ARMY PUBLIC SCHOOL

DAGSHAI

ENTRANCE EXAMINATION FOR SESSION 2023-24
FOR ADMISSION TO CLASS-XI SC (PCM)

Time: 1 Hr 30 min   Max. Marks: 100

SUBJECT	M.MARKS	M.OBTD	TEACHER	SIG
English	25	____	_____	____
Physics	25	____	_____	____
Chemistry	25	____	_____	____
Maths	25	____	_____	____
TOTAL	100	____	_____	____

General Instructions:

1. The candidates are advised to fill the columns correctly.
2. The booklet is divided into four parts i.e. English, Physics, Chemistry, Maths.
3. Candidate should check the booklet carefully and if there is any defect or discrepancy, the same should be requested for replacement.
4. The candidates are required to solve the question on the booklet only.
5. The candidates are not allowed to write or mention anything on the booklet which can reveal his/her identity.
6. There will be no negative marking for wrong answers.

TO BE FILLED IN BY APSD
CODE _____

TO BE FILLED IN BY THE CANDIDATE

Name of the Candidate:_____Registration No._____

Studying in Class_____Class to which admission is sought_____

TO BE FILLED IN BY APSD

CODE_____

Q.1 Read the poem and answer the questions that follow

Four seasons fill the measure of the year;
There are four seasons in the mind of man:
He has his lusty Spring, when fancy clear
Takes in all beauty with an easy span:
He has his Summer, when luxuriously
Spring's honey'd cud of youthful thought he loves
To ruminate, and by such dreaming nigh
Is nearest unto heaven: quiet coves
His soul has in its Autumn, when his wings
He furleth close; contented so to look
On mists in idleness to let fair things
Pass by unheeded as a threshold brook.
He has his Winter too of pale misfeature,
Or else he would forgo his mortal nature.

1) Infer the meanings of the following phrases: **6**
(i) fill the measure _____
(ii) threshold brook _____
(iii) mortal nature _____

2) Change the following words into adjectives: **2**
(i) lust _____
(ii) youth _____

3 Write synonym of following words-   **2**
(i) ruminate
(ii) luxuriously

4) Explain the following lines-   **3**
(i) Four seasons .... easy span

2.   **Read the dialogue between the boss and the secretary and complete the passage that follows.**   **(12 marks)**

Boss :   Mary, why haven't you put away the flies as yet?
Secretary :   Sir, I am sorry but I was waiting for the new filing cabinet that I have ordered.
Boss :   When was it suppose to come?
Secretary :   It was suppose to come this morning.
Boss :   Did you call the company to ask them the reason for the delay?
Secretary :   No, Sir. I was busy completing the work that you had left for me.
Boss :   How can you possibly work at such an untidy table?
Secretary :   I will just clean up the table, Sir.

An angry boss asked his secretary (a)_____.The secretary apologized and said (b)_____. The boss then inquired (c)_____to which his secretaryreplied(d)_____.The boss further inquired if (e)_____.Mary then informed himthat(f)_____.

PHYSICS

MM : 25

Tick the correct answer:

1. Velocity of light in air is 3×10^8 m/s. While its velocity in a medium is 1.5×10^8 m/s. Then, refractive index of this medium is: (1)
   (a) 3   (b) 5   (c) 0.5   (d) 2

2. We are able to read the text in a book because of: (1)
   a) regular reflection   b) defused reflection
   c) refraction   d) dispersion

3. A plane mirror is moving towards you with a speed of 1 m/s. The speed with which your image is approaching you is: (1)
   a) 1 m/s   b) 2 m/s   c) 4 m/s   d) 8 m/s

4. Magnification produced by a rear-view mirror fitted in vehicles: (1)
   (a) is less than one.
   (b) is more than one.
   (c) is equal to one.
   (d) can be more than or less than one depending upon the position of the object.

5. Focal length of a plane mirror is: (1)
   (a) zero   (b) infinite   (c) 25 cm   (d) -25

6. A wire of length I has a resistance R. If it is melted and recast to half of its length with same area of cross-section, then its new resistance will be: (1)
   a) 2R   b) R   c) R/2   d) R/4

7. Commercial unit of electrical energy is: (1)
   a) joule   b) watt second   c) kilowatt hour   d) volt coulomb

8. A wire of resistance R is cut into ten equal parts which are then joined in parallel. The new resistance is: (1)
   (a) 0.01 R   (b) 0.1 R   (c) 10 R   (d) 100 R

9. 2 ampere current is flowing through a conductor from a 10 voltbatterythen resistance of conductor is: (1)
   (a) 20 ohm   (b) 5 ohm   (c) 12 ohm   (d) 8 ohm

10. 100 J of heat is produced each second in a 4 ohm resistance. The potential difference across the resistor is: (1)
    (a) 20 V   (b) 10 V   (c) 5 V   (d) 15 V

11. Magnetic field due to a current through a straight conductor depends on: (1)
    (a) current   (b) distance from the wire
    (c) Both (a) and (b)   (d) cross-sectional area of wire

