VIDYAPEETH ACADEMY
IIT JEE | NEET | OLYMPIAD | KVPY | NTSE

V-MAT
Vidyapeeth Mental Aptitude Test
A Talent Search Exam 2019
4th Edition

SAMPLE TEST PAPER
A TALENT SEARCH EXAM 2019

Time : 30 Minutes	Class : 8th_ STAGE - 1	Max. Marks : 100

Name : _____   **Roll No.:** ☐ ☐ ☐ ☐

INSTRUCTIONS

Please read the instructions carefully. You are allotted 5 minutes specifically for this purpose.
You are not allowed to leave the examination hall before the end of the test.

[A]   General :

1. Attempt ALL the questions. Answer have to be **darkened** on the **OMR** sheet.

2. This question paper contains **25 questions**.

3. The question paper consists of **THREE Parts, e.g. Mathematics (1 to 10), Science (11 to 20) & Mental Ability (21 to 25)**

4. Blank spaces are provided at the bottom of each page for rough work. No additional sheets will be provided for rough work.

5. Blank paper, clipboard, log tabes, silde rules, calculators, cellular phones, pagers and electronic gadgets in any form are **NOT** allowed.

6. Do not Tamper / multilate the **OMR sheet** or this booklet.

7. Do not break the seals of the question-paper booklet before instructed to do so by the invigilator.

8. SUBMIT the OMR sheet to the invigilator after completing the test & take away the test paper with you.

[B]   Filling of OMR Sheet :

9. In all the parts, each question will have 4 choices out of which **only one choice is correct**

10. Use only Black/Blue ball point pen for filling the OMR sheet.

11. On the OMR sheet, darken the appropriate bubble for each character of your name, Registration No., Phone No. etc.

[C]   Marking Scheme :

12. For each right answer you will be **awarded 4 marks** if you darken the bubble corresponding to the corrrect answer and **zero marks** if no bubble is darkened. In case of bubbling of incorrect answer, **minus one (-1)** mark will be awarded.

Best of Luck

PART - I (MATHEMATICS)

(SINGLE CORRECT ANSWER TYPE)

This section contains **(1-10) multiple choice questions.** Each questions has four choices (A), (B), (C) and (D) out of which **ONLY ONE** is correct.

Q.1   If $P : Q : R = 2 : 3 : 4$ and $P^2 + Q^2 + R^2 = 11600$, then find $P + Q - R$, where P,Q and R are whole numbers.

(A)   15   (B)   16   (C)   18   (D)   20

Q.2 $S = \dfrac{h}{2}[2a + (h-1)d]$, express d in terms of s, h and a.

(A) $d = \dfrac{2s - ah}{h(h-1)}$

(B) $d = \dfrac{2s - 2ah}{h(h-1)}$

(C) $d = \dfrac{s - ah}{sh(h-1)}$

(D) $d = \dfrac{s - 2ah}{h(h-1)}$

Q.3   The area of rectangle is' xy' where' x' is length and 'y' is breadth. If the length of rectangle is increased by 5 units and breadth is decreased by 3 units, the new area of rectangle will be

(A) $(x - y)(x + 3)$

(B) $xy + 15$

(C) $(x + 5)(y - 3)$

(D) $xy + 5 - 3$

Space for rough work

Q.4   How many pairs of x and y satisfy the equations $2x + 4y = 8$ and $6x + 12y = 24$?

(A)   0   (B)   1

(C)   Infinite   (D)   None of these

Q.5   If $x/y = 6/5$ then $\dfrac{x^2 + y^2}{x^2 - y^2}$ is :

(A) $\dfrac{36}{25}$ (B) $\dfrac{25}{36}$

(C) $\dfrac{11}{61}$ (D) $\dfrac{61}{11}$

Q.6   If $\sqrt{5^n} = 125$, then $5^{\sqrt[n]{64}} =$ _____

(A)   25   (B) $\dfrac{1}{125}$ (C)   625   (D) $\dfrac{1}{5}$

Q.7   Which of the following is the greatest?

(A) 7^2 (B) $(49)^{\frac{3}{2}}$

(C) $\left(\dfrac{1}{343}\right)^{\frac{-1}{3}}$ (D) $(2401)^{\frac{-1}{4}}$

Space for rough work

Q.8   The expression $21x^2 + 11x - 2$ equals to

(A) $(x - 2)(7x + 1)$

(B) $(7x + 1)(3x - 2)$

(C) $(7x - 1)(3x - 2)$

(D) $(7x - 1)(3x + 2)$

Q.9   In the following figure, $\triangle ABC$ is right angled at C and M is the mid-point of hypotenuse AB. If $AC = 32\ cm$ and $BC = 60\ cm$, then find the length of CM.
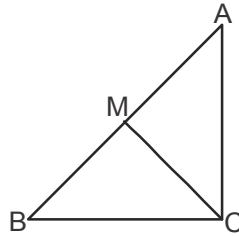
(A)   32 cm

(B)   30 cm

(C)   17 cm

(D)   34 cm

Q.10   The LCM of $x^2 - 16$ and $2x^2 - 9x + 4$ is

(A) $(2x + 1)(x + 4)(x - 4)$

(B) $(x^2 + 16)(2x + 1)$

(C) $2(1 - 2x)(x + 4)(x - 4)$

(D) $(2x - 1)(x + 4)(x - 4)$

Space for rough work

PART - II (SCIENCE)

