

Roll No.

Booklet Code **R**

Name :

Date : 16th December 2020

ONLINE MODE



TALENT HUNT EXAM

ANTHE
—2020—

(Class VIII Studying Moving to Class IX)

Science, Mathematics & Mental Ability

INSTRUCTIONS FOR CANDIDATE

- Duration of Test is 1 hr.
- The Test booklet consists of **35** questions. The maximum marks are **90**. There is **no negative marking** for wrong answer.
- Pattern of the questions are as under:
 - The question paper consists of five parts i.e., Physics, Chemistry, Biology, Mathematics and Mental Ability. Physics, Chemistry, Biology, Mathematics have **four sections** and Mental Ability has **two sections**.
 - Section-I:** This section contains **21** multiple choice questions, which have **only one** correct answer. Each question carries **+2 marks** for correct answer.
 - 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.
 - 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.
 - Section-IV:** This section contains **4** Matrix Match Type 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 the correct answer.



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(Class VIII Studying Moving to Class IX)

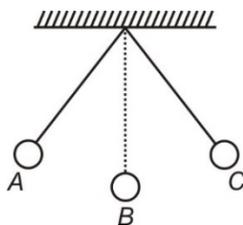
Time : 1 Hour

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.

- A cylindrical glass beaker having radius of base $\sqrt{7}$ cm and mass 110 gm, filled with 0.33 litre water. The pressure exerted by setup at table on which it is placed is [1 litre of water = 1 kg of water]
 - 2000 Pa
 - 2 Pa
 - 0.02 Pa
 - 20 Pa
- If you have a battery with unknown terminals, then to find polarity of terminal, you may use
 - Lemon
 - Mango
 - Potato
 - Onion
- Where should factory dispose of the waste of the electroplating?
 - Nearby river
 - Nearby pond
 - Nearby farm
 - According to guidelines of the local authority
- In the figure shown, if a pendulum moves from A to B then B to C and again back to B from C in 3 seconds, then the frequency of the pendulum is



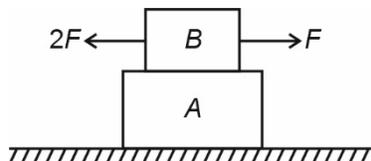
- $\frac{1}{3}$ Hz
- $\frac{1}{4}$ Hz
- $\frac{3}{4}$ Hz
- $\frac{5}{4}$ Hz

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. Two blocks *A* and *B* are arranged on horizontal rough surface. Two forces F and $2F$ are applied on block *B* as shown in figure, if the blocks moves with constant speed, then choose the correct option(s).



- (1) Direction of frictional forces acting on lower surface of block *A* is along force F .
- (2) Direction of frictional forces acting on lower surface of block *A* is along force $2F$.
- (3) Direction of frictional force on block *B* is along force $2F$
- (4) Direction of frictional force on block *B* is along force F

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** : When the cutting edge of a knife is put against a fast moving stone to sharpen it, sparks are seen to fly.
R : Friction can produce 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).

Space for Rough Work

- | | | | | |
|----|-------------------------------------|--------------------------|--------------------------|-------------------------------------|
| | 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. Match the Columns.

	Column I		Column II
(A)	Graphite	(P)	Frequency
(B)	Shrillness of sound	(Q)	Lubricant
(C)	Lemon juice	(R)	Amplitude
(D)	Loudness of sound	(S)	Good conductor of electricity

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 will take minimum time to decompose?
- | | |
|---------------|------------------|
| (1) Paper bag | (2) Cotton cloth |
| (3) Tin can | (4) Wooden toy |
9. Metal 'M' reacts with freshly prepared sodium hydroxide (NaOH) solution to produce a gas 'G'. Metal 'M' and gas 'G' respectively are
- | | |
|----------------------------------|----------------------------------|
| (1) Aluminium and O ₂ | (2) Aluminium and H ₂ |
| (3) Sodium and H ₂ | (4) Zinc and CO ₂ |
10. Consider the box given below.
- Magnesium, charcoal, sulphur, copper, iron, aluminium
- Total number of substances which will not react with dilute hydrochloric acid is
- | | |
|-------|-------|
| (1) 2 | (2) 3 |
| (3) 4 | (4) 1 |

Space for Rough Work

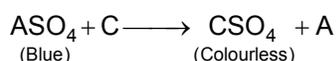
11. All of the following are characteristics of plastics, **except**

- (1) It can be recycled and reused
- (2) It can be melted and coloured
- (3) It is a poor conductor of heat and electricity
- (4) It can react with water and air

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. Suppose 'A', 'B' and 'C' are three different metals.



Choose the correct option(s) regarding metals 'A', 'B' and 'C'.

- (1) Metal 'B' is found in our body (in blood)
- (2) 'A' acquires dull green coating if exposed to moist air for long
- (3) 'C' is more reactive than 'A' but less reactive than 'B'
- (4) 'A', 'B' and 'C' can react with sulphuric acid

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** : Raw materials of petroleum origin are called petrochemicals.

