

ST. PBN PUBLIC SCHOOL, GURUGRAM
UNIT TEST – I
CLASS – XI
MATHEMATICS
SAMPLE PAPER

TIME: 2Hrs

M.M.50

General Instructions:

- Section A consists of 9 questions of 1 mark each.
- Section B consists of 3 questions of 2 marks each.
- Section C consists of 4 questions of 4 marks each.
- Section D consists of 3 questions of 5 marks each.
- Section E has 1 case based questions of 4 marks each.

SECTION – A

1. The number of subsets of a set containing n elements is
 - i). n
 - ii). n^2
 - iii). $2^n - 1$
 - iv). 2^n
2. Let A and B be two sets such that $n(A) = 16$, $n(B) = 14$, $n(A \cup B) = 25$. Then $n(A \cap B)$ is equal to
 - i). 30
 - ii). 50
 - iii). 5
 - iv). None of these
3. For any set A , $(A')'$ is equal to
 - i). A'
 - ii). A
 - iii). \emptyset
 - iv). None of these
4. Let R be a relation from a set A to set B , then
 - i). $R = A \cup B$
 - ii). $R = A \cap B$
 - iii). $R \subseteq A \times B$
 - iv). $R \subseteq B \times A$
5. The range of the function $f(x) = |x - 1|$ is
 - i). $(-\infty, 0)$
 - ii). $[0, \infty)$
 - iii). $(0, \infty)$
 - iv). \mathbb{R}
6. Write the set $A = \{1, 4, 9, 16, 25, \dots\}$ in set builder form.
7. Let $A = \{1, 2, 3, 4, 5, 6\}$, $B = \{2, 4, 6, 8\}$. Find $A - B$ and $B - A$.
8. If $\left(\frac{x}{3} + 1, y - \frac{2}{3}\right) = \left(\frac{5}{3}, \frac{1}{3}\right)$, find the values of x and y .
9. If $A = \{1, 2, 3\}$, $B = \{3, 4\}$ and $C = \{1, 3, 5\}$ find $A \times (B \cup C)$.

SECTION – B

10. If $P = \{1, 2\}$, form the set $P \times P \times P$.
11. Let $U = \{1, 2, 3, 4, 5, 6\}$, $A = \{2, 3\}$ and $B = \{3, 4, 5\}$. Find A' , B' , $A' \cap B'$.
12. If $f(x) = x^2$ and $g(x) = (2x+1)$ be real functions, Find $(f-g)(7)$.

SECTION – C

13. The function f is defined by

$$f(x) = \begin{cases} 1 - x, & x < 0 \\ 1 & x = 0 \\ x + 1, & x > 0 \end{cases}$$

Draw the graph of $f(x)$.

14. A college awarded 38 medals in football, 15 in basketball and 20 in cricket. If these medals went to a total of 58 men and only three men got medals in all the three sports, how many received medals in exactly two of the three sports?
15. A survey was conducted of the T.V. programme watched by 120 students of a school hostel. It was learnt that 70 students watched “Discovery channel” and 56 watched “sports channel” and 24 watched both the programmes.
- i) Find the number of students who did not watch T.V on that day.
- ii) Find the number of students who did watch sports channel only.
16. Ravi obtained 70 and 75 marks in first two unit test. Find the minimum marks he should get in the third test to have an average of at least 60 marks.

SECTION – D

17. A manufacturer has 600 litres of a 12% solution of acid. How many litres of a 30% acid solution must be added to it so that acid content in the resulting mixture will be more than 15% but less than 18%?

18. Find the domain and range of the following real functions:

i) $f(x) = -|x|$ ii) $f(x) = \sqrt{9 - x^2}$

19. Solve the following system of inequality graphically

$$x + 2y \leq 8$$

$$2x + y \leq 8$$

$$x > 0, y \geq 0$$

SECTION - E

20. Case Study I:

In a library, 25 students read physics, chemistry and mathematics books. It was found that 15 students read mathematics, 12 students read physics while 11 students read chemistry. 5

students read both mathematics and chemistry, 9 students read physics and mathematics. 4 students read physics and chemistry and 3 students read all three subject books.

- (i). How many number of students who reading only chemistry?
- (ii). How many number of students who reading only mathematics?
- (iii). How many number of students who reading only one of the subjects?
- (iv). How many number of students who reading atleast one of the subject?

