

SAMPLE PAPER **Engineering**

M-STAR[★]

Momentum Scholarship Test for Admission & Rewards

11th Edition, 2026

Talent HUNT Exam



(Class X Studying Moving to Class XI)
Physics, Chemistry, Mathematics & Mental Ability

INSTRUCTIONS FOR CANDIDATE

1. Duration of Test is 1 hr.
2. The Test Booklet consists of 40 questions. The maximum marks are 90. There is **no negative marking** for wrong answer.
3. **Pattern of the questions are as under:**

The question paper consists of three subjects i.e., , **Physics, Chemistry, Mathematics** and **Mental Ability**. There are two sections in this question paper.

 - (i) **Section-I:** This section contains **35 multiple choice questions**, which have **only one correct answer**. Each question carries **+2 marks** for correct answer.
 - (ii) **Section-II:** This section contains 5 multiple choice questions, in which **one or more than one choice(s)** is/are correct. Each question carries **+4 marks** for correct answer.



Branch Office:

आवास विकास कालोनी, बस्ती

Ph: +91-6390903210, 6390903211

Head Office:

छात्रसंघ चौक, गोरखपुर

Ph: +91-6390903200, 6390903201

Branch Office:

राघव नगर, देवरिया

Ph: +91-6390903213, 6390903214

MOMENTUM Talent Search Exam 2026

SAMPLE PAPER

(Class X Studying Moving to Class XI)

Time : 1 Hour

PHYSICS

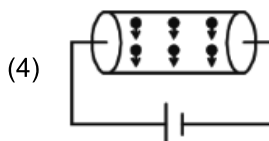
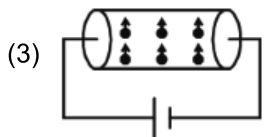
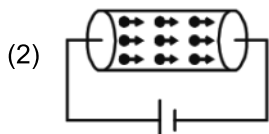
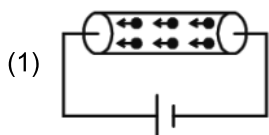
MM : 90

SECTION-I : SINGLE CORRECT ANSWER TYPE

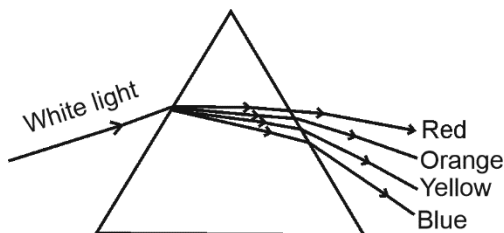
This section contains 9 multiple choice questions. Each question has 4 choices (1), (2), (3) and (4) out of which **ONLY ONE** choice is correct.

- Convex mirror forms inverted image of a real object
 - Under no circumstances
 - When the object is very far from the mirror
 - When object is at distance equal to focal length
 - When object is at distance equal to radius of mirror
- On the passage of electric current, the filament of a bulb gets heated and starts glowing due to
 - Chemical effect of electric current
 - Heating effects of electric current
 - Magnetic effects of electric current
 - Both magnetic and chemical effects of electric current
- Among the following which colour of light has longest wavelength?

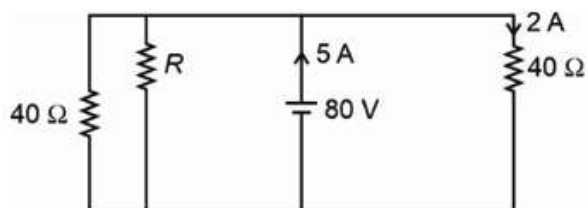
(1) Blue	(2) Green
(3) Yellow	(4) Orange
- Identify the circuit representing the correct direction of flow of electrons through the shown conductor.



