Sample Paper
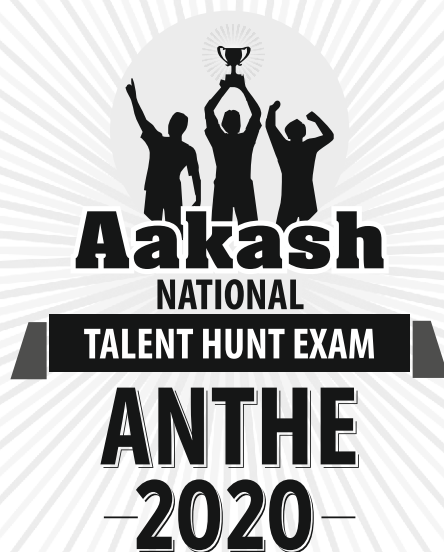
Aakash
NATIONAL
TALENT HUNT EXAM
ANTHE
—2020—

(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 **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.

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Medical│IIT-JEE│Foundations
(Divisions of Aakash Educational Services Limited)

Aakash National Talent Hunt Exam 2020
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-2020)

Time : 1 Hour   **MM : 90**
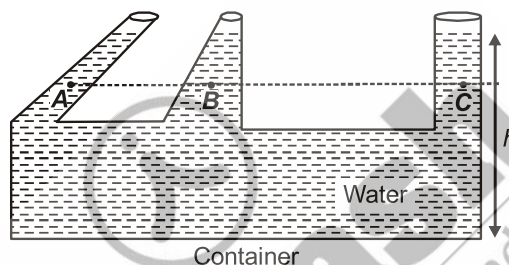
PHYSICS

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.

1. Water is filled in a container upto the height h as shown in the figure given below. If P_A, P_B and P_C are the liquid pressures at points A, B and C respectively which are at the same horizontal level, then

   (1) $P_A > P_B > P_C$

   (2) $P_C > P_B > P_A$

   (3) $P_B > P_A > P_C$

   (4) $P_A = P_B = P_C$

2. Select the poor conductor of electricity.

   (1)   Lemon juice

   (2)   Tap water

   (3)   Vinegar

   (4)   Honey

Space for Rough Work

3. The product of time period and frequency of a sound wave is

    (1) 1

    (2) Zero

    (3) Infinity

    (4) 2

4. The bob of a simple ideal pendulum after being released from extreme position A at time t = 0, crosses the position B at time t = 1 s and again at time t = 5 s. The position of bob at time t = 22 s is (Given : D is extreme position and C is mean position)
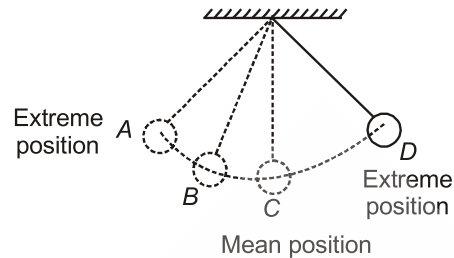

    (1) At A (2) At B

    (3) At C (4) In between C and D

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. P_1 and P_2 are the poles of a bar magnet A, P_3 and P_4 are the poles of a bar magnet B and P_5 and P_6 are the poles of a bar magnet C respectively as shown in the figure. If the poles P_1 and P_3 repel each other while the poles P_4 and P_5 attract each other, then
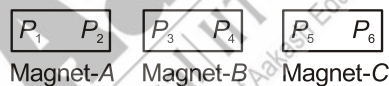
    (1) If P_1 is North pole then P_6 must be South pole

    (2) If P_1 is South pole then P_6 must be North pole

    (3) If P_1 is North pole then P_6 can either be North or South pole

    (4) If P_1 is South pole then P_5 must be South pole

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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 write on a paper with a ball pen as compared to that on a smooth glass sheet.

     R :   Friction exerted by paper is lesser than that is exerted by the smooth glass sheet.

     (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).
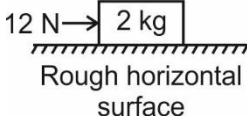

7.   Column-I has types of friction and a situation. Column-II shows four conditions in which force(s) is/are acting on a block.