ST. PBN PUBLIC SCHOOL,GURUGRAM
UNIT TEST-1 EXAMINATION
SAMPLE PAPER
CLASS-XI
(ENGLISH)

SAMPLE PAPER

GENERAL INSTRUCTIONS:

M.M-50

- 1. All questions are compulsory.**
- 2. Follow the instructions given with all questions.**

SECTION - A (READING)

Q1. Read the passage given below and answer the questions that follow: 10M

1. Man does not Live by food alone. Water is vital to human health and fitness. Although it is not a nutrient per se as are carbohydrates, fats, proteins, vitamins and minerals. It, in fact, is a key nutrient as no life is possible without it. Whereas we can do for weeks without food, we cannot live without water longer than a couple of days.

2. Water approximates 60 per cent of the body weight of human adults. The total amount of water in a man weighing 70 kilograms is approximately a little over 40 litres. It is an excellent solvent - more substances are soluble in water than in any other liquid known so far. This makes it an ideal constituent of the body fluids which sustain life supporting chemical reactions. It dissolves varied products of digestion and transports them to the rest of the body. Likewise, it dissolves diverse metabolic wastes and helps drain them out of the body. Besides, it performs a variety of functions - some well known and well understood while others not so well appreciated yet vita l. The no less important role of water is to distribute/ dissipate the body heat efficiently, thereby regulating body's temperature. Water accomplishes this role ideally because it has high thermal conductivity ensuring rapid heat transfer from one part to the other.

3. Above all, water has a high specific heat, implying that it takes a lot of heat to raise the temperature of water and likewise much heat must be lost to lower its temperature.

4. Drinking a lot of water is an inexpensive way to stay healthy. Even excess of water is harmless. Water therapy - drinking a litre or so the first thing in the morning is kidney-friendly.

5. The water regulation in the body is affected by hypothalamus in two ways i.e., (i) by creating the sensation of thirst which makes us drink water and (ii) by controlling the excretion of water as urine. If water regulation fails, medical emergency ensues.

Based on your understanding of the passage, answer the questions given below.

i. Water is vital to human health and fitness because:

- (a) man does not live by food alone
- (b) it is an excellent solvent
- (c) we cannot survive for more than a couple of days without it
- d) it controls thirst and excretion of water as urine

ii. Water is called a key nutrient because:

- (a) it dissolves different products of digestion
- (b) no life is possible without it
- (c) it carries products to the rest of the body
- (d) it raises temperature of the body

iii. Infer one reason for the following, based on information in paragraph 2:

Water is an ideal constituent of the body fluids.

iv. Water regulates body temperature efficiently as:

- (a) it circulates easily
- (b) it has high-specific heat
- (c) it dissolves food easily
- (d) it has high thermal conductivity

v. What does the author means when he uses the word 'regulation' in the last para?

- (a) Official rule
- (b) Control
- (c) Device for fair use
- (d) Worn or used as per rules

vi. State whether the following statement is TRUE or FALSE:

Water transports nutrients to the body.

vii. Which activity is considered as water therapy?

viii. Complete the following analogy correctly with a word from paragraph 3:

pitch : throw :: warm : _____

(Clue : Just like to pitch is a synonym of to throw, similarly to warm is a synonym of to...)

ix. Substitute the word 'sustain' with ONE WORD similar in meaning, in the following sentence from

paragraph 2:

This makes it an ideal constituent of the body fluids which sustain life supporting..

x. Fill in the blank by choosing the correct option.

_____ is an inexpensive way to stay healthy.

(a) Water

(b) Minerals

(c) Vitamins

(d) Proteins

SECTION B (WRITING & GRAMMAR)

Q2. Design a poster on the topic Save Environment in about 50 words.

7M

Q3. You are Mukul/Mahi of ST. PBN Public School, write a speech to be delivered in school assembly highlighting the importance of cleanliness suggesting that the state of cleanliness reflects the character of its citizens. (125-150 words)

7M

Q4. Choose the correct form of the tenses from the following.

4M

1. I _____ Rahim at the zoo yesterday. (saw, have seen, had seen)

2. I _____ Kumar this week. (haven't seen, didn't see, am not seeing)

3. This paper _____ twice weekly. (is appearing, appearing, appears)

4. Ashok fell off the ladder when he _____ the roof.

(is mending, was mending, mended)

Q5. Read the extract and answer the questions briefly.

(1x5=5M)

Now she's been dead nearly as many years
As that girl lived. And of this circumstance
There is nothing to say at all.
Its silence silences.

i) What is poet's reaction in the end?