12. A positively-charged particle (alpha-particle) projected towards west is deflected towards north by a magnetic field. The direction of magnetic field is: (1)
   (a) towards south
   (b) towards east
   (c) downward
   (d) upward

13. The magnetic field inside a long straight solenoid carrying current: (1)
   a) is zero
   b) decrease as we move towards its end
   c) increase as we move towards its end
   d) is same at all points

14. The materials used to make permanent magnets, are known as: (1)
   a) soft magnetic materials
   b) hard magnetic materials
   c) metals
   d) non-metals

15. Which of the following is not attracted by a magnet: (1)
   a)Brass
   b) Cobalt
   c) Nickel
   d)Steel

16. In the visible spectrum the colour having the shortest wavelength is: (1)
   a) Green   b) Red   c) Violet   d) Blue

17. A person uses a lens of power + 3D to normalize vision. The defect of vision, he is suffering from is: (1)
   a) myopia
   b) hypermetropia
   c) presbyopia
   d) astigmatism

18. The blue colour of sky is because of: (1)
   a) refraction   b) dispersion   c) reflection   (d) scattering

19. The size of the pupil of the eye is adjusted by: (1)
   a) cornea   b) retina   c) iris   d) ciliary muscles

20. Danger signal lights are red in colour, because: (1)
   a)   its frequency is less
   b) it is least scattered
   c)   it can reflect
   d) it can refract

Fill in the blanks:

21. The eye which cannot simultaneously see with the same distinctness all objects or lines making different inclinations is said to suffer from …………………………… (1)

22. Rate at which electrical work is done is called …………………………… (1)

23. In domestic circuit, red colour insulation is used for ……………… wire. (1)

24. ……………………………mirror is used as shaving mirror. (1)

25. An electromagnet is a …………………………… magnet. (1)

Q.1   Multiple Choice Questions   (6 Marks)

I)   Which one of the following properties is not generally exhibited by ionic compounds?

   a) Electrical conductivity in solid state   b) Electrical conductivity in molten
      state

   c) Solubility in water   d) High melting and boiling points

II)   Name the oxidising agent in the following reaction:
       $3MnO_2 + 4Al \rightarrow 3Mn + 2Al_2O_3$
       a) Al_2O_3 b)   Al   c) MnO2   d) Mn

III)   Match the following with the correct response:

Column A	Column B
(i) Shiny non- metal	(a) Mercury
(ii) The metal which melts at room temperature	(b) Gallium
(iii) Soft metal	(c) Iodine
(iv) Liquid metal	(d) Sodium

a) (i) - (d), (ii) - (a), (iii) - (c), (iv) - (b)   b) (i) - (c), (ii) - (b), (iii) - (d), (iv) - (a)

c) (i) - (a), (ii) - (c), (iii) - (b), (iv) - (d)   d) (i) - (b), (ii) - (d), (iii) - (a), (iv) - (c)

IV)   Which of the following are exothermic processes?

(i) Reaction of water with quick lime

(ii) Dilution of an acid

(iii) Evaporation of water

(iv) Sublimation of camphor (crystals)

(a) (i) and (ii)   (b) (ii) and (iii)   (c) (i) and (iv)   (d)
(ii) and (iv)

V) $Na_2CO_3 .10H_2O$ is known as:

(a) Baking Soda   (b) Baking Powder   (c) Washing Soda   (d) Bleaching Powder

VI)   The chemical reaction shows the addition of chlorine to methane in the presence of
sunlight. $CH_4 + Cl_4 \rightarrow X$

What is likely to be the products of the reaction represented by "X"?

(a) $CH_4 + H_2SO_4$ (b) $CH_3Cl + HCl$ (c) $CHCl_3 + HCl$ (d) $CH_3Cl + H_2SO_4$

Q. no 2 and 3 are Assertion – Reasoning based questions.   (1*2=2)
       These consist of two statements – Assertion (A) and Reason (R). Answer these
questions   selecting the   appropriate option given below:
       (a) Both A and R are true and R is the correct explanation of A
       (b) Both A and R are true and R is not the correct explanation of A
       (c) A is true but R is false
                                   (d) A is false but R is true

Q.2 **Assertion(A):**Weak acids have low electrical conductivity.
Reason(R): Strong acids and weak acid have an equal concentration of hydrogen ions in their solutions.

Answer:_____

Q.3 **Assertion (A):** Gas bubbles are observed when sodium carbonate is added to dilute hydrochloride acid.

Reason(R): Carbon dioxide is given off in the reaction.

Answer:_____

Q.4 **(a) Identify olfactory indicators from the following indicators** (2)
Clove oil, turmeric, phenolphthalein, methyl orange, vanilla essence.

(b)Choose strong acids from the following:
CH_3COOH, H_2SO_4, H_2CO_3, HNO_3

Q.5 **A white coloured powder is used by doctors for supporting fractured bones.**

(1+2)

(a) Write chemical name and formula of the powder.

(b) When this white powder is mixed with water a hard solid mass is obtained. Write balanced chemical equation for the change.

Q.6 Pratyush took sulphur powder on a spatula and heated it. He collected the gas evolved by inverting a test tube over it. What will be the action of gas in – (3)
(1) Dry litmus paper?

