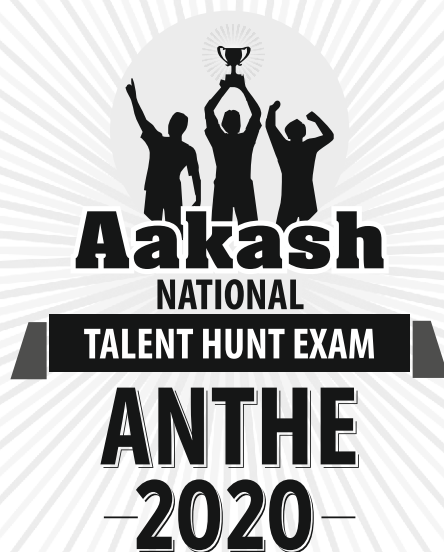


# Sample Paper



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

**Science, Mathematics & Mental Ability**

## INSTRUCTIONS FOR CANDIDATE

1. Duration of Test is 1 hr.
2. The Test booklet consists of **35** 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 five parts i.e., Physics, Chemistry, Biology, Mathematics and Mental Ability. Phy, Chem, Bio, Maths have **four sections** and Mental Ability has **two sections**.
  - (ii) **Section-I:** This section contains **21** multiple choice questions, which have **only one** correct answer. Each question carries **+2 marks** for correct answer.
  - (iii) **Section-II:** This section contains **6** multiple choice questions, in which **more than one** answer may be correct. Each question carries **+4 marks** for correct answer.
  - (iv) **Section-III:** This section contains **4** multiple choice questions based on Assertion & Reason Type, which have **only one** correct answer. Each question carries **+2 marks** for correct answer.
  - (v) **Section-IV:** This section contains **4** questions. Each question has two matching Columns. Column-I has four entries (A, B, C, D) and Column-II has four entries (P, Q, R, S). Each entry in Column-I may match with one or more entries in Column-II. Each question carries **+4 marks** for correct answer.



# Aakash

Medical | IIT-JEE | Foundations

(Divisions of Aakash Educational Services Limited)



# Aakash National Talent Hunt Exam 2020

## Sample Paper

(Class VII Studying Moving to Class VIII)

(The questions given in sample paper are indicative of the level and pattern of questions that will be asked in ANTHE-2020)

Time : 1 Hour

MM : 90

### PHYSICS

#### SECTION-I : SINGLE ANSWER TYPE

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

- How many times do the pulse of a normal healthy human adult at rest, beat in 20 seconds?  
(1) 12 times (2) 24 times  
(3) 36 times (4) 72 times
- The odometer of a car reads the following distances at the given instants. The ratio of average speed of the car in the first and the second intervals is

Time	Odometer reading
9 : 45 AM	4404 km
10 : 15 AM	4449 km
10 : 30 AM	4469 km

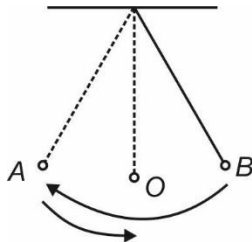
- (1) 9 : 8 (2) 8 : 9  
(3) 9 : 2 (4) 2 : 1
- Air moves from a region of (i) pressure to a region of (ii) pressure. Here (i) and (ii) are respectively.  
(1) High, Low (2) Low, High  
(3) High, High (4) Low, Low
- A man puts his hand in water at 30°C for a while. He will feel colder if he puts the same hand in another vessel containing water at  
(1) 20 °C (2) 30 °C  
(3) 35 °C (4) 40 °C

Space for Rough Work

**SECTION-II : MORE THAN ONE ANSWER TYPE**

This section contains 1 multiple choice question, which has 4 choices (1), (2), (3) and (4) out of which **MORE THAN ONE** answer may be correct.

5. The bob of a simple pendulum takes a total time of 1.5 s to go from *B* to *A* and then from *A* to *O* as shown. Then



- (1) It will complete 20 oscillations in 40 s
- (2) It will complete 20 oscillations in 20 s
- (3) It will complete 50 oscillations in 75 s
- (4) It will complete 50 oscillations in 100 s

**SECTION-III : ASSERTION & REASON TYPE**

This section contains 1 Assertion-Reason type question, which has 4 choices (1), (2), (3) and (4) out of which **ONLY ONE** is correct.