- a) She wants to write more and more about her mother
- b) She doesn't want to speak more as she is sad
- c) She wants to draw the picture of her mother
- d) All of these

ii) Which poetic device has been used in 'Its silence silences'?

- a) Personification
- b) Simile
- c) Alliteration
- d) Oxymoron

iii) What is the mental state of the poetess in the end of the poem?

- a) She is upset
- b) She is overjoyed
- c) She is ecstatic
- d) All of these

iv) Name the poem and the poet of the poem.

v) Who is **that girl** in the second line?

Q6. Read the extract and answer the questions briefly. (1x5=5M)

She hobbled about the house in spotless white with one hand resting on her waist to balance her stoop and the other telling the beads of her rosary. Her silver locks were scattered untidily over her pale, puckered face, and her lips constantly moved in inaudible prayer. Yes, she was beautiful. She was like the winter landscape in the mountains, an expanse of pure white serenity breathing peace and contentment.

i) What does the narrator mean by 'Silver locks'?

- a) Lock and Key
- b) Grey Hair
- c) Attire of Silver colour
- d) None of these

ii) Which figure of speech has been used in 'Pale puckered face'?

- a) Simile
- b) Metaphor
- c) Alliteration
- d) Personification

iii) What does the word 'Hobble' mean?

- a) Walk quickly
- b) Limp
- c) Rush
- d) Hasten

iv) Who is she in the above extract?

v) Name the chapter and the author of the above extract.

Q7. Answer the following questions in about 30-40 words. (2X6=12M)

- 1. Why was the grandmother so disturbed when the narrator started going to the city School?**
- 2. Describe the mental condition of the voyagers on 4th and 5th January?**
- 3. Why does the poet get surprised when he gets an answer from the rain?(The Voice of the Rain)**
- 4. To which tribe did Mourad and Aram belong? Which traits of the tribe are highlighted in the story 'The Summer of the Beautiful White Horse'?**
- 5. Why was Aram delighted and frightened at the same time when he saw his cousin Mourad on a beautiful white horse?**
- 6. The sea 'appears to have changed less' in comparison to the three girls who enjoyed the sea holiday. Comment.**

ST. PBN PUBLIC SCHOOL, GURUGRAM
UNIT TEST-1 EXAMINATION
SAMPLE PAPER
CLASS-XI
PHYSICS

TIME: 2 HRS.

M.M.: 50

General Instructions:

- (1) There are 23 questions in all. All questions are compulsory.
- (2) This question paper has five sections: **Section A, B, C, D and E.**
- (3) Section A contains ten questions, twelve MCQ and four Assertion Reasoning based of 1 mark each, Section B contains five questions of 2 marks each, Section C contains four questions of 3 marks each, Section D contains two case study based questions of 4 marks each and Section E contains two long answer questions of 5 marks each.
- (4) There is no overall choice. However, an internal choice has been provided in one question in Section B, one question in Section C, one question in each CBQ in Section D and all three questions in Section E. You have to attempt only one of the choices in such questions.

SECTION-A

1. 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
2. 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
3. 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
(a) Linear impulse
(b) Angular impulse
(c) Linear momentum
(d) Angular momentum
4. 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?
(a) Mass of electron (m_e)
(b) Universal gravitational constant (G)
(c) Charge of electron (e)
(d) Mass of proton (m_p)

5. 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.
6. The component of a vector r along X-axis will have maximum value if
 - (a) r is along positive Y-axis
 - (b) r is along positive X-axis
 - (c) r makes an angle of 45° with the X-axis
 - (d) r is along negative Y-axis
7. The angle between $A = i + j$ and $B = i - j$ is
 - (a) 45° (b) 90° (c) -45° (d) 180°
8. Which one of the following statements is true?
 - (a) A scalar quantity is the one that is conserved in a process.
 - (b) A scalar quantity is the one that can never take negative values.
 - (c) A scalar quantity is the one that does not vary from one point to another in space.
 - (d) A scalar quantity has the same value for observers with different orientations of the axes.

Directions : Each of these questions contain two statements, Assertion and Reason. Each of these questions also has four alternative choices, only one of which is the correct answer. You have to select one of the codes (a), (b), (c) and (d) given below.

- (a) Assertion is correct, reason is correct; reason is a correct explanation for assertion.
 - (b) Assertion is correct, reason is correct; reason is not a correct explanation for assertion
 - (c) Assertion is correct, reason is incorrect
 - (d) Assertion is incorrect, reason is correct.
9. **Assertion :** When we change the unit of measurement of a quantity, its numerical value changes.
Reason : Smaller the unit of measurement smaller is its numerical value.
 10. **Assertion :** Displacement of a body may be zero when distance travelled by it is not zero.
Reason : The displacement is the longest distance between initial and final position.

