

# ARMY PUBLIC SCHOOL DAGSHAI

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

Time: 1 Hr 30 min

Max. Marks: 100

<u>SUBJECT</u>	<u>M.MARKS</u>	<u>M.OBTD</u>	<u>TEACHER</u>	<u>SIG</u>
English	25	_____	_____	_____
Physics	25	_____	_____	_____
Chemistry	25	_____	_____	_____
Biology	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, Biology.
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 night  
 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 files 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 secretary replied(d)\_\_\_\_\_.The boss further inquired if (e)\_\_\_\_\_.Mary then informed him that(f)\_\_\_\_\_.

**PHYSICS**

**MM : 25**

**Tick the correct answer:**

1. Velocity of light in air is  $3 \times 10^8$  m/s. While its velocity in a medium is  $1.5 \times 10^8$  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  $l$  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 volt battery then 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)

## CHEMISTRY

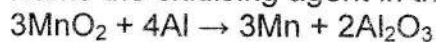
MM : 25

### 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:



- a)  $\text{Al}_2\text{O}_3$       b) Al      c)  $\text{MnO}_2$       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)  $\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$  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.  $\text{CH}_4 + \text{Cl}_2 \rightarrow \text{X}$

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

- (a)  $\text{CH}_4 + \text{H}_2\text{SO}_4$       (b)  $\text{CH}_3\text{Cl} + \text{HCl}$       (c)  $\text{CHCl}_3 + \text{HCl}$       (d)  $\text{CH}_3\text{Cl} + \text{H}_2\text{SO}_4$

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:

$\text{CH}_3\text{COOH}$ ,  $\text{H}_2\text{SO}_4$ ,  $\text{H}_2\text{CO}_3$ ,  $\text{HNO}_3$

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  $\text{CH}_3\text{COOH}$

(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.

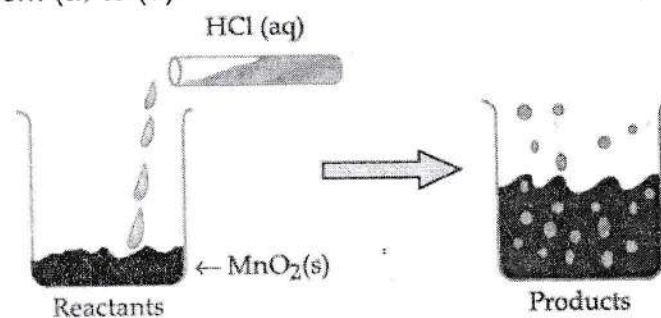
(1+2)

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

Q.9 Read the following and answer questions from (a) to (d):

(4)

The reaction between  $\text{MnO}_2$  with  $\text{HCl}$  is depicted in the following diagram. It was observed that a gas with bleaching abilities was released.



(a) The chemical reaction between  $\text{MnO}_2$  and  $\text{HCl}$  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  $\text{MnO}_2$  ?

- |                     |                       |
|---------------------|-----------------------|
| (i) Acidic oxide    | (ii) Basic oxide      |
| (iii) Neutral oxide | (iv) Amphoteric oxide |

d) What will happen if we take dry  $\text{HCl}$  gas instead of aqueous solution of  $\text{HCl}$ ?



**BIOLOGY****M.MARKS: 25****I. Tick the most appropriate answer in the following: (1X10=10)**

- (i) Which of the following blood vessels is the thinnest of all?  
a) Lymph vessels    b) Arteries  
c) Capillaries    d) Aorta
- (ii) Bile juice contains:  
a) Amylase    b) Trypsin  
c) Lipase    d) None of the above
- (iii) Rajiv was absent in the class because of muscle pain which he claims to be due to excess a physical exercise he had done yesterday. This pain is due to:  
a) Formation of lactic acid    b) Formation of acetic acid  
c) Formation of Pyruvic acid    d) Formation of Hydrochloric acid
- (iv) Which of the following produces male gametes in a flower?  
a) Sepals    b) Petals  
c) Carpels    d) Stamens
- (v) Mendel proposed that every character is controlled by:  
a) one allele    b) two alleles  
c) one chromosome    d) two chromosome
- (vi) Ozone depletion has resulted in:  
a) warming of earth    b) less UV radiations on earth  
c) decrease in temperature    d) more UV radiations on earth
- (vii) A fertilized ovule develops into a \_\_\_\_\_ in an angiosperm plant  
a) seed    b) flower  
c) fruit    d) none of the above
- (viii) Accumulation of non- biodegradable pesticides in different trophic levels is called:  
a) Biological degradation    b) Biological magnification  
c) Biological concentration    d) Biological deposition
- (ix) A Yellow and Round seeded pea plant has genotype YyRr. The gametes produced shall be:  
a) Yy, Rr    b) YR, yR, Yr, yr  
c) YR, yr    d) Y, y, R, r
- (x) The final product of glycolysis is  
a) Maleic acid    b) Glucose  
c) Acetyl CoA    d) Pyruvic acid

**II. Fill in the blanks:**

**(2X5=10)**

- (i) \_\_\_\_\_ animal contains both testes and ovaries.
- (ii) Largest gland in human body is \_\_\_\_\_
- (iii) Only \_\_\_\_\_% of the energy can be transferred from sun to the producers.
- (iv) \_\_\_\_\_ are 'biodiversity hotspots.
- (v) \_\_\_\_\_ is a common tube for urine and sperm in human male.

**III. Answer the following:**

**(1X5=5)**

- (i) Name a plant where buds develop on the leaves to produce new plants.  
\_\_\_\_\_
- (ii) Name the structure formed after fertilization of ovum by sperm.  
\_\_\_\_\_
- (iii) Expand UNEP.  
\_\_\_\_\_
- (iv) Name the organism that represents the first trophic level in any food chain.  
\_\_\_\_\_
- (v) Name two protein digesting enzymes  
\_\_\_\_\_