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 : 10th_ 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   The graph of the polynomial p(x) cuts the x-axis at 2 places and touches it at 4 places. The number of zeroes of p(x) is

(A)   2   (B)   6   (C)   4   (D)   8

Q.2   What must be subtracted from $4x^4 - 2x^3 - 6x^2 + x - 5$ so that the result is exactly divisible by $2x^2 + x - 2$?

(A) $-3x - 5$ (B) $3x - 5$ (C) $-3x + 5$ (D) $3x + 5$

Q.3   The 9th term of an A.P. is 449 and 449th term is 9. The term which is equal to zero is

(A)   501th   (B)   502th   (C)   458th   (D)   None of these

Q.4   In the given diagram, PQ and RS are common tangents to the two circles with centres C and D. Find the area of trapezium RSDC.
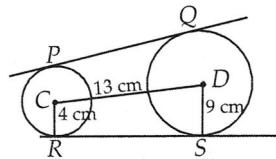
(A)   84 cm^2 (B)   68 cm^2 (C)   92 cm^2 (D)   78 cm^2

Space for rough work

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Q.5   If $x = 2$ and $y = 4$, then $\left(\dfrac{x}{y}\right)^{x-y} + \left(\dfrac{y}{x}\right)^{y-x} = $ _____

(A)   4   (B)   8   (C)   12   (D)   2

Q.6   Factorize the polynomial $8x^3 - \dfrac{1}{64}$

(A) $\left(2x - \dfrac{1}{4}\right)\left(4x^2 - \dfrac{x}{2} + \dfrac{1}{16}\right)$

(B) $\left(2x - \dfrac{1}{8}\right)\left(4x^2 + \dfrac{x}{2} - 16\right)$

(C) $\left(2x - \dfrac{1}{4}\right)\left(4x^2 + \dfrac{1}{16} + \dfrac{x}{2}\right)$

(D) $\left(2x - \dfrac{1}{4}\right)\left(4x^2 + \dfrac{x}{2} - 16\right)$

Q.7   Find the value of 'k' for which the system of linear equations $kx + 2y = 5$ and $3x + y = 1$ has zero solutions.
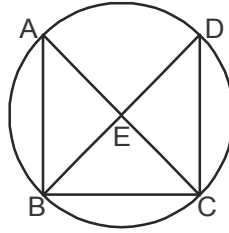
(A) $k = 6$ (B) $k = 3$

(C) $k = 4$ (D)   None of these

Q.8   The solution of the equation $x^2 + x + 1 = 1$ is/are

(A) $x = 0$ (B) $x = -1$

(C)   Both (1) and (2)   (D)   Cannot be determined

Space for rough work

Q.9 In the figure shown (not to scale) the chords AC and BD intersect at E and $\angle BAE = \angle ECD + 20^\circ$. If $\angle CDE = 60^\circ$, find $\angle ABE$.

(A) 40° (B) 60° (C) 80° (D) None of these

Q.10 The perimeter of a right angled triangle is $72\,cm$ and its area is $216\ cm^2$. Find the sum of the lengths of its perpendicular sides. (in cm)

(A) 36 (B) 32 (C) 42 (D) 50

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   The angle beyond which when a ray is incident, it is completely reflected back is called :

(A)   angle of deviation   (B)   critical angle

(C)   incident angle   (D)   angle of inversion

Q.12   When a ray of light strikes a plane mirror at an angle of 15° with the mirror, what will be

the angle through which they ray gets deviated ?
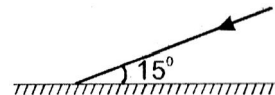
(A) 15° (B) 30° (C) 75° (D)   None of these

Q.13   On passing white light through a glass prism. Which colour ray will deviate maximum towards its base ?

(A)   Red   (B)   Yellow   (C)   Blue   (D)   Violet

Q.14   A point object is placed in the middle of two concave mirrors. The focal length of each mirror is 10 cm. To obtain single image of point object, the distance between two mirrors in cm will be :

(A)   10   (B)   20   (C)   30   (D)   40

Q.15   Electrolysis of water is a decomposition reaction. The mole ratio of hydrogen and oxygen gases liberated during electrolysis of water is

(A)   1 : 1   (B)   2 : 1   (C)   4 : 1   (D)   1 : 2

Space for rough work

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Q.16   The following reaction is an example of a $4NH_3(g) + 5O_2(g) \rightarrow 4NO(g) + 6H_2O(g)$

    (i)   displacement reaction   (ii)   combination reaction

    (iii)   redox reaction   (iv)   neutralisation reaction

    (A)   (i) and (iv)   (b)   (ii) and (iii)

    (C)   (i) and (iii)   (D)   (iii) and (iv)

Q.17   The following reaction is used for the preparation of oxygen gas in the laboratory

$$2KClO_3(s) \xrightarrow[\text{Catalyst}]{\text{Heat}} 2KCl(s) + 3O_2(g)$$
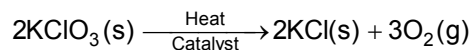
Which of the following statement(s) is(are) correct about the reaction?

    (A)   It is a decomposition reaction and endothermic in nature

    (B)   It is a combination reaction

    (C)   It is a decomposition reaction and accompanied by release of heat

    (D)   It is a photochemical decomposition reaction and exothermic in nature

Q.18   Which of the following is acidic in nature?

    (A)   Lime juice   (B)   Human blood   (C)   Lime water   (D)   Antacid

Q.19   Vaccine is not available for which of the following diseases ?

    (A)   T.B.   (B)   Tetanus   (C)   Malaria   (D)   Polio

Q.20   Which statement is correct ?

    (A)   Arteries supply blood to tissues   (B)   Veins supply blood to tissues

    (C)   Arteries collect blood from tissues   (D)   None of the above

Space for rough work

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.

Direction : (21 & 22) Find the missing term :

Q.21   77, 78, 77, 81, 73, ?, 55

(A)   80   (B)   71   (C)   82   (D)   89

Q.22

7	11	49
12	8	54
15	4	?

(A)   36   (B)   7   (C)   25   (D)   0

Q.23   If **BARS** = **10** and **BEERT** = **10, DEEZ** will be ?

(A)   15   (B)   12   (C)   14   (D)   10

Q.24   What is the value of $23 \times 522 \div 87 - 14 \times 2 = ?$

(A)   90   (B)   120   (C)   119   (D)   110

Q.25   T is the son of P. S is the son of Q. T is married to R. R is Q's daughter. How is S related to T ?

(A)   Bother   (B)   Uncle   (C)   Father-in-law   (D)   Brother-in-law

$$\boxed{\textit{Space for rough work}}$$

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ANSWER KEY

(Class X)__STAGE - 1_ D

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

V-MAT REWARDS & RECOGNITION

V-MAT - 2016 Glimpses

V-MAT - 2017 Glimpses

V-MAT - 2018 Glimpse

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