SECTION-B

11. 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.

12. 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) ω and (ii) k .
13. 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?
14. 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.
15. 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.

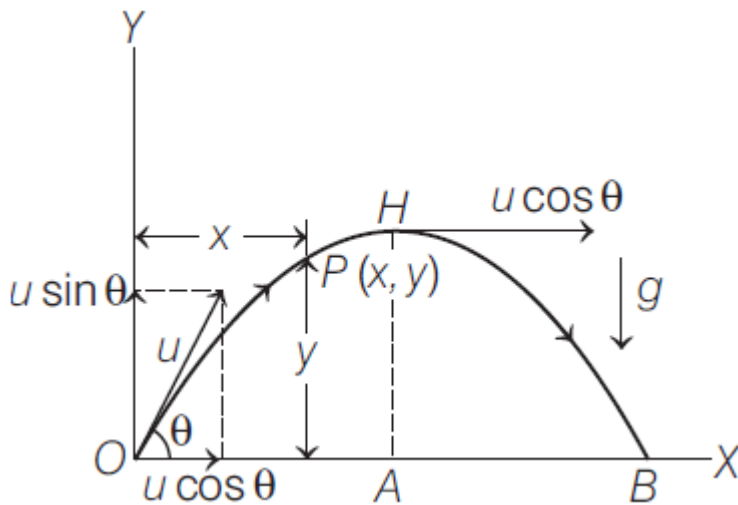
SECTION – C

16. 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.
17. A boy throws a ball in air at 60° to the horizontal along a road with a speed of 10 m/s (36km/h). Another boy sitting in a passing by car observes the ball. Sketch the motion of the ball as observed by the boy in the car, if car has a speed of (18km/h). Give explanation to support your diagram.
18. 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.
19. 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 $g = 10 \text{ m/s}^2$)

SECTION-D

20. Projectile motion is a form of motion in which an object or particle is thrown with some initial velocity near the earth's surface and it moves along a curved path under the action

of gravity alone. The path followed by a projectile is called its trajectory, which is shown below. When a projectile is projected obliquely, then its trajectory is as shown in the figure below.



Here velocity u is resolved into two components, we get (a) $u \cos \theta$ along OX and (b) $u \sin \theta$ along OY .

- (i) **The example of such type of motion is**
- (a) motion of car on a banked road
 - (b) motion of boat in sea
 - (c) a javelin thrown by an athlete
 - (d) motion of ball thrown vertically upward
- (ii) **The acceleration of the object in horizontal direction is**
- (a) constant
 - (b) decreasing
 - (c) increasing
 - (d) zero
- (iii) **The vertical component of velocity at point H is**
- (a) maximum
 - (b) zero
 - (c) double to that at O
 - (d) equal to horizontal component
- (iv) **A cricket ball is thrown at a speed of 28 m/s in a direction 30° with the horizontal. The time taken by the ball to return to the same level will be**
- (a) 2.0 s
 - (b) 3.0 s
 - (c) 4.0 s
 - (d) 2.9 s

21. Kinematics is the branch of mechanics which deals with the study of motion of material objects without taking into account the factors affecting the motion. Rest and motion are relative concepts and nothing is absolute. The position of the object at a given instant of time is described in terms of position coordinates. The coordinate system along with a clock constitutes a frame of reference. Frame of reference can be of two types viz: inertial frame of reference and non-inertial frame of reference. When position of body changes in a frame of reference, it is said to be in motion which is categorised as uniform and non-uniform. Motion of a body is studied in terms of position-time graph and velocity-time graph.

(i) "Rest and motion are relative not absolute." Comment.

(ii) What are different types of frames of reference? Explain.

(iii) Draw position-time graph for uniform and Non-uniform motion.

(iv) Draw velocity-time graph for uniform and non-uniform motion.

(v) Relative velocity of two bodies is zero. What is nature of Position-time graph for it?

SECTION-E

22. Derive all equations of motion by using calculus method.

23. State and prove Triangle law of vector addition. Hence derive the expression for magnitude and direction of resultant vector.

OR

What is projectile motion? Prove that trajectory of projectile projected at an angle θ with the horizontal is a parabola. Hence derive its vertical height and horizontal range.

ST. PBN PUBLIC SCHOOL, GURUGRAM
UNIT TEST-1 EXAMINATION
CLASS-XI
CHEMISTRY
SAMPLE PAPER

TIME: 3 HRS.

