

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 National Talent Hunt Exam 2021

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-2021)

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.

- The pulse of a normal healthy adult at rest, beats _____ in one hour.
 - 3420 times
 - 600 times
 - 720 times
 - 4320 times
- The temperature of a body is measured by a device called
 - Anemometer
 - Thermometer
 - Speedometer
 - Calorimeter
- An object moving in a straight line covers half of the distance with speed 5 m/s. The other half of the distance is covered in two equal time intervals with speed of 4 m/s and 6 m/s respectively. The average speed of object during the motion is
 - $\frac{9}{2}$ m/s
 - $\frac{11}{2}$ m/s
 - 5 m/s
 - $\frac{17}{4}$ m/s
- Which of the following will rise the highest?
 - Air at 20°C
 - Air at 15°C
 - Air at 35°C
 - Air at 25°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. Choose the correct option(s) among the following
- (1) On blowing air into balloon the size of balloon increases because air exerts pressure
 - (2) High speed winds at a place result by reduced air pressure
 - (3) Air movement do not depend upon the pressure
 - (4) Air exerts pressure in all direction

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 :** It is easier to drink hot tea from a porcelain mug than from a steel tumbler.
R : Porcelain is a good conductor of heat.
- (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.

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.	☒	☐	☐	☒
B.	☐	☐	☐	☐
C.	☐	☐	☐	☐
D.	☐	☐	☐	☐

Space for Rough Work

7. Match the Columns.

	Column I		Column II
(A)	Temperature	(P)	Meter
(B)	Speed	(Q)	Second
(C)	Distance	(R)	Meter/second
(D)	Time	(S)	Celsius

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 is the most common wool in Tibet and Ladakh?

- (1) Angora wool
- (2) Yak wool
- (3) Alpaca wool
- (4) Llama wool

9. All of the following are obtained from cocoons spun by different types of moths, **except**

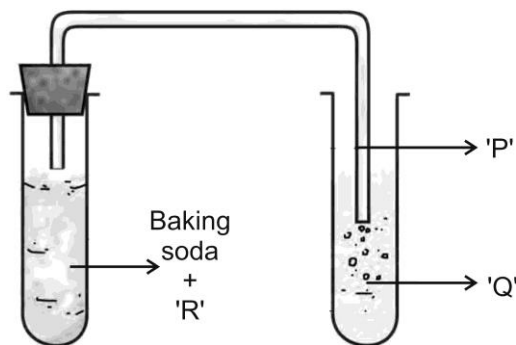
- (1) Mooga
- (2) Kosa
- (3) Tassar
- (4) Nali

10. 'X' is an acid which is present in our stomach and helps us to digest food. 'X' is

- (1) Ascorbic acid
- (2) Oxalic acid
- (3) Formic acid
- (4) Hydrochloric acid

Space for Rough Work

11. Consider the following



Reaction of baking soda and 'R' results into the formation of gas 'P' and some other substances. Gas 'P' reacts with solution 'Q' to give calcium carbonate and product 'S'. Now, choose the incorrect option on the basis of given information.

- (1) 'P' is carbon dioxide (2) 'S' is hydrogen gas
(3) The acid present in substance 'R' is acetic acid (4) 'Q' turns phenolphthalein pink

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. Choose the correct statement(s)

- (1) Proteins are made up of amino acids
(2) Nitric acid turns pink in the presence of China rose indicator
(3) Coffee is bitter in taste, therefore it is basic in nature
(4) Soap solution is basic in nature

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 :** Rusting of iron objects is faster in coastal areas than in deserts.

R : Greater is the humidity, faster is the rate of formation of rust.

- (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.	☒	☐	☐	☒
B.	☐	☐	☐	☐
C.	☐	☐	☐	☐
D.	☐	☐	☐	☐

14. Column I contains some compounds (or process) and column-II contains elements present (or used) in them.

	Column I		Column II
(A)	Blue vitriol	(P)	Zinc
(B)	Slaked lime	(Q)	Magnesium
(C)	Milk of magnesia	(R)	Copper
(D)	Galvanisation	(S)	Calcium

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. All of the following animals are ruminants, **except**

- | | |
|-------------|--------------|
| (1) Cow | (2) Deer |
| (3) Buffalo | (4) Starfish |

Space for Rough Work

16. How many of the following animals live in the tropical rainforests?

Monkey, Polar bear, Tiger, Gorilla, Penguin, Elephant

- | | |
|----------|-----------|
| (1) Four | (2) Five |
| (3) Six | (4) Three |

17. Due to the partial breakdown of glucose, our body experiences

- (1) Muscle cramps
- (2) Relief from cramps
- (3) Improved circulation of blood
- (4) Production of carbon dioxide and water