6. **A :** Due to uneven heating of lands and water, in summer, winds flow from the oceans towards the land.  
**R :** In summer, land warms up faster than water in oceans. The warm air over the land rises up and the cold wind from the oceans rushes in, to take its place.
- (1) Both (A) and (R) are true and (R) is the correct explanation of (A)
  - (2) Both (A) and (R) are true but (R) is not the correct explanation of (A)
  - (3) (A) is true but (R) is false
  - (4) (A) is false but (R) is true

**SECTION-IV : MATRIX MATCH TYPE**

This section contains 1 Matrix Match type question, which has 2 Columns (Column I and Column II). Column I has four entries (A), (B), (C) and (D), Column II has four entries (P), (Q), (R) and (S). Match the entries in Column I with the entries in Column II. Each entry in Column I may match with one or more entries in Column II.

**Space for Rough Work**



For each entry in Column I, tick the boxes of all the matching entries in Column II. For example, if entry (A) in Column I matches with entries (P) & (S) in Column II, then tick the boxes (P) & (S). Similarly, tick the boxes for entries (B), (C) and (D).

	P	Q	R	S
A.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
B.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

7. Column I gives four physical phenomena and column II gives four media.

Column I	Column II
A. Conduction	(P) Solids
B. Convection	(Q) Liquids
C. Radiation	(R) Gases
D. Heat can travel through	(S) Vacuum

## CHEMISTRY

### SECTION-I : SINGLE ANSWER TYPE

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

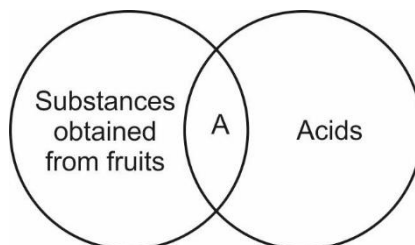
8. Which of the following substances can be added to the soil to reduce its basic nature?
- |                 |                         |
|-----------------|-------------------------|
| (1) Quick lime  | (2) Organic matter      |
| (3) Slaked lime | (4) Magnesium hydroxide |
9. The gas present in the atmosphere which protects us from the harmful ultraviolet radiations coming from the sun is
- |                    |              |
|--------------------|--------------|
| (1) Oxygen         | (2) Ozone    |
| (3) Carbon dioxide | (4) Nitrogen |
10. Which of the following conditions are essential for rusting?
- (i) Presence of air
  - (ii) Presence of moisture
  - (iii) Presence of sunlight

**Space for Rough Work**

Mark the correct option.

- (1) (i) and (ii)
- (2) (ii) and (iii)
- (3) (i), (ii) and (iii)
- (4) (i) and (iii)

11. Consider the given Venn diagram.



On the basis of given Venn diagram, substance 'A' cannot be

- (1) Ascorbic acid
- (2) Citric acid
- (3) Tartaric acid
- (4) Hydrochloric acid

---

**SECTION-II : MORE THAN ONE ANSWER TYPE**

This section contains 1 multiple choice question, which has 4 choices (1), (2), (3) and (4) out of which **MORE THAN ONE** answer may be correct.

12. Which of the following processes do not show neutralization?

- (1) Intake of milk of magnesia during indigestion
- (2) Rubbing calamine solution on skin to get relief from ant bite
- (3) Addition of turmeric in soap solution
- (4) Dissolving lime in water

---

**SECTION-III : ASSERTION & REASON TYPE**

This section contains 1 Assertion-Reason type question, which has 4 choices (1), (2), (3) and (4) out of which **ONLY ONE** is correct.

13. **A :** Silk fibres are plant fibres.

**R :** Silk is obtained by rearing of silk worms.

- (1) Both (A) and (R) are true and (R) is the correct explanation of (A)
- (2) Both (A) and (R) are true but (R) is not the correct explanation of (A)
- (3) (A) is true but (R) is false
- (4) (A) is false but (R) is true

---

**Space for Rough Work**

**SECTION-IV : MATRIX MATCH TYPE**

This section contains 1 Matrix Match type question, which has 2 Columns (Column I and Column II). Column I has four entries (A), (B), (C) and (D), Column II has four entries (P), (Q), (R) and (S). Match the entries in Column I with the entries in Column II. Each entry in Column I may match with one or more entries in Column II.