M.M.: 50

GENERAL INSTRUCTIONS:

Read the following instructions carefully.

1. There are 25 questions in this question paper .
2. SECTION A - Q. No. 1 to 13 are multiple choice questions carrying 1 mark each.
3. SECTION B - Q. No. 14 to 17 are short answer questions carrying 2 marks each.
4. SECTION C - Q. No. 18 to 22 are short answer questions carrying 3 marks each.
5. SECTION D- Q. No. 23 is case based and question carrying 4 marks.
6. SECTION E-Q 24 and 25 are long answer questions carrying 5 marks each
- 7 All questions are compulsory

SECTION-A

1. . A pure substance which contains only one type of atom is called _____.

- | | |
|----------------|----------------|
| (a) An element | (b) a compound |
| (c) a solid | (d) a liquid |

2. Formation of CO and CO₂ illustrates the law of _____.

- | | |
|---------------------------------|----------------------------------|
| (a) Law of conservation of mass | (b) Law of Reciprocal proportion |
| (c) Law of Constant Proportion | (d) Law of Multiple Proportion |

3. Which of the following is a homogeneous mixture?

- | | |
|-------------------------------------|------------------------|
| (a) Mixture of soil and water | (b) Sugar solution |
| (c) Mixture of sugar, salt and sand | (d) Iodised table salt |

4. Isotopes of an element have _____

- (a) Different chemical and physical properties

- (b) Similar chemical and physical properties
- (c) Similar chemical but different physical properties
- (d) Similar physical but different chemical properties

5. Principal, Azimuthal and magnetic quantum numbers are respectively related to:

- (a) Size, shape and orientation
- (b) Shape, size and orientation
- (c) Size, orientation and shape
- (d) None of the above

6. The electronic configuration of chromium ($Z=24$) is:

- (a) $[\text{Ne}] 3s^2 3p^6 3d^4 4s^2$
- (b) $[\text{Ne}] 3s^2 3p^6 3d^5 4s^1$
- (c) $[\text{Ne}] 3s^2 3p^6 3d^1 4s^2$
- (d) $[\text{Ne}] 3s^2 3p^6 4s^2 4p^4$

7. Which of the following electronic configurations of an atom has the lowest ionisation enthalpy?

- (a) $1s^2 2s^2 2p^3$
- (b) $1s^2 2s^2 2p^6 3s^1$
- (c) $1s^2 2s^2 2p^6$
- (d) $1s^2 2s^2 2p^5$

8. Which of the following elements has the maximum negative electron gain enthalpy?

- (a) Oxygen
- (b) Chlorine
- (c) Fluorine
- (d) Nitrogen

9. Which of the following elements has the maximum negative electron gain enthalpy?

- (a) Oxygen
- (b) Chlorine
- (c) Fluorine
- (d) Nitrogen

10. A measured temperature on Fahrenheit scale is 200F. What will this reading be on the Celsius Scale?

- (a) 40 °C
- (b) 94 °C
- (c) 93.3 °C
- (d) 30 °C

ASSERTION-REASON QUESTIONS

In the following questions a statement of Assertion (A) followed by a statement of Reason (R) is given. Choose the correct option out of the choices given below each question.

- (a) A and R both are correct, and R is the correct explanation of A
- (b) A and R both are correct, but R is not the correct explanation of A
- (c) A is true but R is false
- (d) A and R both are false

11. **Assertion** : 1.231 has three significant figures.

Reason : All numbers right to the decimal point are significant.

12.Assertion : Boron has a smaller first ionisation enthalpy than beryllium.

Reason : The penetration of a 2s electron to the nucleus is more than the 2p electron hence 2p electron is more shielded by the inner core of electrons than the 2s electrons.

13. Assertion : Black body is an ideal body that emits and absorbs radiations of all frequencies.

Reason : The frequency of radiation emitted by a body goes from a lower frequency to higher frequency with an increase in temperature.