     Column-I   **Column-II**
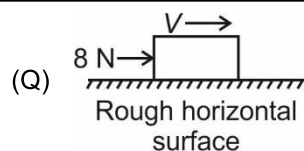
     (A)   Sliding friction   (P)
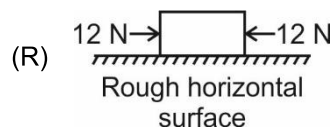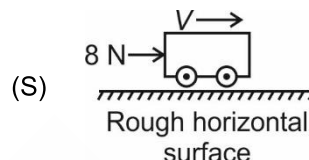

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(B)   Static friction

(Q)

(C)   Rolling friction

(R)

(D)   Zero net force acting on block

(S)

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.   Read the given information about 'X', 'Y' and 'Z' and identify them by choosing the correct option.

     X -   It is a synthetic fibre which is used to make car seat belts, sleeping bags etc.

     Y -   It is a thermosetting plastic which is poor conductor of heat and electricity and is used for making electrical switches.

     Z -   It is a thermosetting plastic which is used to make kitchenwares and flame resistant uniforms of firemen.

     (1)   X - Polyester   (2)   X - Nylon

            Y - PVC   Y - Bakelite

            Z - Acrylic   Z - Melamine

     (3)   X - Rayon   (4)   X - Nylon

            Y - PVC   Y - PET

            Z - Melamine   Z - Bakelite

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9. Lemon pickle cannot be stored in an aluminium utensil because

   (1) The metal present in lemon reacts with aluminium

   (2) The base present in lemon reacts with aluminium

   (3) The acid present in lemon reacts with aluminium

   (4) The impurities present in lemon react with aluminium

10. Choose the incorrect match.

(1)	Non-metal that we breathe in	–	Oxygen
(2)	Non-metal used in fertilizers	–	Nitrogen
(3)	Non-metal used in crackers	–	Calcium
(4)	Non-metal used to make an antiseptic solution	–	Iodine

11. The metal that reacts vigorously with water is

    (1) Al   (2) Zn

    (3) K   (4) Mg

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 statements is/are incorrect?

    (1) Rayon is generally used for making parachutes and ropes for rock-climbing

    (2) Terylene is a popular polyester

    (3) Materials obtained from polyester are called petrochemicals

    (4) Plastic is generally biodegradable and durable

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 :** Aluminium foil is used to wrap the food items.

    R : Aluminium is very ductile.

    (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

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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).

14. Matrix match type question

Column-I	Column-II
(A) Cotton	(P) Melt on heating
(B) Jute	(Q) Synthetic fibre
(C) Acrylic	(R) Good absorber of water
(D) Polyester	(S) Natural fibre

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. The scientist who coined the term 'cell' was

(1) Robert Koch

(2) Robert Hooke

(3) Edward Jenner

(4) Louis Pasteur

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16. Shape of which of the following cells is long and branched?

    (1) Red blood cell   (2) Nerve cell

    (3) White blood cell   (4) Human cheek cell

17. Red data book keeps record of

    (1) All extinct plants only

    (2) All endangered animals and plants

    (3) All extinct animals only

    (4) All extinct species

18. • Its causative organism is a virus.

    • Female *Aedes* mosquito acts as carrier of the virus causing the disease.

    Identify the human disease based on the given information and select the correct option.

    (1) Cholera   (2) Typhoid

    (3) Malaria   (4) Dengue

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. Select the correct option(s) w.r.t. the agricultural implement shown below.

    (1) It is used for tilling the soil and adding fertilisers to the crop

    (2) It can separate grain seeds from the chaff

    (3) It is also used for removing the weeds

    (4) It is drawn by a pair of bulls

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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 :**   Viruses are quite different from other microorganisms.

     R :   They reproduce only outside the host or organisms like bacterium, plant or animal cell.

    (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).

21.   Column-I contains the tools/machines of agricultural practices and Column-II contains their uses or features.

Column-I		Column-II
(A)	Sprinkler system	(P) It is a harvester as well as thresher
(B)	Chain pump	(Q) It is the modern method of irrigation
(C)	Drip system	(R) It is the traditional method of irrigation
(D)	Combine	(S) It is the best technique for watering fruit plants and trees

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. If *B*'s pocket money is 30% more than that of *A* and *C*'s pocket money is 30% more than that of *B*, then by how much percent is *C*'s pocket money more than that of *A*?

