

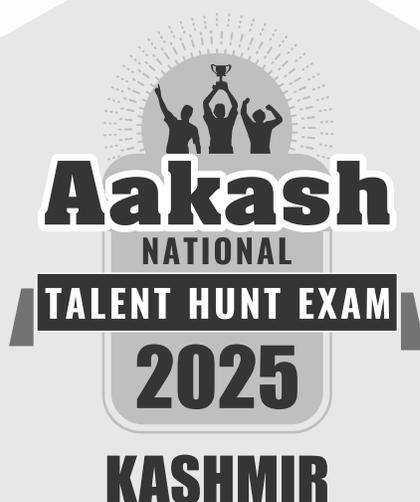
# Sample Paper

FOUNDATIONS



**Aakash**

Medical | IIT-JEE | Foundations



**(Class VIII Studying Moving to Class IX)**

## Science, 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:
  - (i) The question paper consists of three parts *i.e.*, **Science, Mathematics** and **Mental Ability**. Each part has **two sections**.
  - (ii) **Section-I**: This section contains **35** multiple choice questions, which have **only one** correct answer. Each question carries **+2 marks** for correct answer.
  - (iii) **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.



# Aakash National Talent Hunt Exam (Kashmir)-2025

## Sample Paper

### (Class VIII Studying Moving to Class IX)

(The questions given in sample paper are indicative of the level and pattern of questions that will be asked in ANTHE (Kashmir)-2025)

Time : 1 Hour

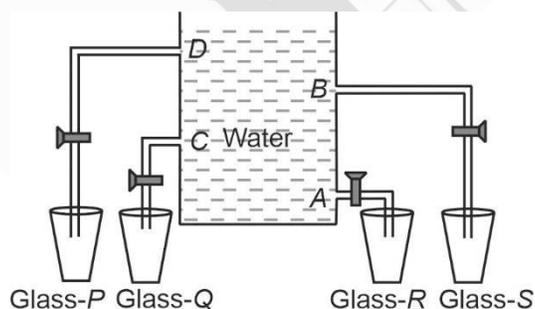
MM : 90

## SCIENCE

### SECTION-I : SINGLE CORRECT ANSWER TYPE

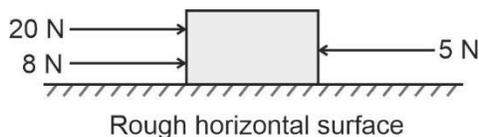
This section contains 18 multiple choice questions. Each question has 4 choices (1), (2), (3) and (4) out of which **ONLY ONE** choice is correct.

1. When electric current is passed through the copper sulphate solution, copper sulphate dissociates into copper and sulphate. Then (consider the electrodes are of copper rod)
  - (1) The free copper gets drawn to electrode connected to the negative terminal of the battery
  - (2) The free copper gets drawn to electrode connected to the positive terminal of the battery
  - (3) The free copper gets drawn to both the electrodes
  - (4) The free copper is not drawn to any of the electrodes
  
2. Water is to be filled in four identical glasses *P*, *Q*, *R* and *S* through pipes connected to points *A*, *B*, *C* and *D* of a large container as shown in the figure. If all the pipes have equal internal diameters and their valves are opened simultaneously, then the glass filled first is



- (1) Glass-*P*
  - (2) Glass-*Q*
  - (3) Glass-*R*
  - (4) Glass-*S*
  
3. When an unbalanced external force is applied on an object, then which of the following statements may be correct?
  - (A) The object can move from rest.
  - (B) The speed of the moving object can change.
  - (C) The shape of the object can change.
  - (1) (A) and (B) only
  - (2) (B) and (C) only
  - (3) (C) only
  - (4) (A), (B) and (C)

4. A block of weight 60 N kept on a rough horizontal surface is pushed with three different forces 20 N, 5 N and 8 N as shown in the figure. If the resultant force acting on the block is 18 N, then the frictional force acting on the block is