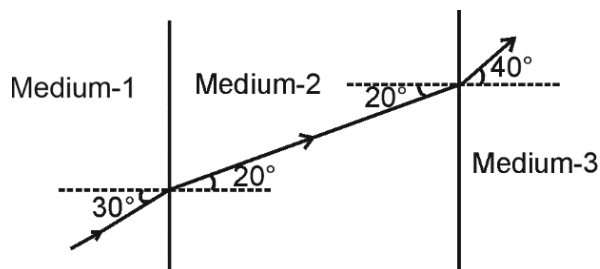
5. A white light passes through a glass prism as shown in the figure. Four colours out of the seven colours are shown. Then for which colour of light, the refractive index of glass prism is maximum?



- (1) Red (2) Orange
(3) Yellow (4) Blue
6. Two wires of same material and same length have their respective area of cross-section in the ratio of 3 : 1. The resistance of the first wire is $10\ \Omega$. If they are joined in series, then the effective resistance of the combination will be
- (1) $40\ \Omega$ (2) $2.5\ \Omega$
(3) $\frac{40}{3}\ \Omega$ (4) $100\ \Omega$
7. A young girl can adjust the power of her eye-lens between 40 D and 50 D. If her far point is infinity, then the distance between her retina and the eye lens is
- (1) 2.5 cm (2) 4 cm
(3) 3.5 cm (4) 5 cm
8. In the given circuit diagram, the value of resistance R is



- (1) $20\ \Omega$ (2) $120\ \Omega$
(3) $40\ \Omega$ (4) $80\ \Omega$
9. The given figure shows a ray of light passing through media 1, 2 and 3. Then the light travels fastest in



- (1) Medium-1
(2) Medium-2
(3) Medium-3
(4) It travels with same speed in all media

SECTION-II : ONE OR MORE THAN ONE CORRECT ANSWER TYPE

This section contains 1 multiple choice question, which has 4 choices (1), (2), (3) and (4) out of which **ONE OR MORE THAN ONE** choice(s) is(are) correct.

10. A spherical lens forms three times magnified real image of an object placed in front of the lens. If the object is moved towards the lens through 8 cm, five times magnified virtual image is obtained. Then
- (1) The focal length of the lens is 15 cm
 - (2) The focal length of the lens is 20 cm
 - (3) The separation between real image and virtual image is 80 cm
 - (4) The separation between real image and virtual image is 120 cm

CHEMISTRY**SECTION-I : SINGLE CORRECT ANSWER TYPE**

This section contains 9 multiple choice questions. Each question has 4 choices (1), (2), (3) and (4) out of which **ONLY ONE** choice is correct.

11. Identify the species being oxidised and reduced when hydrogen sulphide gas burns in air to give water and sulphur dioxide and choose the correct option.

	Species being oxidised	Species being reduced
(I)	O ₂	H ₂ S
(II)	H ₂ S	O ₂
(III)	H ₂ O	SO ₂
(IV)	SO ₂	H ₂ O

- (1) I
 - (2) II
 - (3) III
 - (4) IV
12. Choose the incorrect match.
- (1) Nitric acid – Strong acid
 - (2) Formic acid – Weak acid
 - (3) Acetic acid – Weak acid
 - (4) Hydrochloric acid – Weak acid