(2) Moist litmus paper?

(3) Write a balanced chemical equation for the reaction taking place.

Q.7   (a) Write the name of the compound CH_3COOH (1+1)

(b) Discuss Esterification reaction.

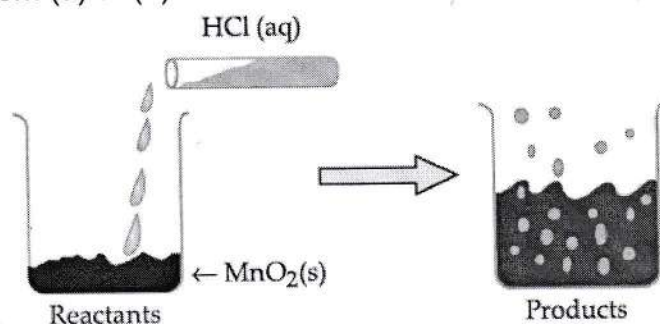Q.8   (a) Give the chemical name of the coating that develops on silver and copper articles when these are left exposed to moist air.   (1+2)

(b) Define galvanization. What purpose does it serve?

Q.9   Read the following and answer questions from (a) to (d):   (4)
The reaction between MnO_2 with HCl is depicted in the following diagram. It was observed that a gas with bleaching abilities was released.

HCl (aq)

← $MnO_2(s)$

Reactants   Products

(a) The chemical reaction between MnO2 and HCl is an example of which type of reaction?

(b) Chlorine gas reacts with _____ to form bleaching powder.

c) In the above discussed reaction, what is the nature of MnO2 ?
(i) Acidic oxide   (ii) Basic oxide
(iii) Neutral oxide   (iv) Amphoteric oxide

d) What will happen if we take dry HCl gas instead of aqueous solution of HCl?

MATHS   **MM 25**

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1) Find the '6th' term of the A.P.

$$\frac{2m+1}{m}, \frac{2m-1}{m}, \frac{2m-3}{m}, \text{......}$$

a) $\frac{2m-9}{m}$ b) $\frac{2m+9}{m}$ c) $\frac{m-9}{m}$ d) $\frac{m+9}{m}$

2)Degree of p(x)=0 is
a)1   b) Not defined   c) 2   d) 0

3) The probability that a leap year contains 53 Monday is
a) $\frac{3}{7}$ b) $\frac{1}{2}$ c) $\frac{2}{7}$ d) $\frac{1}{7}$

4) If a pair of linear equations ax + by + c = 0 and Ax + By + C = 0 represents non intersecting line then:

a) $\frac{a}{A} = \frac{b}{B} \neq \frac{c}{C}$ b) $\frac{a}{A} \neq \frac{b}{B} \neq \frac{c}{C}$ c) $\frac{a}{A} = \frac{b}{B} = \frac{c}{C}$ d) $\frac{a}{A} \neq \frac{b}{B} = \frac{c}{C}$
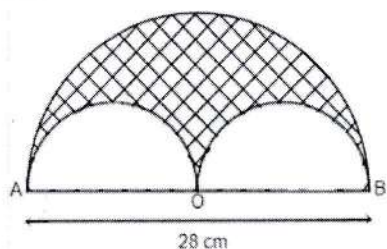
5) Distance of a point (3,4) from x axis is:
a)3   b)4   c)5   d)7
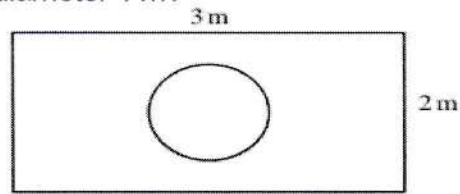
Ques6)The sum of n terms of an AP is $5n^2-3n$. Find the AP and also its 10th term.

Ques7)In a fig a semi circle is drawn with O as centre and AB as diameter. Semi circle are drawn with AO and BO as diameter if AB=28cm find the perimeter of shaded range.

Ques8)Find the percentage increase in the area of a triangle if its each side is doubled.

Ques9)Suppose you drop a die at random on the rectangular region shown in fig. What is the probability that it will land inside the circle with diameter 1 m?

3 m

2 m

10) For what value of k ,the given equation $(4-k)x^2+(2k+4)x+(8k+1)=0$ is a perfect square?

11) The dimensions of a solid iron cuboid are 4.4 m ×2.6m× 1.0 m. It is melted and recast into a hollow cylindrical pipe of 30 cm inner radius and thickness 5 cm. Find the length of the pipe.

If $\sin\theta = \dfrac{m^2 - n^2}{m^2 + n^2}$ then $\tan\theta$.

13) Divide 27 into two equal parts such sum of their reciprocals is $\dfrac{3}{20}$.

14) An aeroplane is flying at a height of 300 m above the ground. Flying at this height, the angles of depression from the aeroplane of two points on both banks of a river in opposite directions are 45o and 60o respectively. Find width of the river.

15) $\sqrt{6+\sqrt{6+\sqrt{6+\sqrt{6+.....\text{to }\infty}}}} =$