SECTION B

14. What is the difference between terms orbit and orbital?

15. How do ionization enthalpy vary in a period and in a group? How do you explain the variation?

16. Define Molality. Also write its mathematical expression.

17. State Heisenberg's uncertainty principle.

SECTION C

18. Calculate the mass percent of calcium, phosphorus and oxygen in calcium phosphate $\text{Ca}_3(\text{PO}_4)_2$

19. Explain the deviation in ionisation enthalpy of some elements from the general trend by using Fig. 3.2.

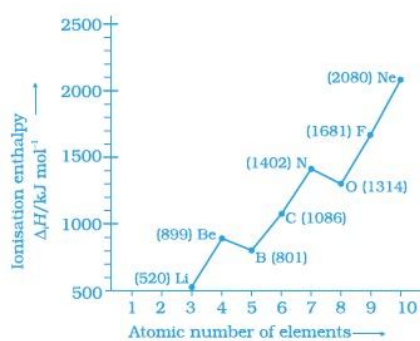


Fig. 3.2

20. Vitamin C is essential for the prevention of scurvy. Combustion of 0.2000g of vitamin C gives 0.2998g of CO_2 and 0.819g of H_2O . What is the empirical formula of vitamin C?

21. What transition in the hydrogen spectrum would have the same wavelength as the Balmer transition, $n = 4$ to $n = 2$ of He^+ spectrum?

22. Which orbital would experience the larger effective nuclear charge among the following pairs of orbitals? Explain.

(i) 2s and 3s

(ii) 4d and 4f

(iii) 3d and 3p

SECTION D

CASE BASED QUESTIONS

23. Read the Passage and answer the following questions.

Bohr's model explained electrons can revolve only in certain permitted orbits whose angular momentum is integral multiple of $\frac{h}{2\pi}$, associated with fixed amount of energy. Bohr theory could successfully explain stability of atoms and spectrum of unielectron species. Hydrogen spectrum consist of Lyman, Balmer, Paschen, Brackett and Pfund series. Bohr's theory could not explain spectrum of multi-electron species, Stark effect, Zeeman effect, dual nature of matter, de Broglie equation and Heisenberg uncertainty principle which lead to orbital concept. Electrons were filled in orbitals according to Aufbau's principle, Hund's Rule and Pauli's exclusion principle. Each electron is identified by four quantum numbers n , l , m_l and m_s out which n , l , m_l were derived from Schrodinger's wave equation. Half filled and completely filled orbitals are more stable due to exchange energy and symmetrical distribution of electrons.

- (a) Arrange 4d, 3d, 4p and 3p in increasing order of energy.
- (b) What is name of spectrum of radiation emitted by substance that has absorbed radiation?
- (c) What rules out the probability of existence of definite path of electrons?
- (d) State de Broglie equation.

OR

- (d) State Pauli exclusion principle.

SECTION E

- 24 i) Explain why the electron gain enthalpy of the elemental fluorine is less negative than the elemental chlorine. .
- ii) Nitrogen possesses the positive electron gain enthalpy, whereas the oxygen possesses the negative. But oxygen has lower ionisation enthalpy than nitrogen. Explain

25. Table-tennis ball has a mass of 10 g and a speed of 90 m/s. If speed can be measured with an accuracy of 4% what will be the uncertainty in speed and position?

St. PBN PUBLIC SCHOOL, GURUGRAM
UNIT TEST- I EXAMINATION
CLASS XI
COMPUTER SCIENCE
(SUBJECT CODE-083)
SAMPLE PAPER

Time: 2 Hours

M.M:50

GENERAL INSTRUCTIONS:

1. This question paper contains five sections, Section A to E.
2. All questions are compulsory.
3. Section A have 12 questions carrying 01 mark each.
4. Section B has 04 Very Short Answer type questions carrying 02 marks each.
5. Section C has 04 Short Answer type questions carrying 03 marks each.
6. Section D has 02 Long Answer type questions carrying 05 marks each.
7. Section E has 02 questions carrying 04 marks each.
8. All programming questions are to be answered using Python Language only.

SECTION- A

**Choose the correct option and write in the answer sheet
12)**

(1 x 12 =

1. What is the base of octal number system?
(a) 2
(b) 10
(c) 8
(d) 16
2. Convert $(75)_8$ into decimal number
(a) 611
(b) 17
(c) 61
(d) 32
3. Which of the following are the sub-units that make the CPU?
(a) Control Unit
(b) ALU
(c) Both a & b
(d) None of these
4. Storage of 1 KB means the following number of bytes:
(a) 2000
(b) 1084
(c) 1003
(d) 1024
5. Identify the correct print() statement:
(a) print(Hello)
(b) print("Hello")
(c) print('Hello')
(d) print("Hello')