R : Generally synthetic fibres are prepared from petrochemicals.

- (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)	Rayon	(P)	Used for making parachutes
(B)	Nylon	(Q)	Polyester
(C)	Terylene	(R)	Synthetic fibre
(D)	Acrylic	(S)	Artificial silk

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. Select the **incorrect** statement w.r.t. drip system.

- (1) It is used for lawns, coffee plantation and other crops
- (2) In this system, water-falls drop by drop directly near the roots
- (3) In this system, water is not wasted at all
- (4) It is boon in the regions where availability of water is poor

Space for Rough Work

16. Deforestation of an area leads to
- (1) Decrease in earth's temperature
 - (2) Change in the soil properties
 - (3) Increase in the water holding capacity of soil
 - (4) Increase in rainfall



The organism **P** is similar to organism **Q** in having

- (1) Definite shape
 - (2) A well organised nucleus
 - (3) Pseudopodia
 - (4) Single cellularity
18. Select the **incorrect** match.
- (1) Alexander Fleming – Fermentation
 - (2) Robert Hooke – Cell
 - (3) Edward Jenner – Smallpox vaccine
 - (4) Robert Koch – *Bacillus anthracis*

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 comparisons of plant cell and animal cell is/are **incorrect**?

	Cell components	Plant cell	Animal cell
(1)	Cell membrane	Present	Present
(2)	Cell wall	Present	Absent
(3)	Plastids	Present	Present
(4)	Nuclear membrane	Absent	Present

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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 :** Desertification is the gradual process of converting fertile land into deserts.

R : Trees in the forest are cut for procuring land for cultivation.

- (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.	<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. Match the Columns.

	Column I (Communicable diseases)		Column II (Modes of transmission)
(A)	Tuberculosis	(P)	Water
(B)	Chicken pox	(Q)	Contact with infected person
(C)	Cholera	(R)	Mosquito
(D)	Malaria	(S)	Air

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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.

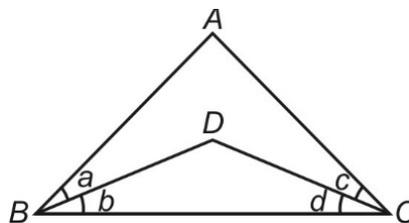
22. If a , b and c are three positive rational numbers such that $a > b > c$, then additive inverse of multiplicative inverse of $\left(\frac{1}{b} - \frac{2}{a} + \frac{1}{c}\right)$ is always

- | | |
|--------------|--------------|
| (1) Positive | (2) Negative |
| (3) 1 | (4) Zero |

23. Numbers 7 to 50 are written on some slips, one number on one slip, kept in a box and mixed well. One slip is chosen at random from the box, then the probability of getting a non-perfect square number less than or equal to 37 will be

- (1) $\frac{25}{43}$
 (2) $\frac{25}{44}$
 (3) $\frac{27}{43}$
 (4) $\frac{27}{44}$

24. In the given figure, $\angle BAC = 40^\circ$. If $a : b = 2 : 3$ and $c : d = 2 : 3$, then $\angle BDC$ equals



- | | |
|-----------------|-----------------|
| (1) 96° | (2) 84° |
| (3) 102° | (4) 108° |

25. A man sells an article at a profit of 30%. If he bought it at 20% less and sold it for ₹45 more, he would have gained 70% on it, then the cost price of the article is

- | | |
|-----------|-----------|
| (1) ₹900 | (2) ₹1150 |
| (3) ₹1200 | (4) ₹750 |

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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. Perimeter of an equilateral $\triangle ABC$ is 18 cm. If $AB = (7z - 1)$ cm, $BC = (3x + 4)$ cm and $AC = (5y - 3)$ cm, then which of the following option(s) is/are correct?

(1) $x + y = \frac{37}{15}$

(2) $z = 700 \times (700)^{-1}$

(3) $xy = \left(\frac{5}{6}\right)^{-1}$

(4) $y + z = \frac{13}{5}$

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 :** The greatest three digit perfect square is 961.

R : 1024 is the smallest four digit perfect square.

