

(c) $\frac{8}{3}$ m/min

(d) 2 m/min



20. A body is moving with velocity 30 m/s towards east. After 10 seconds its velocity becomes 40 m/s towards north. The average acceleration of the body is

(a) $5\ m/s^2$ (b) $1\ m/s^2$

(c) $7\ m/s^2$ (d) $\sqrt{7}\ m/s^2$

4. Relative Motion

1. A boat is sent across a river with a velocity of 8 km/hr. If the resultant velocity of boat is 10 km/hr, then velocity of the river is:

(a) 10 km/hr (b) 8 km/hr

(c) 6 km/hr (d) 4 km/hr

2. A river is flowing from W to E with a speed of 5 m/min. A man can swim in still water with a velocity 10 m/min. In which direction should the man swim so as to take the shortest possible path to go to the south.

(a) 30° with downstream (b) 60° with downstream

(c) 120° with downstream (d) South

3. Two trains A and B each of length 400 m are moving on two parallel tracks in the same direction (with A ahead of B) with same speed 72 km/ h. The driver of B decides to overtake A and accelerates by $1\ m/s^2$. If after 50 s, B just brushes past A, calculate the original distance between A and B

(a) 750 m (b) 1000 m

(c) 1250 m (d) 2250 m

5. Motion Under Gravity

1. A stone is shot straight upward with a speed of 20 m/sec from a tower 200 m high. The speed with which it strikes the ground is approximately

(a) 60 m/sec (b) 65 m/sec

(c) 70 m/sec (d) 75 m/sec

2. A body freely falling from the rest has a velocity 'v' after it falls through a height 'h'. The distance it has to fall down for its velocity to become double, is

(a) 2 h (b) 4 h

(c) 6 h (d) 8 h

3. A particle is thrown vertically upwards. If its velocity at half of the maximum height is 10 m/s, then maximum height attained by it is (Take $g = 10\ m/s^2$)

(a) 8 m (b) 10 m

(c) 12 m (d) 16 m

4. A body falls from a height $h = 200\,m$. The ratio of distance travelled in each 2 sec during $t = 0$ to $t = 6$ second of the journey is

(a) 1 : 4 : 9 (b) 1 : 2 : 4

(c) 1 : 3 : 5 (d) 1 : 2 : 3

5. The acceleration due to gravity on the planet A is 9 times the acceleration due to gravity on planet B. A man jumps to a height of 2 m on the surface of A. What is the height of jump by the same person on the planet B

(a) 18 m (b) 6 m

(c) $\frac{2}{3}$ m (d) $\frac{2}{9}$ m

Chemistry

1. Solve the following questions in chemistry notebook:-

Chapter No.	Name of Chapter	NCERT Exercise Questions
1	'Some Basic Concepts of Chemistry'	1.3, 1.5, 1.6, 1.7, 1.11, 1.17, 1.28, 1.30, 1.33. 1.36
2	Structure of Atom	2.16, 2.18, 2.19, 2.20, 2.21, 2.22, 2.23, 2.24, 2.25, 2.26, 2.28, 2.29, 2.31, 2.59, 2.66, 2.67

2. What information is conveyed by each of the four quantum numbers?
3. Write down the electronic configuration of (i) Cr^{+3} (ii) Cu^{+2} (iii) S^{-2}
4. Explain: (i) Why is the energy of electron negative?
   (ii) How did Bohr explain the stability of atom?
   Note: Learn Chapter 1 and Chapter 2.

Practical Work

1. Preparation of standard solution of oxalic acid.
2. Determination of strength of a given solution of sodium hydroxide by titrating it against standard solution of oxalic acid.
3. To analyse the given salt for one cation and one anion (NH_4Cl).
4. To analyse the given salt for one cation and one anion (Lead Nitrate).

Project

1. Determination of rate of evaporation of different liquids.

Biology

Assignment—A

1. What is a genus?
2. Define systematics.
3. What are the aims of a zoo?
4. Define taxon.
5. Who wrote the books "Species Plantarum" and "Systema Natural "?"
6. Who observed bacteria for the first time?
7. Who Introduced the term species?
8. Who made the earliest attempt to classify living?
9. Which pigments are found in green algae?
10. Name the smallest angiospermic plant.
11. Where the antheridia and archegonia are located in fern?
12. Which substance is responsible for the formation of cell wall in redalgae?

SECTION-B

13. What is evolutionary classification?
14. What are the advantages of giving scientific names to organisms?
15. What are lichens and mycorrhiza?
16. Give names of 5-kingdoms proposed by Whittaker.
17. Write the salient features of viruses.
18. How ascomycetes are different from basidiomycetes?
19. Differentiate between gametophyte and sporophyte.
20. Describe the main features of pteridophytes.
21. What is water bloom?
22. Define 'double fertilization'.

SECTION-C

23. What are taxonomical aids? Give the importance of herbaria and museums.
24. Compare the salient features of Monera and Protista.
25. Discuss different system's of classification briefly.

Assignment-B

Make a project on a given topic:

- Taxonomy and taxonomical aids.
- kingdom Fungi.
- kingdom protista.
- Algae.
- Bryophytes
- Pteridophytes

MATHEMATICS

1. Do the following exercises of NCERT text book in your fair notebook:
   1.1, 1.2, 1.3, 1.4, 1.5, 2.1, 2.3, 3.1, 3.2, 3.3 and complete miscellaneous exercises of Chapter -1, 2 & 3.
2. Solve following problems from NCERT Exempler:
   Exercise 1.3 : Question No. 3,5,8,24,29,30, 39, 48
   Exercise 2.3 : Question No. 8, 17, 18, 19, 20, 22, 24, 25, 26, 27, 31, 32, 33
   Exercise 3.3 : Question No. 1,2,3,4,5,8,17,18,30,31,32,34,35,36,41,50,51,56,57,63
3. Prepare a chart on Trigonometric Formulas
4. Prepare a well labeled model on Relations & Functions.
5. Complete the following activities in your Lab Manual.
   (i) Activity 2 Page No. 4
   (ii) Activity 4 Page No. 10
   (iii) Activity 9 Page No. 24

Physical Education

1. Read, learn and prepare the notes of following units:-
   Unit- 1 'Changing Trends and Career in Physical Education'
   Unit- 2 'Olympic value Education'
2. Make the following Asanas and pranayama with stick diagram and write down Procedure, benefits and contraindications also:-
   asanas- Tadasana, Bhujangasana, Vajrasana, Halasana, Gomukhsana, Paschimottanasana.
   Pranayama:- Anulom- Vilom-,Kapalbhati, Sitali, Nadi- Shodhan Pranayama.
3. Make a record on the topic of "Yogic Kriyas"-Jal neti, sutra neti, vastra neti, Nauli kriya. Your record file- must include the following:-
   *Introduction
   *Index
   *Acknowledgement
   *Bibliography
   *Passport size photograph

I.P.

1. Learn Unit-'Introduction to Computer System', 'Introduction to Python'.
2. Write any five Python programs.(A4 size sheet).
3. Write any five Input Devices, Output Devices and Storage Devices.(A4 size sheet)
4. Read Artificial Intelligence, Internet of Things, Cloud Computing and Robotics topics.
5. Make a ppt on "Computer Memory".
6. Make a chart on
   - Input Devices (Roll No. 1-15)
   - Output Devices((Roll No. 16-30)
   - Storage Devices(Roll No. 31-45)
   - Units of Memory(Roll No. 46-60)