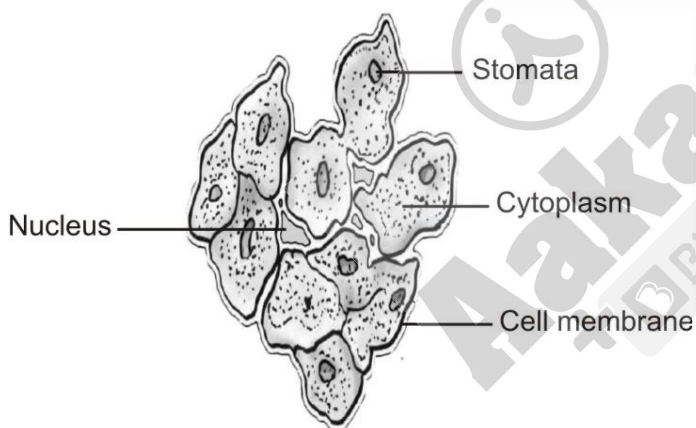
18. Which of the following body parts form(s) the floor of the chest cavity?

- | | |
|---------------|-----------|
| (1) Windpipe | (2) Ribs |
| (3) Diaphragm | (4) Lungs |

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.



Which of the following is/are wrongly labelled in the given figure of cells?

- | | |
|-------------|-------------------|
| (1) Nucleus | (2) Cytoplasm |
| (3) Stomata | (4) Cell membrane |

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.

20. **A :** We chew the food with the teeth and break it down mechanically into small pieces.

R : Our teeth vary in appearance and perform different functions.

- (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.

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.	☒	☐	☐	☒
B.	☐	☐	☐	☐
C.	☐	☐	☐	☐
D.	☐	☐	☐	☐

21. Match the Columns.

	Column I (Characteristic features of Polar bear)		Column II (Adaptations)
(A)	A layer of fat under its skin	(P)	Help it to walk on ice
(B)	Very strong sense of smell	(Q)	Insulates its body from cold
(C)	Wide and large paws	(R)	Helps it to locate and catch its prey
(D)	Long curved and sharp claws	(S)	Helps it to swim

Space for Rough Work

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. Six numbers a, b, c, d, e and f are such that $\frac{b}{a} = \frac{c}{b} = \frac{d}{c} = \frac{e}{d} = \frac{f}{e}$. If $b = 0.4$, $d = 1.6$ and $e = 3.2$, then the value of $(a + c + e) - (b + d + f)$ is
- (1) 9.8
 - (2) -9.8
 - (3) 4.2
 - (4) -4.2
23. If x, y, z are next three consecutive integers in the pattern 10, 7, 4, 1, __, __, __, then $(x - 1)$ equals
- (1) $z - y$
 - (2) $y - z$
 - (3) $y + z$
 - (4) 3
24. Anisha wanted to sell a watch at a profit of 20%. But at last moment she changed her mind and sold the watch at a profit of 30%. If the sum of the two SP's is ₹8000, then the CP of the watch is
- (1) ₹3500
 - (2) ₹3200
 - (3) ₹320
 - (4) ₹4000

Space for Rough Work

25. The mean of three distinct natural numbers is 50. If the largest number is 52 and difference of other two numbers is 2, then the product of these three numbers is
- (1) 142800
 - (2) 12480
 - (3) 124800
 - (4) 142880

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. If angles $\angle x : \angle y : \angle z = 1 : 3 : 4$ such that $\angle x + \angle y = 240^\circ - \angle z$, then which of the following option(s) is/are correct?
- (1) $(\angle x + \angle z)$ is supplement of $\angle x$
 - (2) $\angle x + \angle y = \angle z$
 - (3) $\angle x + \angle y + \angle z = 180^\circ$
 - (4) $\angle z$ is supplement of 60°

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 :** A number is as much greater than 53 as it is less than 95, then that number is 11 more than the product of -7 and -9 .
- R :** Twice of that number is equal to difference of 95 and 53.
- (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

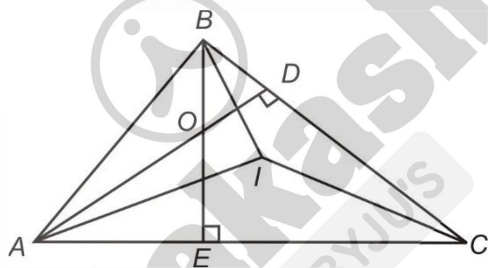
SECTION-IV : MATRIX MATCH TYPE

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.	☒	☐	☐	☒
B.	☐	☐	☐	☐
C.	☐	☐	☐	☐
D.	☐	☐	☐	☐

28. In the given figure, the altitudes AD and BE of an acute angled $\triangle ABC$ intersect at point O and its interior angle bisectors intersect at point I . If $\angle BAC = 80^\circ$ and $\angle ACB = \frac{1}{5} \angle BAC$, then match the columns.