- (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

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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

28. Match the Columns.

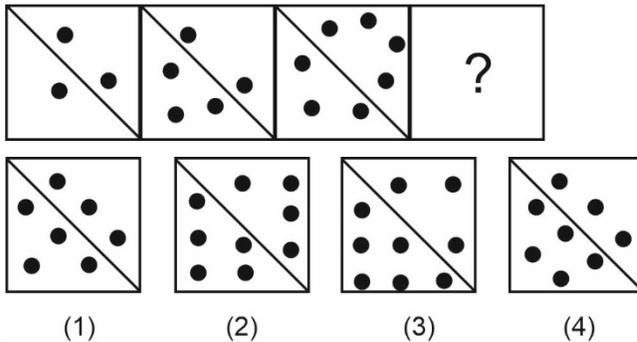
	Column I		Column II
(A)	If $\sqrt[3]{5 + \sqrt[3]{x + \sqrt[3]{3375}}} = \frac{\sqrt[3]{64}}{2}$, then x equals.	(P)	$\sqrt[3]{\sqrt[3]{512}}$
(B)	If $(y^3 + 2)^3 + 331 = 11^3$, then y equals	(Q)	$2^3 + 4$
(C)	The unit's digit of $21^3 + 22^3 + 23^3 + 24^3 + 25^3 + 26^3 + 27^3 + 28^3 + 29^3$ is	(R)	$\sqrt[3]{27} + 2$
(D)	If $(10000 + 20^3) a = p^3$, where p and a are natural numbers, then minimum value of a equals	(S)	$\left(\frac{1}{\sqrt[6]{64}}\right)^{-1}$

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. Choose the correct option to complete the given series of figures.

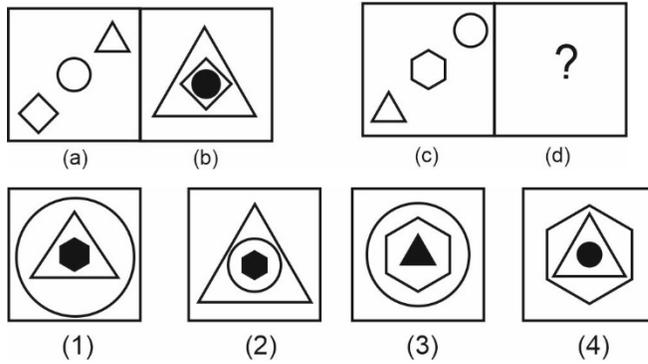


30. Choose the odd one.

- (1) I0916O
- (2) A0105E
- (3) E0509I
- (4) O1525Y

Space for Rough Work

31. Choose correct figure in place of '?' in such manner that it has same relation with figure (c) as figure (a) and figure (b) have.



32. If $RAM \rightarrow IZN$
 $TOY \rightarrow GLB$
 then $HOT \rightarrow ?$

- (1) TMG
- (2) SLH
- (3) SLG
- (4) SMG

33. Ram moves 24 m in north, then turn to his right and moves 143 m and stops. The distance between his initial and final point is
- (1) 140 m
 - (2) 145 m
 - (3) 155 m
 - (4) 160 m

SECTION-II : MORE THAN ONE ANSWER TYPE

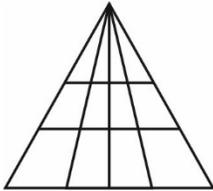
This section contains 2 multiple choice questions. Each question has 4 choices (1), (2), (3) and (4) out of which **MORE THAN ONE** answer may be correct.

34. If $A \rightarrow 2$, $B \rightarrow 17$ and $C \rightarrow 82$, then which of the following is correct?
- (1) $D \rightarrow 257$
 - (2) $E \rightarrow 625$
 - (3) $F \rightarrow 1295$
 - (4) $G \rightarrow 2402$

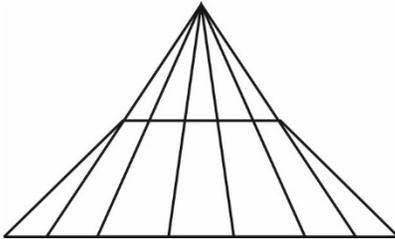
Space for Rough Work

35. Which of the following figure(s) has/have 32 triangles?

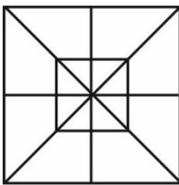
(1)



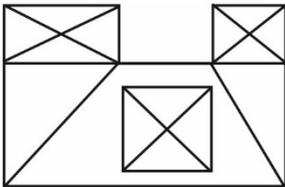
(2)



(3)



(4)



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1700 in JEE (Advanced) 2020
1560 Classroom + 140 Distance & Digital

Our Result in Olympiads / Scholarship Exams

1598

1556 Classroom + 42 Distance & Digital

in PRMO 2019

115

111 Classroom + 4 Distance & Digital

in RMO 2019

949

832 Classroom + 117 Distance & Digital

in NTSE (Stage - I) 2019-20

366

317 Classroom + 49 Distance & Digital

in NTSE (Stage-II) 2019

591

515 Classroom + 76 Distance & Digital

in KVPY Aptitude Test 2019

450

385 Classroom + 65 Distance & Digital

in KVPY Fellowship Award 2019-20

767

701 Classroom + 66 Distance & Digital

in NSEs 2019

481

466 Classroom + 15 Distance & Digital

in IMO (Level-I) 2018-19

800

728 Classroom + 72 Distance & Digital

in NSO (Level-I) 2019-20

26

20 Classroom + 06 Distance & Digital

in INO 2020



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