



Santosh Academia Talent Examination

(2025-26)

CLASS-XII (PCB) STUDYING

PAPER-1

SET CODE: [A]

Test ID: 738

Time: 1 Hour

Max. Marks: 120

IMPORTANT INSTRUCTIONS:

GENERAL

1. This booklet is your Question Paper.
2. The Test ID is printed on the left-hand top corner of this sheet. If not, contact the invigilator for change of question paper.
3. Use the Optical Mark Recognition (OMR) sheet provided separately for answering the questions. DO NOT FILL till you are told to do so.
4. The TEST PAPER NUMBER is printed on the left-hand top corner of the question paper and SET CODE is printed on the Right-hand top corner of the question paper. Ensure that you fill this in OMR as that on the question paper booklet.
5. Blank spaces are provided within this booklet for rough work. No additional rough sheet will be provided.
6. You are ALLOWED to take away the Question Paper at the end of the examination.

QUESTION PAPER FORMAT

7. This Paper contains **30** questions in total.
*Section-I: Question Number 1 to 5 belongs to **Physics**.*
*Section-II: Question Number 6 to 10 belongs to **Chemistry**.*
*Section-III: Question Number 11 to 15 belongs to **Botany**.*
*Section-IV: Question Number 16 to 20 belongs to **Zoology**.*
*Section-V: Question Number 21 to 30 belongs to **Mental Ability**.*

MARKING SCHEME:

8. Each question carries 4 marks. For each correct response, the candidate will get 4 marks.
9. There is a negative marking of -1 mark for incorrect response for section I, II III and IV. No marks will be deducted for unmarked questions.
10. There is no negative marking for incorrect response or unmarked questions for Section V.



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SAMPLE PAPER



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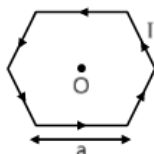
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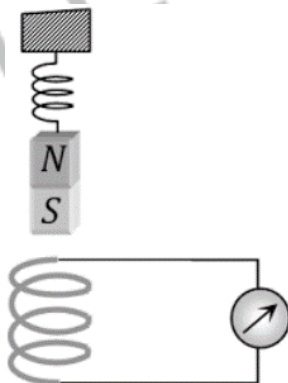


SECTION-I PHYSICS

- Electric field intensity at a point in between two parallel sheets with like charges of same surface charge densities (σ) is
 (a) $\frac{\sigma}{2\epsilon_0}$ (b) $\frac{\sigma}{\epsilon_0}$ (c) Zero (d) $\frac{2\sigma}{\epsilon_0}$
- A wire of length 'a' carries a current 'I' bent into various regular hexagon shown below. Magnetic moment of the wire is



- $(\sqrt{3} I L^2)/24$ (b) $(\sqrt{3} I L^2)/2$ (c) $(\sqrt{3} I L^2)/4$ (d) $(I L^2)/24$
- A proton and an α -particle, moving with the same velocity, enter into a uniform magnetic field, acting normal to the plane of their motion. The ratio of the radii of the circular paths described by the proton and α -particle is
 (a) 1 : 2 (b) 1 : 4 (c) 1 : 16 (d) 4 : 1
- A magnet NS is suspended from a spring and while it oscillates, the magnet moves in and out of the coil C. The coil is connected to a galvanometer G. Then, as the magnet oscillates

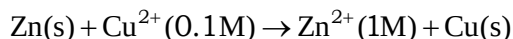


- G shows deflection to the left and right but the amplitude steadily decreases
 - G shows no deflection
 - G shows deflection on one side
 - G shows deflection to the left and right with constant amplitude
- For high frequency, a capacitor offers
 (a) More reactance (b) Less reactance
 (c) Zero reactance (d) Infinite reactance

SECTION-II CHEMISTRY

- For an ideal solution, the correct option is
 (a) $\Delta_{\text{mix}} G = 0$ at constant T and P (b) $\Delta_{\text{mix}} S = 0$ at constant T and P
 (c) $\Delta_{\text{mix}} V \neq 0$ at constant T and P (d) $\Delta_{\text{mix}} H = 0$ at constant T and P

7. For the redox reaction:



taking place in a cell, E_{cell}° is 1.10 V. E_{cell} for the cell will be (Given : $2.303 \frac{RT}{F} = 0.0591$)

- (a) 2.14 V (b) 1.80 V (c) 1.07 V (d) 0.82 V

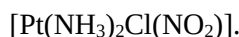
8. When concentration of the reactant A in the reaction $A \rightarrow B$ increases to 8 times, then rate increases 2 times only. The order of reaction is

- (a) 2 (b) $\frac{1}{3}$ (c) 3 (d) $\frac{1}{2}$

9. The electronic configuration of Pt (atomic number 78) is

- (a) $[\text{Xe}] 4f^{14}5d^96s^1$ (b) $[\text{Kr}] 4f^{14}5d^{10}$ (c) $[\text{Xe}] 4f^{14}5d^{10}$ (d) $[\text{Xe}] 4f^{14}5d^86s^2$

10. Identify the IUPAC name of the following compound



- (a) Diamminechloridonitroplatinum(II) (b) Triamminechloridonitroplatinum(III)
(c) Chloridodiamminenitroplatinum(III) (d) Amminochloronitroplatinum(II)

SECTION-III BOTANY

11. Read the assertion and reason carefully to mark the correct option given in question

Assertion: A typical microsporangium of angiosperms is generally surrounded by four wall layers epidermis, endothecium, middle layers and tapetum.

Reason: The outer three wall layers perform the function of protection and help in dehiscence of anther to release the pollen.