For each entry in Column I, tick the boxes of all the matching entries in Column II. For example, if entry (A) in Column I matches with entries (P) & (S) in Column II, then tick the boxes (P) & (S). Similarly, tick the boxes for entries (B), (C) and (D).

	P	Q	R	S
A.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
B.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

14. Match the Columns.

Column I	Column II
A. Mooga	(P) Wool yielding animal
B. Marwari	(Q) Type of silk
C. Kosa	(R) Breed found in Gujarat
D. Patanwadi	(S) Obtained from cocoon

**BIOLOGY****SECTION-I : SINGLE ANSWER TYPE**

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

15. Which of the following organisms can take atmospheric nitrogen and convert it into usable form?

- |             |                      |
|-------------|----------------------|
| (1) Yeast   | (2) <i>Rhizobium</i> |
| (3) Amarbel | (4) Mushroom         |

Space for Rough Work

16. Which of the following feeds on animals covered by hard shells of calcium carbonate?
- (1) Eagle
  - (2) Snail
  - (3) Lice
  - (4) Starfish
17. *Cuscuta* has 'X' mode of nutrition. Which of the following organisms belongs to 'X' mode of nutrition?
- |                   |           |
|-------------------|-----------|
| (1) Pitcher plant | (2) Ant   |
| (3) Bed bugs      | (4) Snail |
18. The fleshy muscular organ attached at the back of floor of buccal cavity is
- |            |                     |
|------------|---------------------|
| (1) Tongue | (2) Small intestine |
| (3) Liver  | (4) Diaphragm       |

---

**SECTION-II : MORE THAN ONE ANSWER TYPE**

This section contains 1 multiple choice question, which has 4 choices (1), (2), (3) and (4) out of which **MORE THAN ONE** answer may be correct.

19. A well-known animal of Indian tropical rainforest is the elephant that is adapted to the rainforest conditions in many ways. Large ears of elephant help it to
- (1) Hear even very soft sounds
  - (2) Pick up the food
  - (3) Tear the bark of trees
  - (4) Keep cool in the hot and humid climate of the rainforest

---

**SECTION-III : ASSERTION & REASON TYPE**

This section contains 1 Assertion-Reason type question, which has 4 choices (1), (2), (3) and (4) out of which **ONLY ONE** is correct.

20. **A :** Many tropical animals have sensitive hearing, sharp eyesight, thick skin and a peculiar skin colour.  
**R :** This help them to camouflage by blending with the surroundings and to protect them from predators.
- (1) Both (A) and (R) are true and (R) is the correct explanation of (A)
  - (2) Both (A) and (R) are true but (R) is not the correct explanation of (A)
  - (3) (A) is true but (R) is false
  - (4) (A) is false but (R) is true

---

**Space for Rough Work**

**SECTION-IV : MATRIX MATCH TYPE**

This section contains 1 Matrix Match type question, which has 2 Columns (Column I and Column II). Column I has four entries (A), (B), (C) and (D), Column II has four entries (P), (Q), (R) and (S). Match the entries in Column I with the entries in Column II. Each entry in Column I may match with one or more entries in Column II.

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	P	Q	R	S
A.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
B.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

21. Column I contains products of breakdown of food during respiration or characteristics of organisms and column II contains conditions or cells associated.

<b>Column I</b>	<b>Column II</b>
A. Water	P. Anaerobic respiration
B. Lactic acid	Q. Aerobic respiration
C. Alcohol	R. Yeast
D. Single-celled organism	S. Muscle cell

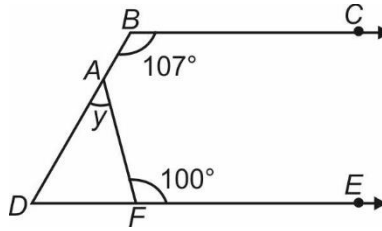
**MATHEMATICS****SECTION-I : SINGLE ANSWER TYPE**

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

22. After 35 years, Rohan will be 8 times as old as he is now. The present age of Rohan is
- (1) 5 years
  - (2) 7 years
  - (3) 4 years
  - (4) 8 years

**Space for Rough Work**

23. In the given figure, if  $BC \parallel DE$ , then the value of  $y$  is



- (1)  $107^\circ$  (2)  $27^\circ$   
 (3)  $100^\circ$  (4)  $73^\circ$

24. If  $x$  is the reciprocal of  $y$ , where  $x \neq y$ ,  $x \neq 0$ , then  $\frac{x+y}{x-y}$  is equal to

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

25. A die was thrown 6 times such that all the 6 outcomes were distinct. If  $x$  denotes the mean and  $y$  denotes the median of all the outcomes, then the value of  $\frac{x-y}{x+y}$  is

- (1) 7 (2) 0  
 (3) 3.5 (4) 1

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

This section contains 1 multiple choice question, which has 4 choices (1), (2), (3) and (4) out of which **MORE THAN ONE** answer may be correct.