6. _____ is the act of locating and fixing problems in software code that could lead to unexpected behavior or crashes. These errors are sometimes referred to as “bugs.”
- (a) Algorithm (b) Problem Solving
(c) Debugging (d) All of these
7. The interactive interpreter of Python is termed as _____.
- (a) Python shell (b) Python script mode
(c) Python Editor mode (d) Python command line
8. Identify the input device among the following choices:
- (a) Touch Screen (b) Speaker
(c) 3D Printer (d) Display Monitor
9. Disk defragmenter is an example of :
- (a) Application software (b) System software
(c) Utility software (d) Language processors
10. _____ is the process of identifying a problem, developing an algorithm for the identified problem and finally implementing the algorithm to develop a computer program.
- (a) Problem Solving (b) Problem Addressing
(c) Problem Analysis (d) None of these

Q11 and 12 are ASSERTION AND REASONING based questions. Mark the correct choice as

- a) Both A and R are true and R is the correct explanation for A
b) Both A and R are true and R is not the correct explanation for A
c) A is True but R is False
d) A is false but R is True

11. Assertion (A): Flowchart is the pictorial representation of a task.

Reason (R): Flowchart is used to represent how a program works.

12. Assertion (A): Memory unit is used as a storage unit for program as well as data.

Reason (R): Computer Memory cannot be directly accessed by the CPU.

SECTION B

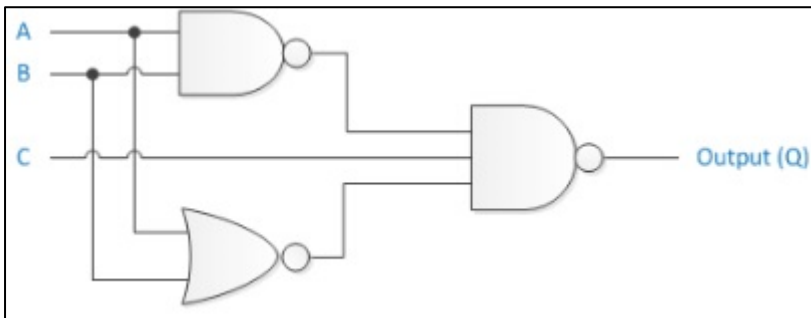
(2x 4 = 8)

13. Identify the category of the following software

- (i) Compiler
- (ii) Assembler
- (iii) Ubuntu
- (iv) Text Editor

(2)

14. Obtain the Boolean expression for the logic circuit shown below and also write its truth table:



(2)

15. (i) Find the dual of the following expressions :

- $A.B + A.C$
- $xy' + x'z$

(ii) Verify with the help of truth table that $(A+B)' = A'. B'$

(1+1)

16. (i) Convert $(705)_8$ to binary number

(ii) Convert $(3A5)_{16}$ to decimal number

OR

Draw a logic circuit of $P = A + B. C' + A'. C'$

(2)

SECTION C

(3x 4 = 12)

17. (i) Name the software required to make a computer functional. Write down its two primary services.

(ii) What is the need of secondary memory?
(1+2)

18. Write a pseudo-code to calculate and display Area and Perimeter of a rectangle

OR

Write pseudocode that read two numbers and divide one by another and display the quotient.
(3)

19. Convert the following :

(i) $(889)_{10} = (?)_8$

(ii) $(220)_8 = (?)_2$

(iii) $(789)_{10} = (?)_{16}$

(1+1+1)

20. Why is primary memory termed as 'destructive write' memory but 'non-destructive read' memory?

OR

Differentiate between System software and Application software.

(3)

SECTION D

(5x 2 = 10)

21. Railway Booking and Lodging is a travel agency that books railway tickets for its customers.

They ask the user to furnish all the details about the date of journey, destination, preferred time of journey and other required relevant details. They need to computerize all their processing and working methodology.

You being a software analyst, develop a solution by decomposing the entire problem and design a suitable railway ticket reservation system using concept of decomposition.

(5)

22. (i) Write an algorithm to find the greatest among two different numbers entered by the user.

(ii) Suppose you are collecting money for something. You need ₹ 200 in all. You ask your parents, uncles and aunts as well as grandparents. Different people may give either ₹ 10, ₹ 20 or even ₹ 50. You will collect the total becomes 200. Write the algorithm.

(2+3)

OR

(i) Write down the type of memory needed to do the following:

- a) To store data permanently.
- b) To store the instructions which cannot be overwritten.
- c) To execute the program.

(ii) Explain briefly the functions of Operating System.

(3+2)

SECTION E

(4 x 2 = 8)

23. A computer is programmable machine. The two principal characteristics of a computer are: It responds to a specific set of instructions in a well-defined manner, and it can execute a pre-recorded list of instructions (a program). Modern computers are electronic and digital. The actual machinery wires, transistors and circuits are called hardware, the instructions and data are called software.