- (a) If both assertion and reason are true (b) If assertion is false but reason is true
(c) If assertion is true but reason is false (d) If both assertion and reason are false

12. How many pairs of contrasting characters in pea plants were studied by Mendel in his experiments?

- (a) 9 (b) 5 (c) 6 (d) 7

13. Match the column I with column II, and select the correct option from the codes given below.

Column I

- A. Monoecious
B. Dioecious
C. Cleistogamous
D. Heterostyly

Column II

- i. Primula
ii. Maize
iii. Date palm
iv. Commelina

- | | A | B | C | D |
|-----|-----|-----|-----|----|
| (a) | iii | ii | iv | i |
| (b) | ii | iii | iv | i |
| (c) | ii | iii | i | iv |
| (d) | I | ii | iii | iv |

14. DNA fragments are
 (a) Negatively charged (b) Positively charged
 (c) Neutral (d) Depends on the size
15. *Monascus purpureus* is a yeast used commercially in the production
 (a) Citric acid (b) Ethanol
 (c) Blood cholesterol lowering statins (d) None of the above

SECTION-IV ZOOLOGY

16. Cry-I endotoxins obtained from *Bacillus thuringiensis* are effective against
 (a) Nematodes (b) Flies
 (c) Mosquitoes (d) Boll worms
17. In human females, menstruation can be deferred by the administration of
 (a) Combination of estrogen and progesterone
 (b) FSH only
 (c) LH only
 (d) Combination of LH and FSH
18. The function of copper ions in copper releasing IUDs is
 (a) They inhibit gametogenesis
 (b) They inhibit ovulation
 (c) They suppress sperm motility and fertilising capacity of sperms
 (d) All of the above
19. In higher vertebrates, the immune system can distinguish between its own cells and foreign cells. If this property is lost due to genetic abnormalities, and it attacks its own cells, then it leads to
 (a) Activated immunity (b) Graft rejection
 (c) Autoimmune disease (d) None of the above
20. DNA fragments separated on an agarose gel can be visualized after staining with
 (a) Ethidium bromide (b) Bromophenol blue
 (c) Acetocarmine (d) Aniline blue

SECTION-V MENTAL ABILITY

21. **Direction:** Study the following information carefully and answer the question given below:
 Point C is 15 m in the east of point F. Point A is 10 m west of point B which is 15 m north of point H. Point D is 15 west of point E. Point B is 15 m south of point C. Point E is 5 m east of point H. Point G is 15 m north of point A.
 In which direction and at what distance is point G from point C?
 (a) 10 m east (b) 5 m, east (c) 10 m, west (d) 5 m, west



22. **Direction:** Study the following information carefully and answer the questions given below:
There are seven persons i.e. A, B, C, D, E, F and G. They all belongs to the different cities i.e. Kolkata, Mumbai, Chennai, Pune, Lucknow, Ahmadabad and Delhi but not necessarily in the same order. D belongs to Pune. Neither A nor F belongs to Kolkata. B belongs to Ahmedabad. C does not belong to Kolkata and Lucknow. G belongs to Mumbai. A does not belongs to Lucknow and Chennai.
- Who among the following belongs to Kolkata?
- (a) A (b) D (c) F (d) None of these
23. **Direction:** Study the following information carefully and answer the question given below:
There are six persons who all are of different height. A is taller than C and D but shorter than E. The one who is third shortest is 102cm in height. B is taller than A. E is not the tallest. The one who is second tallest is 119cm in height. Neither A nor C is the third shortest person among all. C is not the shortest among all. F is taller than D.
- Who among the following is the second tallest?
- (a) F (b) E (c) A (d) C
24. **Direction:** What will come in the place of question (?) mark in the following number series.
1, 6, 25, 76, 153, ?
- (a) 152 (b) 154 (c) 153 (d) 155
25. Ratio of present ages of two persons A and B is 3 : 2 and after four years ratio of their age (B : A) become 7:10. Then find the present age of B?
- (a) 20 years (b) 18 years (c) 24 years (d) 36 years
26. **Direction:** Study the following information carefully and answer the question given below:
There are seven members in a family of three generation. A is mother of P. P is brother of G. K is married to G. S is aunt of M. K is child of L. S is sister of K. If L is married to J, then how J is related to G?
- (a) Grand-daughter (b) Grand-son
(c) Son-in-law (d) Can't be determined
27. If in a certain code language, FEVERISH is coded as 29 and COUNSEL is coded as 98, then how will MUTATED be coded as in the same code language?
- (a) 48 (b) 80 (c) 92 (d) 84





28. Two statements are given, followed by two conclusions numbered I and II. Assuming the statements to be true, even if they seem to be at variance with commonly known facts, decide which of the conclusions logically follow(s) from the statements.

Statements:

Some Pans are Bottles.

All Bottles are Mugs.

Conclusions:

I. All Mugs are Bottles.

II. Some Mugs are Pan

- (a) Neither conclusion I nor II follows (b) Only conclusion I follows
(c) Only conclusion II follows (d) Both conclusions I and II follow

29. Which two digits can be interchanged so as to balance the given equation?

$$87 \times 2 - 65 + 182 \div 38 = 155$$

- (a) 2 and 8 (b) 5 and 7 (c) 6 and 2 (d) 8 and 6

30. Select the option that represents the letters that, when sequentially placed from left to right in the blanks below, will complete the letter series.

_ F O _ L L W F _ O O L _ W F F _ O _ L _

- (a) F O F L O L W (b) F F L L O O W
(c) F F O L L O L (d) F O W L L F W



ROUGH WORK

SAMPLE PAPER