    (1)   69%   (2)   60%

    (3)   45%   (4)   90%

23. If *m* and *n* are negative and positive integers respectively, then the solution of the equation *mx* = *n* is always

    (1)   Positive   (2)   Zero

    (3)   Negative   (4)   One

24. Which rational number is added to $\dfrac{-5}{11}$ such that it becomes the additive inverse of $\left(\dfrac{1}{7}+\dfrac{4}{15}\right)^{-1}$?

    (1) $\dfrac{52}{1155}$ (2) $\dfrac{1370}{473}$

    (3) $\dfrac{-998}{1155}$ (4) $\dfrac{-940}{473}$

25. If the square root of 1234321 is subtracted from the square of 51, then which smallest number should be added to the resultant to make it a perfect square?

    (1)   51   (2)   41

    (3)   31   (4)   21

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 correct?

    (1)   In a histogram, width of the bars are determined by class size

    (2)   Frequency gives the number of times that a particular observation occurs

    (3)   In a bar graph, the width of the bars represents the value of the item

    (4)   A pie-chart shows the relationship between a whole and its part

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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 :** If $21 + 23 + 25 + 27 + 29 = x^3$, then the value of x is 5

    R : Cube root of 125 is 5

    (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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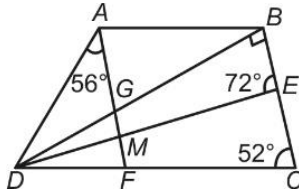

28. Matrix match type question

	Column-I		Column-II
(A)	The number of sides of a regular polygon whose each exterior angle has a measure of 30°, is	(P)	Value of x, where $4x + 2 = 50$
(B)	*REST* is a parallelogram with $\angle R = 108°$, then the measure of $\angle E$	(Q)	Supplement of 166°

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(C) *ABCF* is a parallelogram, *DME*, *DGB* and   (R)   72°
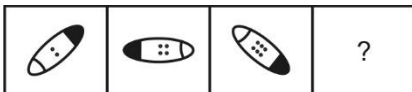*DFC* are straight lines. The measure of
∠*ADG* – ∠*MDF* is

(D) The number of sides of a regular polygon   (S)   12
Having interior angle as 150°, is

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. In the given sequence, find the next figure.

(1)   (2)

(3)   (4)

30. 236 : 12 : : 428 : 16 : : 339 : ?

     (1)   18   (2)   21

     (3)   12   (4)   15

31. Vyom starts walking from point A. After walking 100 m, he turns left. After going further 100 m, he takes a
right turn and walks 50 m. Finally, he takes a left turn and reaches at point B after walking 50 m. If he is facing
north, then the position of B with respect to A will be

     (1)   South-West   (2)   North-East

     (3)   South-East   (4)   North-West

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32. In the pattern "a c e b g k x 7 m 1 5 9 k w n 8 q" the 7th letter (or number) to the left of 15th letter (or number) from the left end is

(1) m   (2) 1
(3) 7   (4) x

33. Select a suitable figure from the options that would replace the question mark (?).

(1)   (2)

(3)   (4)
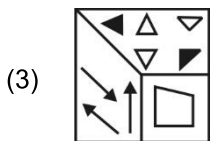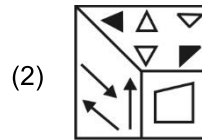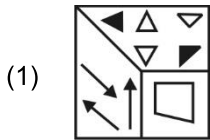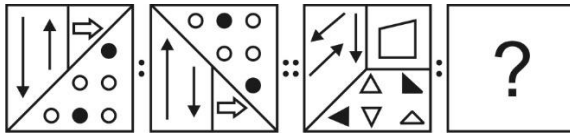
SECTION-II : MORE THAN ONE ANSWER TYPE

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 digit occurs more than 5 times in the following pattern?
471255367954234567789135573 7

(1) 4   (2) 3
(3) 5   (4) 7

35. Choose those numbers which do not belong to given group
2197, 1728, 729, 512, 236, 344, 125

(1) 236   (2) 125
(3) 1728   (4) 344

❑ ❑ ❑

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