(i) Which of the following is the correct definition of Computer?

- (a) Computer is a machine or device that can be programmed to perform arithmetical or logic operation sequences automatically.
- (b) Computer understands only binary language which is written in 0s & 1s.
- (c) Computer is a programmable electronic device that stores, retrieves and processes the data.
- (d) All of these

(ii) Which of the following is the brain of the computer?

- (a) Central Processing Unit
- (b) Memory
- (c) Arithmetic and Logic Unit
- (d) Control Unit

(iii) Which of the following is not a characteristics of a computer?

- (a) Versatility
- (b) Accuracy
- (c) Diligence
- (d) I.Q.

(iv) Which of the following is designed to control the operations of a computer?

(a) User

(b) Application software

(c) System software

(d) Utility software

(1+1+1+1)

24.

(i) Draw a circuit diagram corresponding to the Boolean expression

$$(A + B)(B + C)$$

(ii) What will be the output of given Boolean expression $D = N(P + C)$, where $N=1, P=0$ & $C=1$

(iii) Write the truth table of $(X'+Y).Z + W'$

(iv) Draw a circuit diagram corresponding to the Boolean expression

$$Y = (BC + A)(A' + C)$$

(1+1+1+1)

ST. PBN PUBLIC SCHOOL, GURUGRAM
UNIT TEST - I
CLASS – XI
PHYSICAL EDUCATION
SAMPLE PAPER

Time: 2 Hours

MM: 50

General

Instructions:-

- 1. All questions are compulsory.**
- 2. Questions 1-7 carry 1 mark each and are multiple choice questions.**
- 3. Questions 8-10 carry 2 marks each and their answers should not exceed 40-60 words.**
- 4. Questions 11-13 carry 3 marks each and their answers should not exceed 80-100 words.**
- 5. Questions 14-15 carry 4 marks each and their answers should not exceed 120-140 words.**
- 6. Questions 16-19 carry 5 marks each.**

1. In 393 A.D., which emperor banned Olympic games?

- | | |
|----------------|---------------------|
| (a) Augustus | (c) Claudius |
| (b) Theodosius | (d) Marcus Aurelius |

2. The headquarters of Fit India Movement is at

- | | |
|-------------|---------------|
| (a) Chennai | (c) Mumbai |
| (b) Kolkata | (d) New Delhi |

3. Who composed the music for the Olympic Anthem?

- | | |
|--------------------|-----------------|
| (a) Coubertin | (c) Thomas Bach |
| (b) Spiros Samaras | (d) Samaranch |

4. In which year, the Olympic anthem was adopted by IOC?

- | | |
|----------|----------|
| (a) 1928 | (c) 1996 |
| (b) 1958 | (d) 1904 |

5. The ancient Olympic games were initially:

- | | |
|-----------------|-----------------|
| (a) 3 Day event | (c) 1 Day event |
| (b) 2 Day event | (d) 5 Day event |

6. How many components are included in Khelo India Program?

- | | |
|--------|--------|
| (a) 10 | (c) 8 |
| (b) 12 | (d) 15 |

7. Olympic flame was first introduced in

- (a) 1896
- (b) 1928
- (c) 1956
- (d) 2008

8. Name some technological advancements in Sports.
9. Describe Logo of Fitness India Movement.
10. Explain the concept of Olympism.
11. What do you mean by Sports Journalism?
12. Discuss role of sensors in Improving Sports performance.
13. Discuss the National Olympic committees along with its functions.
14. Write a note on the Health Related Careers in Physical Education.
15. Mention the rules for competitions in Ancient Olympic games.
16. Where were the first khelo India school games held?
17. Elucidate in detail about International Sports Federations.
18. What do you mean by playing surface? What role does it play in Improving performance in Sports.

19. Case based questions:

Most students in a school did not think that PE has career opportunities. One day an international cricket star attended the school Annual Day function as chief guest. He spoke about his struggles and how he was transformed by an active career that resulted from taking physical education subject in school seriously. He also talked about starting his own coaching academy. He explained as to how there were a lot of good career options available in PE. This gave students a clear understanding of the various career options available in PE which only aroused their interest in the subject and most of them started taking PE seriously.

- (i). What career opportunities must have the cricketer talked about? (1)
- (ii). What are the possibilities for PE in media? (2)
- (iii). Besides teaching in a school, what options exist for becoming trainers in PE? (2)