- (1) 5 N  
(2) 8 N  
(3) 15 N  
(4) 20 N
5. A child pushes a book to slide on a rough horizontal surface. The sliding friction acting on the book is 5 N. If he uses some pencils (cylindrical in shape) as rollers between the book and the rough horizontal surface, then the rolling friction can be
- (1) 7 N  
(2) 10 N  
(3) 2 N  
(4) 12 N
6. A simple pendulum is oscillating with frequency  $f$  completes one oscillation in time  $T$ . If the frequency of the pendulum is increased to  $f'$  then it completes one oscillation in time  $T'$ , then which of the following relation is always correct?
- (1)  $T'f' > 1$   
(2)  $T'f' < 1$   
(3)  $T'f' = 1$   
(4)  $T' = f'$
7. In galvanisation of iron, a coating of \_\_\_\_\_ is deposited on iron to protect it from corrosion and formation of rust.
- (1) Copper  
(2) Lead  
(3) Tin  
(4) Zinc
8. Which of the following sets contain(s) only natural resources?
- I. Air, water, coal  
II. Soil, coke, paper  
III. Sunlight, minerals, petroleum
- (1) Only I  
(2) Only II  
(3) Both I and II  
(4) Both I and III

9. Which of the following is not a combustible substance?
- (1) LPG
  - (2) Wood
  - (3) Charcoal
  - (4) Glass
10. A gas 'X' obtained from another gas 'Y', is used in the production of urea. Identify 'X' and 'Y' and choose the correct option.
- |                     |                   |
|---------------------|-------------------|
| (1) X = Natural gas | (2) X = Hydrogen  |
| Y = Hydrogen        | Y = Coal gas      |
| (3) X = Hydrogen    | (4) X = Hydrogen  |
| Y = Natural gas     | Y = Petroleum gas |
11. In an activity, a science teacher demonstrated the combustion of coal, magnesium and LPG. He asked three students Anu, Pihu and Daksh to write about the combustion of the substances on the basis of their observation or conclusion.
- Anu** : Magnesium burns in air to produce magnesium oxide, heat and light.
- Pihu** : Carbon dioxide, heat and light are produced during combustion of coal and it is an example of explosion.
- Daksh** : Combustion of LPG in gas stove is an example of rapid combustion.
- Now, choose the correct option.
- (1) Only Anu's statement is correct
  - (2) Only Daksh's statement is correct
  - (3) The statements made by both Anu and Daksh are correct
  - (4) The statements made by both Pihu and Daksh are correct
12. All of the following agricultural practices are done before harvesting, **except**
- (1) Sowing
  - (2) Ploughing
  - (3) Irrigation
  - (4) Storage
13. The causative organism of anthrax is a/an
- (1) Bacterium
  - (2) Virus
  - (3) Fungus
  - (4) Alga
14. Which of the following is not a fauna of Pachmarhi Biosphere Reserve?
- (1) Wolf
  - (2) Chinkara
  - (3) Cheetal
  - (4) Arjun

15. Zygote

- (a) Develops into a new individual.
- (b) Is formed by the fusion of gametes.

Select the correct option.

- (1) Only (a) is true
- (2) Only (b) is true
- (3) Both (a) and (b) are false
- (4) Both (a) and (b) are true

16. Select the **incorrect** difference between fertilizer and manure.

	Fertilizer	Manure
(i)	It is a man-made inorganic salt.	It is a natural substance obtained by the decomposition of cattle dung and plant residues.
(ii)	It is prepared in the fields.	It is prepared in the factories.
(iii)	It does not provide any humus to the soil.	It provides a lot of humus to the soil.
(iv)	It is very rich in nitrogen, phosphorus and potassium.	It is relatively less rich in plant nutrients.

- (1) (iii)
- (2) (ii)
- (3) (i)
- (4) (iv)

17. India has (i) and (ii) as two of the 34 biodiversity hotspots of the world. Here, **(i)** and **(ii)** are respectively

- (1) Pachmarhi Biosphere Reserve and Bharatpur Wildlife Sanctuary
- (2) Eastern Himalayas and the Western Ghats
- (3) Great Nicobar Biosphere Reserve and Bori Wildlife Sanctuary
- (4) Satpura National Park and Pachmarhi Biosphere Reserve

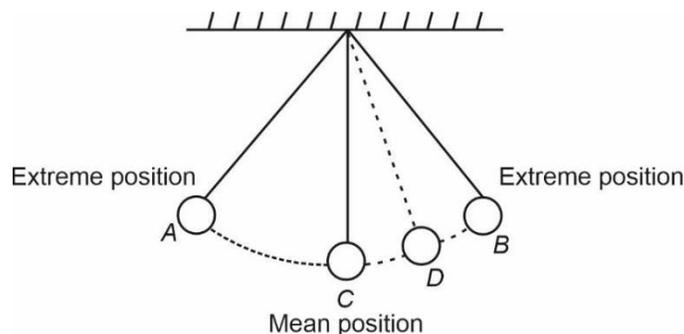
18. In humans, the male gametes are produced by