13. When copper articles are left open in moist air for long time then they gain a green coloured coating. The green substance is
- (1) Basic copper oxide
 - (2) Copper sulphate
 - (3) Basic copper carbonate
 - (4) Copper chloride
14. All of the following metals are reduced by only electrolysis of their respective oxides, hydroxides or chlorides in molten state, **except**
- (1) K
 - (2) Mg
 - (3) Hg
 - (4) Na
15. Identify the reaction from the following in which a white coloured precipitate is formed.
- (1) $\text{C}_6\text{H}_{12}\text{O}_6 + 6\text{O}_2 \rightarrow 6\text{CO}_2 + 6\text{H}_2\text{O}$
 - (2) $\text{Na}_2\text{SO}_4 + \text{BaCl}_2 \rightarrow \text{BaSO}_4 + 2\text{NaCl}$
 - (3) $\text{Pb} + \text{CuCl}_2 \rightarrow \text{PbCl}_2 + \text{Cu}$
 - (4) $2\text{KI} + \text{Pb}(\text{NO}_3)_2 \rightarrow 2\text{KNO}_3 + \text{PbI}_2$
16. You are provided with three different solutions 'X', 'Y' and 'Z' with pH value 10, 2.2 and 14 respectively. On the basis of information given, choose the incorrect option.
- (1) Dilution of solutions 'Y' and 'Z' is an exothermic process
 - (2) 'X' and 'Z' can turn pink in colour on adding few drops of phenolphthalein
 - (3) 'Y' can be lemon juice whereas 'X' can be used as an antacid
 - (4) 'Z' has the highest hydrogen ion concentration and 'Y' can turn blue litmus red
17. Consider the following statements:
- (a) Electrovalent compounds are generally soluble in water
 - (b) Ionic compounds are held together by strong inter-ionic attraction
 - (c) During the electrolytic refining of copper, the cathode is impure copper whereas anode is a strip of pure copper
 - (d) Brass is a homogeneous mixture whereas amalgams are not
- Now, choose the correct option.
- (1) Statements (a) and (c) are correct whereas statements (b) and (d) are incorrect
 - (2) Statements (a) and (b) are correct whereas statements (c) and (d) are incorrect
 - (3) Statement (b) is correct whereas statements (a), (c) and (d) are incorrect
 - (4) Statements (b), (c) and (d) are correct whereas statement (a) is incorrect

18. In an activity, the students of class tenth were asked to mix the aqueous solutions of barium hydroxide and ammonium chloride in a test tube. They were also asked to write the balanced chemical equation with conclusions. Which of the following conclusions noted by them are correct?
- I. One mole of barium hydroxide reacts with two moles of ammonium chloride.
 - II. Two moles of ammonia gas is formed.
 - III. Precipitate of barium chloride is formed.
 - IV. It is an example of exothermic reaction.
 - V. It is an example of endothermic reaction.
 - VI. It is an example of precipitation reaction.
- (1) I, II and IV
 - (2) III, V and VI
 - (3) I, II and V
 - (4) I, II, III, V and VI
19. A student was working in his science laboratory. He took 0.5 g of sodium hydrogen carbonate in a test tube and added 2 mL of dilute hydrochloric acid. He observed the evolution of gas 'G'. Which of the following statements is not true about 'G'?
- (1) Its aqueous solution turns blue litmus red
 - (2) It turns lime water milky
 - (3) It is acidic in nature
 - (4) It is a diatomic gas

SECTION-II : ONE OR MORE THAN ONE CORRECT ANSWER TYPE

This section contains 1 multiple choice question, which has 4 choices (1), (2), (3) and (4) out of which **ONE OR MORE THAN ONE** choice(s) is(are) correct.

20. Thermal decomposition of ferrous sulphate releases gases 'G₁' and 'G₂'. Another gas 'G₃' is released when sodium carbonate reacts with dilute hydrochloric acid. If gas 'G₁' is also released during roasting of an ore, then choose the correct option(s).
- (1) Gas 'G₁' is released when solid barium sulphite is added to dilute hydrochloric acid whereas gas 'G₃' is released when nitric acid is added to egg shells
 - (2) Gas 'G₁' is a strong reducing agent as it turns orange coloured solution of acidic dichromate into green in colour whereas gas 'G₃' turns lime water milky
 - (3) When a burning candle is brought near gases 'G₁' and 'G₃'; 'G₁' burns with a pop sound and 'G₃' extinguishes flame
 - (4) Sodium hydrogen carbonate on heating gives 'G₃' gas whereas gas 'G₂' is obtained on heating gypsum

MATHEMATICS

SECTION-I : SINGLE CORRECT ANSWER TYPE

This section contains 10 multiple choice questions. Each question has 4 choices (1), (2), (3) and (4) out of which **ONLY ONE** choice is correct.