(SINGLE CORRECT ANSWER TYPE)

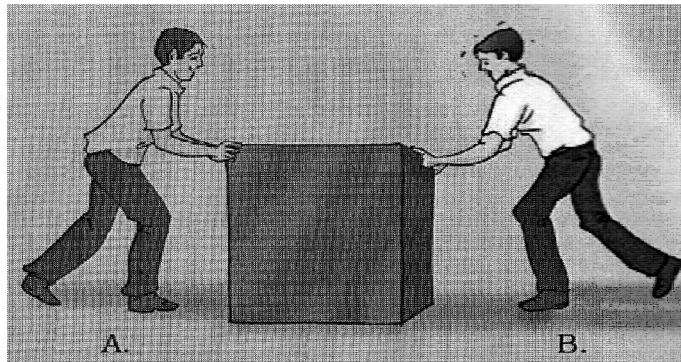This section contains **(11-20) multiple choice questions.** Each questions has four choices (A), (B), (C) and (D) out of which **ONLY ONE** is correct.

Q.11   In Fig. two boys A and B are shown applying force on a block. if the block moves towards the right, which one of the following statements is correct ?

(A)   Magnitude of force applied by A is greater than that of B.

(B)   Magnitude of force applied by A is smaller than that of B.

(C)   Net force on the block is towards A

(D)   Magnitude of force applied by A is equal to that of B.

Space for rough work

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Q.12 Fig. shows a container filled with water. Which of the following statements is correct about pressure of weater ?
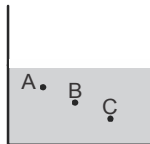
(A)   Pressure at A > Pressure at B > Pressure at C

(B)   Pressure at A = Pressure at B = Pressure at C

(C)   Pressure at A < Pressure at B > Pressure at C

(D)   Pressure at A < Pressure at B

Q.13 Which one of the following forces is a contact force ?

(A)   force of gravity   (B)   force of friction

(C)   magnetic force   (D)   electrostatic force

Q.14 An object is vibrating at 50 hertz. What is its time period ?

(A)   0.02 s   (B)   2 s   (C)   0.2 s   (D)   20.0 s

Q.15 Metals are generally hard. Which of the following metals is an exception ! and can be cut with a knife?

(A)   Iron   (B)   Sodium   (C)   Gold   (D)   Magnesium

Q.16 The material which is commonly used for making kitchen containers is

(A)   PVC   (B)   acrylic   (C)   teflon   (D)   PET

Space for rough work

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Q.17   Generally metallic oxides are basic and non-metallic oxides are acidic in nature. Solution of which of the following oxides in water will change the colour of blue litmus to red?

(A)   Sulphur dioxide   (B)   Iron oxide

(C)   Magnesium oxide   (D)   Copper oxide

Q.18   Pick the synthetic fibre out of the following.

(A)   Cotton   (B)   Nylon   (C)   Jute   (D)   Wool

Q.19   **'Physical basis of life'** is the term used for

(A)   Protoplasm   (B)   Nucleoplasm

(C)   Ribosome   (D)   None of these

Q.20   Nitrogen fixation can occur

(A)   By prokaryotes   (B)   Through physical processes

(C)   Both (A) & (B)   (D)   None of these

Space for rough work

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PART - III (MENTAL ABILITY)

(SINGLE CORRECT ANSWER TYPE)

This section contains **(21-25) multiple choice questions.** Each questions has four choices (A), (B), (C) and (D) out of which **ONLY ONE** is correct.

Q.21   One number is missing in the series. You have to understand the pattern of the series and insert the number.

6,   126,   ?,   9,   108,   12,   7,   133,   19,   12,   72,   6

(A)   21   (B)   23   (C)   30   (D)   35

Q.22   A wooden cube is painted with purple on all the four adjoining faces and yellow on two opposite faces then it is into 216 identical smaller cubes then how many cubes are there having two different colour on them.

(A)   24   (B)   20   (C)   40   (D)   48

Q.23   Q's mother is sister of P and daughter of M.S is daughter of P and sister of T. How is M related to T ?

(A)   Grandmother   (B)   Father

(C)   Grandfather   (D)   Granfather or Grandmother

Q.24   Given interchanges : Signs + and × and numbers 4 and 5. Now which of the following equation is correct ?

(A) $5 \times 4 + 20 = 40$ (B) $5 \times 4 + 20 = 85$

(C) $5 \times 4 + 20 = 104$ (D) $5 \times 4 + 20 = 95$

Q.25   If 'EAT' is written as 22267. How will you write LIP.

(A)   141710   (B)   91211   (C)   151811   (D)   81012

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ANSWER KEY

1.	(D)	2.	(B)	3.	(C)	4.	(C)
5.	(D)	6.	(A)	7.	(B)	8.	(D)
9.	(D)	10.	(D)	11.	(A)	12.	(D)
13.	(B)	14.	(A)	15.	(B)	16.	(D)
17.	(A)	18.	(B)	19.	(A)	20.	(C)
21.	(A)	22.	(C)	23.	(D)	24.	(C)
25.	(C)						

V-MAT REWARDS & RECOGNITION

V-MAT- 2016 Glimpses

V-MAT- 2017 Glimpses

V-MAT -2018 Glimpse

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