	Column I		Column II
(A)	$\angle OBI$ equals	(P)	Complement of 82°
(B)	The value of $(\angle CBI - 10^\circ)$	(Q)	132°
(C)	$\angle ACI$ equals	(R)	32°
(D)	$\angle AIC$ equals	(S)	Supplement of 148°

Space for Rough Work

MENTAL ABILITY

SECTION-I : SINGLE ANSWER TYPE

This section contains 5 multiple choice questions. Each question has 4 choices (1), (2), (3) and (4) out of which **ONLY ONE** is correct.

29. The water image of following figure is



30. If $5 + 3 = 15$, $5 - 3 = 8$ and $5 \div 3 = 2$, then $7 + 7 - 7 \div 7 = ?$.

(1) 1

(2) 7

(3) 49

(4) 13

31. The next letter in following pattern is

Y, J, W, L, ?.

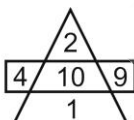
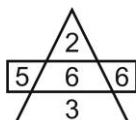
(1) A

(2) B

(3) D

(4) C

32. Choose correct number in place of '?'.



(1) 10

(2) 11

(3) 14

(4) 13

33. Pawan is facing towards north-east. He turn by 135° clockwise, then 270° anticlockwise and finally take left turn. The direction in which he is facing now, is

(1) South

(2) North-west

(3) East

(4) North

Space for Rough Work

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. If $(a + b)^c = c \times a + b - c$, then which of the following is/are not correct?
- (1) $(2 + 3)^2 = 5$
 - (2) $(4 + 2)^3 = 13$
 - (3) $(5 + 4)^3 = 16$
 - (4) $(6 + 5)^2 = 9$
35. Choose the pattern/s in which we get only even term as pattern/s proceed further.
- (1) 2, 4, 16, 128, 2048, 65536
 - (2) 15120, 2160, 360, 72, 18, 6
 - (3) 1024, 512, 256, 128, 64, 32
 - (4) 12288, 3072, 768, 192, 48, 12

☐ ☐ ☐



Aakash
+ BYJU'S

Space for Rough Work

33 Year Old Legacy of Delivering Outstanding Results



84230 NEET-UG 2020

69759 Classroom + 14471 Digital & Distance

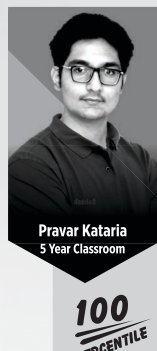


1700 JEE (Advanced) 2020

(1560 Classroom + 140 Digital & Distance)



JEE (Main) 2021 PHASE-III



Our Result in Scholarship Exams /Olympiads

949 NTSE (Stage-I) 2019-2020

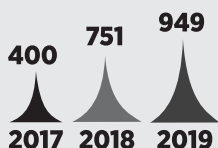
832 Classroom +
117 Digital & Distance

Our 1st Rankers from Classroom Programs

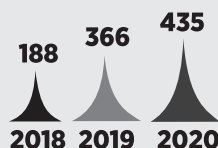


Our performance in Olympiads & Scholarship Exams Over Past 3 Years

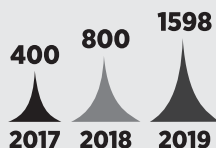
NTSE Stage-I



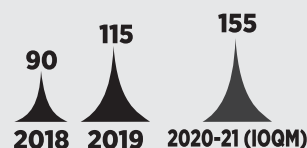
NTSE Stage-II



PRMO



RMO



AAKASHIANS OUTSHINE IN CBSE CLASS X BOARD EXAM 2020

Glimpse of our top performers



P Harini
99.8% (499/500)

Rishit Agarwal
99.6% (498/500)

Sneha Barman
99.4% (497/500)

1598

1556 Classroom +
42 Digital & Distance

PRMO
2019

155

151 Classroom +
04 Digital & Distance

IOQM
2020-21

620

533 Classroom +
87 Digital & Distance

KVPY Aptitude
Test 2019

521

435 Classroom +
86 Digital & Distance

KVPY Fellowship
Award 2020-21

771

705 Classroom +
66 Digital & Distance

NSEs
2019

1611

1477 Classroom +
134 Digital & Distance

IMO (Level-I)
2020-21

1656

1528 Classroom +
128 Digital & Distance

NSO (Level-I)
2020-21

26

20 Classroom +
06 Digital & Distance

INO
2020

Corporate Office : Aakash Tower, 8, Pusa Road, New Delhi-110005 Ph.: (011) 47623456

ALL RIGHTS RESERVED

All rights including copyright and translation rights etc. reserved and vests exclusively with AESL. No part of this publication may be reproduced, distributed, redistributed, copied or transmitted in any form or by any means-graphical, electronic or mechanical methods including photocopying, recording, taping or stored on information retrieval systems of any nature or reproduced on any disc, tape, media, information storage device, without the prior written permission of AESL. Breach of this condition is liable for legal action (civil as well as criminal) under the applicable Laws.

Edition: 2021-22

© Aakash Educational Services Limited [AESL]