21. The H.C.F. of 120, 180, 240 is

- (1) 20 (2) 30
(3) 40 (4) 60

22. If L.C.M. (a, b) is x and H.C.F. (a, b) is y , then the correct relation is

- (1) $a \times b = x \times y$ (2) $ab = \frac{x}{y}$
(3) $\frac{a}{y} = \frac{b}{x}$ (4) $\frac{a}{b} = \frac{x}{y}$

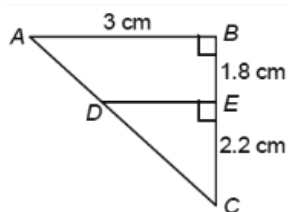
23. The product of zeroes of polynomial $x^2 - 7x + 1$ is

- (1) 7 (2) $\frac{1}{7}$
(3) 1 (4) $-\frac{1}{7}$

24. A quadratic polynomial with sum and product of its zeroes as -9 and 11 can be

- (1) $2x^2 - 9x + 11$ (2) $\sqrt{3}x^2 + 9\sqrt{3}x + 11\sqrt{3}$
(3) $x^2 - 9x + 11$ (4) $x^2 + 9x - 11$

25. In the given figure, $AB \parallel DE$ and $\angle ABC = 90^\circ$, then the length of AD is



- (1) 1.8 cm (2) 2.25 cm
(3) 2.2 cm (4) 1.85 cm

26. The ratio in which the line segment joining the points $(5, 2)$ and $(4, -3)$ is divided by the line $y = 0$ will be

- (1) 3 : 4 (2) 1 : 2
(3) 2 : 3 (4) 1 : 3

27. $2\sin^2\theta \cos^2\theta (2 + \tan^2\theta + \cot^2\theta)$ is equal to

- (1) 1 (2) 2
(3) $\frac{1}{2}$ (4) 4

28. A boat is moving away from a cliff 200 m high. At the top of the cliff, the angle of depression of the boat changes from 45° to 30° in 5 minutes. The speed of the boat (in m/s) is
- (1) $\frac{3}{2}$ (2) $\frac{(\sqrt{3}-1)}{3}$
- (3) $\frac{2}{3}(\sqrt{3}-1)$ (4) $\frac{3-\sqrt{3}}{3}$
29. The 10th term from the end of the A.P.
 $\sqrt{2}, 4\sqrt{2}, 7\sqrt{2}, \dots, 100\sqrt{2}$ is
- (1) $58\sqrt{2}$ (2) $70\sqrt{2}$
- (3) $73\sqrt{2}$ (4) $76\sqrt{2}$
30. Sum of the A.P. $34 + 32 + 30 + \dots + 10$ is
- (1) 286 (2) 10001
- (3) - 10001 (4) 0

SECTION-II : ONE OR MORE THAN ONE CORRECT ANSWER TYPE

This section contains 2 multiple choice questions. Each question has 4 choices (1), (2), (3) and (4) out of which **ONE OR MORE THAN ONE** choice(s) is(are) correct.

31. Amir and Jaya attempt to solve a quadratic equation. Amir copies the constant term of the equation wrong and gets the roots of this equation as (17, 2). Jaya copies the coefficient of x wrong and gets the roots of this equation as (28, 3). The correct option(s) is/are
- (1) The sum of roots in Amir's equation and product of roots in Jaya's equation are same as that of the original equation
- (2) If the leading coefficient of the original equation is 1, then its discriminant is a perfect square
- (3) The roots of the original equation are 12, 7
- (4) The roots of the equation obtained by adding Amir's and Jaya's equation, with leading coefficients 1 are irrational
32. The ages of three friends A , B and C are x , y and z respectively. The sum of A 's and B 's age is equal to C 's age. If B 's age is reduced by a certain number m , then the result is x and if C 's age is also reduced by the same number m , then the result is twice of x . If the difference of x and m is 9, $x > m$ and $z - 2x = \frac{2y}{7}$, then the correct option(s) is/are
- (1) The product of ages is 11,350
- (2) The number m is 6
- (3) HCF of the ages of A , B and C is 3
- (4) The sum of ages is 72

MENTAL ABILITY**SECTION-I : SINGLE CORRECT ANSWER TYPE**

This section contains 7 multiple choice questions. Each question has 4 choices (1), (2), (3) and (4) out of which **ONLY ONE** choice is correct.