26. Which of the following is/are equivalent to  $\frac{2}{5}$ ?

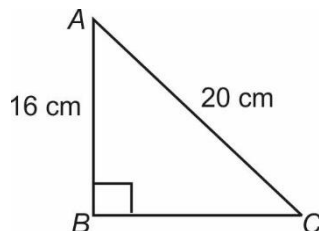
- (1)  $\frac{12}{30}$  (2)  $\frac{34}{85}$   
 (3)  $\frac{54}{135}$  (4)  $\frac{62}{165}$

Space for Rough Work

**SECTION-III : ASSERTION & REASON TYPE**

This section contains 1 Assertion-Reason type question, which has 4 choices (1), (2), (3) and (4) out of which **ONLY ONE** is correct.

27. **A :** In the given figure,  $BC$  is 12 cm.



**R :** In a right triangle, sum of squares of perpendicular sides is equal to square of hypotenuse.

- (1) Both (A) and (R) are true and (R) is the correct explanation of (A)
- (2) Both (A) and (R) are true but (R) is not the correct explanation of (A)
- (3) (A) is true but (R) is false
- (4) (A) is false but (R) is true

**SECTION-IV : MATRIX MATCH TYPE**

This section contains 1 Matrix Match type question, which has 2 Columns (Column I and Column II). Column I has four entries (A), (B), (C) and (D), Column II has four entries (P), (Q), (R) and (S). Match the entries in Column I with the entries in Column II. Each entry in Column I may match with one or more entries in Column II.

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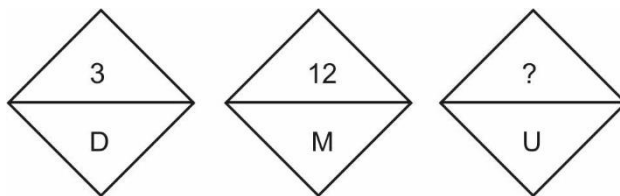
	P	Q	R	S
A.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
B.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Space for Rough Work





32. Find the missing character.



(1) 21

(2) 22

(3) 20

(4) 19

33. If  $5 = 23$  and  $9 = 79$ , then  $12 = ?$

(1) 145

(2) 142

(3) 144

(4) 146

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

This section contains 2 multiple choice questions. Each question has 4 choices (1), (2), (3) and (4) out of which **MORE THAN ONE** answer may be correct.

34. Which of the following series follow the same pattern?

(1) 2, 5, 11, 23, 47, 95

(2) 9, 19, 39, 79, 159, 319

(3) 7, 17, 27, 37, 47, 57

(4) 1, 6, 11, 16, 21, 26

35. The water image of mirror image of which letters is same to original letter?

(1) N

(2) H

(3) A

(4) C

Space for Rough Work



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**80081** in NEET

69826 Classroom + 10255 Distance & Digital

**688** for AIIMS

576 Classroom + 112 Distance & Digital

**7879** in JEE (Main)

7250 Classroom + 629 Distance & Digital

**1633** in JEE (Adv.)

1441 Classroom + 192 Distance & Digital

## Our Result in Olympiads/Scholarship Exams

**1598** in PRMO

2019

1556 Classroom + 42 Distance & Digital

**115** in RMO

2019

111 Classroom + 4 Distance & Digital

**949** in NTSE

Stage-I 2019-20

832 Classroom + 117 Distance & Digital

**366** in NTSE

Stage-II 2019

317 Classroom + 49 Distance & Digital

**767** in NSEs

2019

701 Classroom + 66 Distance & Digital

**481** in IMO

Level-I 2018-19

466 Classroom + 15 Distance & Digital

**800** in NSO

Level-I 2019-20

728 Classroom + 72 Distance & Digital

**26** in INO

2020

20 Classroom + 06 Distance & Digital

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