- (1) Sperm duct
- (2) Testis
- (3) Penis
- (4) Oviduct

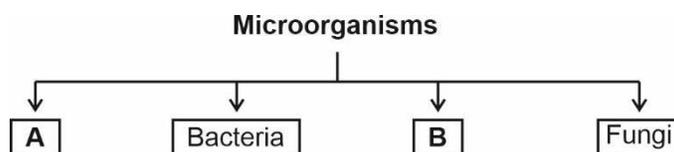
## SECTION-II : ONE OR MORE THAN ONE CORRECT ANSWER TYPE

This section contains 3 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.

19. Figure below shows an oscillating pendulum, where *A* and *B* are the extreme positions and *C* is the mean position. If the bob of the pendulum goes from position *A* to *D* in 1.2 s and from *D* to *B* and back to *C* in 1.8 s, then



- (1) Time period of the pendulum is 4 s
  - (2) Frequency of the oscillation is  $\frac{1}{6}$  Hz
  - (3) Time taken by the bob to reach from *C* to *D* is 0.2 s
  - (4) In 10 s the bob will cross the mean position five times, when it starts from any extreme position
20. After completing the chapter “Coal and Petroleum” the science teacher asked some questions to the students by giving some clues. Identify the substances on the basis of the clues given and choose the correct option(s).
- A. Constituent of a liquid fossil fuel used as motor fuel.
  - B. Constituent of a liquid fossil fuel used as a fuel for stoves and lamps.
  - C. It is a mixture of about 200 substances and is used to make naphthalene ball.
  - D. Constituent of a liquid fossil fuel used to make paints.
- (1) ‘A’ and ‘B’ are also used as aviation fuel and fuel for jet aircrafts respectively
  - (2) ‘C’ is coal tar and these days it is replaced by ‘D’ for metalling the surface of roads
  - (3) ‘A’, ‘B’, ‘C’ and ‘D’ are the petroleum products obtained by the refining of crude oil
  - (4) Only ‘A’, ‘B’ and ‘D’ are the petroleum products
21. Consider the given flowchart.



Select the **correct** statement(s) w.r.t. the groups **A** and **B** of microorganisms.

- (1) If a member of **B** causes malaria, then this group would be Protozoa
- (2) Group **A** includes *Rhizobium* which reproduces only inside the cells of host organism
- (3) If group **A** includes *Spirogyra* and *Chlamydomonas*, then this group would be Algae
- (4) A member of group **B** causes citrus canker in plants

**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.

22. The value of  $\left(\frac{-1}{5}\right) + \left(\frac{-3}{5}\right) + \left(\frac{-5}{5}\right) - \left(\frac{2}{5} + \frac{4}{5}\right)$  is
- (1) 1  
(2) 3  
(3) -3  
(4) 0
23. If  $4m - \frac{5}{3} = m + \frac{7}{3}$ , then  $(3m - 1)$  equals
- (1) 3  
(2) -3  
(3)  $\frac{4}{3}$   
(4)  $-\frac{4}{3}$
24. If a regular polygon of 9 sides has perimeter equal to 108 cm, then the side length of the polygon is
- (1) 15 cm  
(2) 12 cm  
(3) 11 cm  
(4) 13 cm
25. If  $m$ ,  $n$  and  $\theta$  are unit digits of  $573^2$ ,  $447^2$  and  $6398^2$  respectively, then the value of  $(m - n + \theta)$  is
- (1) 18  
(2) 4  
(3) 13  
(4) 22
26. For every natural number  $n$ , the sum of squares of  $n$ ,  $n + 1$  and  $n(n + 1)$  is a perfect square which makes a pattern. Using this same pattern, if  $6^2 + a^2 + b^2 = c^2$ ,  $8^2 + x^2 + y^2 = z^2$  and  $10^2 + m^2 + p^2 = \theta^2$ , where  $6 < a < b$ ,  $8 < x < y$  and  $10 < m < p$ , then the value of  $\left[\frac{c + z + \theta - (b + y + p)}{(m - x) + (x - a)}\right]$  is
- (1) 1.25  
(2) 1.75  
(3) 0.25  
(4) 0.75