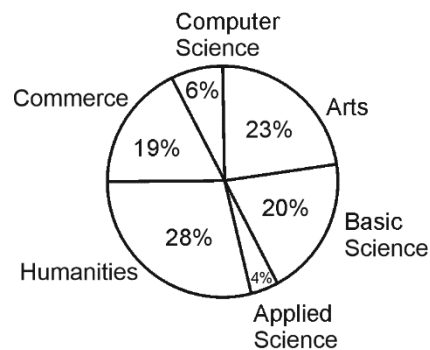
33. Mohan moves 5 m in East, then 3 m in South and finally 5 m in West. In which direction is he now from starting point?
- (1) West (2) North
(3) East (4) South
34. The next number in the given series is
91, 182, 546, 2184, 10920, ?
- (1) 64420 (2) 65520
(3) 66319 (4) 62120
35. If in a certain code, J is coded as 100, P is coded as 256. Then the code of S is
- (1) 360 (2) 361
(3) 484 (4) 235
36. Pointing to a photograph a lady tells Salman, "I am the only daughter of this lady and her son is your maternal uncle". How is the speaker related to Salman's father?
- (1) Sister-in-law
(2) Wife
(3) Sister
(4) Daughter
37. Following question is based on five words given below:
AND FOR THE BIG SUM
- (The new word formed after performing the mentioned operations may or may not be meaningful English word)
- If in each of the given words; each of the consonants is changed to previous letter and each vowel is changed to next letter in the English alphabetical series, in how many words thus formed will no vowels appear?
- (1) None (2) One
(3) Two (4) Three

38. Find the missing number.

44	26	34
35	14	7
-15	?	18

- (1) 1 (2) 33
(3) 12 (4) -6

39. The given pie-diagram shows the streams opted by students at graduate level.



If sum of the angles for the students who opted different streams is 108° , then the streams are

- (1) Computer Science, Basic Science and Arts
(2) Computer Science, Basic Science and Commerce
(3) Humanities, Basic Science and Applied Science
(4) Computer Science, Basic Science and Applied Science

SECTION-II : ONE OR MORE THAN ONE CORRECT ANSWER TYPE

This section contains 1 multiple choice question, which has 4 choices (1), (2), (3) and (4) out of which **ONE OR MORE THAN ONE** choice(s) is(are) correct.

40. If $8 * 5 \# 7 = 238$, $9 * 6 \# 4 = 313$ and $3 * 5 \# 9 = 215$. Then, which of the following option(s) follow(s) the same operation?

- (1) $8 * 7 \# 6 = 443$ (2) $5 * 6 \# 7 = 290$
(3) $3 * 4 \# 5 = 98$ (4) $9 * 6 \# 7 = 343$

☐ ☐ ☐

MOMENTIAN'S RESULTS

IIT-JEE

IIT AIR
576

CITY TOPPER
2026



SHIVANSH RANJAN

IIT AIR
330

CITY TOPPER
2022



ABHISHEK SINGH

IIT AIR
107

CITY TOPPER
2024



HIMANSHU YADAV

IIT AIR
1023

CITY TOPPER
2023



DIVYAMAN PAL

IIT AIR
1223

CITY TOPPER
2025



AMIMAY PANDEY

NEET

Score
670
720

CITY TOPPER
2023



ANSHUMAN SINGH
KGMU Lucknow

Score
686
720

CITY TOPPER
2023



PRANSHU PRIYA
IMS Banaras (BHU)

Score
706
720

CITY TOPPER
2024



ANSHIKA SINGH
AIIMS Delhi

Score
579
720

CITY TOPPER
2025



ASHWIN P. SINGH
Govt. Medical Collage

Score
642
720

CITY TOPPER
2021



RAJESHWAR NISHAD
AIIMS Gorakhpur