27. If  $a = 3 + 9 + 15 + \dots + 87$   
 $b = 5 + 15 + 25 + \dots + 105$   
 $c = 7 + 21 + 35 + \dots + 91$ , then
- (1)  $a < b$
  - (2)  $2b + c = 3a$
  - (3)  $3a$  is a perfect cube
  - (4)  $a > b > c$
28. An item marked at ₹720 is sold for ₹630. The discount percentage is
- (1) 25%
  - (2) 15%
  - (3) 12.5%
  - (4) 18.5%
29. Which of the following statements is(are) incorrect?
- Statement I:** Rational numbers are associative for division.
- Statement II:** Rational numbers are commutative for addition.
- Statement III:** Rational numbers are closed under division.
- (1) Statement III only
  - (2) Statements I and II
  - (3) Statement I only
  - (4) Statements I and III
30.  $(\sqrt[3]{729})$  equals
- (1) 6
  - (2) 3
  - (3) 9
  - (4) 27
31. The rate percent per annum compounded annually at which the sum of ₹750 amounts to ₹2058 in 3 years, is
- (1) 36%
  - (2) 30%
  - (3) 50%
  - (4) 40%

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**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.

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32. A bag contains some green, some red, some yellow and some blue balls such that when a ball is chosen at random, the probability of getting a blue ball is twice of probability of getting a red ball and probability of getting a green ball is half of probability of getting a red ball. If the probability of getting a yellow ball is equal to sum of probabilities of getting a red and a green ball and total number of balls in the bag is 60, then the correct options are
- (1) Number of blue balls = 24
  - (2) Number of yellow balls = 18
  - (3) Number of green balls = 6
  - (4) Number of red balls = 15

**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. Complete the following series.

25, 50, 150, 750, 5250, ?

- (1) 47251
- (2) 58750
- (3) 57750
- (4) 54400

34. How many vowels are immediately preceded and immediately followed by even digit in the following pattern?

3 a 4 1 2 a 4 b 2 a 1 4 e 8 a 3 g 8 u 2

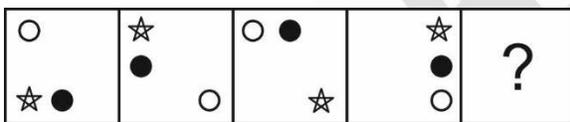
- (1) 1
- (2) 2
- (3) 3
- (4) 4

35. Choose the correct option in place of (?)

568 : 53 :: 729 : 25 :: 438 : ?

- (1) 21
- (2) 28
- (3) 19
- (4) 92

36. Complete the given series.



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

37. Rohit is facing towards east walks 12 m in the same direction then turns his right and walks 8 m, then takes a left turn and walks 10 m. Finally, he takes another left turn and walks 12 m. Now, how far is he from his starting point?

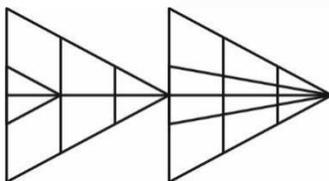
- (1)  $10\sqrt{2}$  m (2)  $5\sqrt{10}$  m  
 (3)  $12\sqrt{2}$  m (4)  $10\sqrt{5}$  m

38. Choose the correct water image.

U P 2 1 W 6 8 9 1 3 2 5

- (1) П Ь Ъ ↓ М @ 8 6 ↓ 3 5 2  
 (2) П Ь Ъ ↓ М @ 8 @ ↓ 3 5 2  
 (3) П Ь 7 ↓ W 9 8 @ ↓ 3 2 5  
 (4) П Ь 7 ↓ W @ 8 @ ↓ 3 5 5

39. Count the total number of triangles in the given figure.



- (1) 42 (2) 40  
 (3) 39 (4) 44

**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 CHROME → 35, CIRCLE → 32 and HONOHR → 42, then which option(s) has/have same coded relation?

- (1) GOOGLE → 34 (2) FIGURE → 39  
 (3) SHEETS → 50 (4) PROBLEM → 36

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## OUR TOP PERFORMERS IN JEE (Advanced) 2025



## Olympiads Results

**899** Classroom Students  
Aakashians Qualified

in IOQM  
2024

**161** Classroom Students  
Aakashians Qualified

in RMO  
2024-25

**420** Classroom Students  
Aakashians Qualified

in NSEs  
2024-25

**25** Classroom Students  
Aakashians Qualified

for OCSCs/IMOTC  
/APMO 2024-25

**4902** Classroom Students  
Aakashians Qualified

in NSO (Level-I)  
2024-25