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 : 9th_ 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

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OUR STUDY CENTERS :

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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 $\sqrt{6 + \sqrt{6 + \sqrt{6 + \ldots\ldots\infty}}}$ is equal to

    (A) -3 (B) 3   (C) 6   (D) 2

Q.2 A parallelogram has two of its adjacent sides measuring 13 each. Find the sum of the squres of its diagonals.

    (A) 169   (B) 338   (C) 676   (D) 507

Q.3 If rato of the volumes of the sphers is $8 : 27$, then the ratio of their surface areas is _____.

    (A) $4 : 9$ (B) $9 : 4$ (C) $4 : 3$ (D) $2 : 9$

Q.4 In the following figure, ABC is an equilateral triangle. DE is parallel to BC and equal to half the length of BC. If $AD + EC + CB = 24\,cm$, then what is the perimeter of triangle ADE ?

    (A) $12\,cm$ (B) $16\,cm$
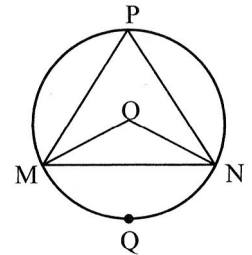
    (C) $18\,cm$ (D) Cannot be determined
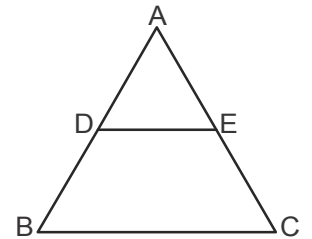
Q.5 If $x = 2^{\frac{1}{3}} - 2$, then $x^3 + 6x^2 + 12x = $ _____.

    (A) 6   (B) -6 (C) 8   (D) -8

Space for rough work

Q.6 The LCM of the polynomials $195(x+3)^2(x-2)(x+1)^2$ and $221(x+1)^2$ and $221(x+1)^3(x+3)(x+4)$ is _____.

(A) $221(x+3)^2(x+1)^2(x-2)(x-14)$

(B) $13(x+3)(x+1)^2$

(C) $3315(x+3)^2(x+1)^3(x-2)(x+4)$

(D) None of these

Q.7 The system of equations $px+4y=32$ and $2qy+15x=96$ has infinite solutions. The value of $p-q$ is

(A) -1 (B) 1 (C) 0 (D) 11

Q.8 In the figure given below, O is the centre of the circle. If $\angle MPN = 55^\circ$, then find the value

of $\angle MON + \angle OMN + \dfrac{1}{2}\angle MNO$.

(A) 145°

(B) $162\dfrac{1}{2}^\circ$

(C) $158\dfrac{1}{2}^\circ$

(D) 180°

Q.9 A circle of radius 2 cm is inscribed in an equilateral triangle. Find the area of the triangle in cm^2.

(A) $12\sqrt{3}$ (B) $4\sqrt{3}$ (C) $6\sqrt{3}$ (D) $24\sqrt{3}$

Q10 The radius of the base and the slant height of a cone is 5 cm and 13 cm respectively. Find the volume of the cone.

(A) $88\pi\ cm^3$ (B) $100\pi\ cm^3$ (C) $92\pi\ cm^3$ (D) $106\pi\ cm^3$

Space for rough work

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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   A bird is sitting on train A moving towards East with a velocity 300 km/hr. Another train B of same speed is moving in West direction on the same track. When the trains are 6 km apart, the bird starts flying with a velocity 30 km/hr with respect to ground towards B. After touching B, it returns back to A and continue repeating this process until the trains collide. In this process, the total distance travelled by the bird is :
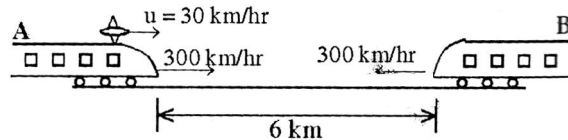
(A)   100 m   (B)   200 m   (C)   300 m   (D)   6 km

Q.12   A car travels from one town to the other with average speed 24 km/hr. If the first half distance is travelled at average speed 30 km/hr, then the average speed of the car in the other half distance will be :

(A)   18 km / hr   (B)   40 km / hr   (C)   50 km / hr   (D)   20 km / hr

Q.13   When a body is stationary :

(A)   There is no force acting on it

(B)   The forces acting on it are not in contact with it

(C)   The combination of forces acting on it balance each other

(D)   The body is in vacuum

===== Space for rough work =====

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Q.14   A body of mass 20 kg is kept initially at rest. A force of 80 N is applied on the body then the acceleration produced in the body is $3\,m/s^2$, force of friction acting on the body is :

(A)   80 N   (B)   12 N   (C)   20 N   (D)   zero

Q.15   Which one of the following sets of phenomena would increase on raising the temperature?

(A)   Diffusion, evaporation, compression of gases

(B)   Evaporation, compression of gases, solubility

(C)   Evaporation, diffusion, expansion of gases

(D)   Evaporation, solubility, diffusion, compression of gases

Q.16   The boiling points of diethyl ether, acetone and *n*-butyl alcohol are $35^o C$, $56^o C$ and $118^o C$ respectively. Which one of the following correctly represents their boiling points in kelvin scale?

(A)   306 K, 329 K, 391 K   (B)   308 K, 329 K, 392 K

(C)   308 K, 329 K, 391 K   (D)   329 K, 392 K, 308 K

Q.17   A mixture of sulphur and carbon disulphide is

(A)   heterogeneous and shows Tyndall effect

(B)   homogeneous and shows Tyndall effect

(C)   heterogeneous and does not show Tyndall effect

(D)   homogeneous and does not show Tyndall effect

Space for rough work

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Q.18   Two substances, A and B were made to react to form a third substance, A_2B according to the following reaction

$$2A + B \longrightarrow A_2B$$
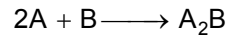
Which of the following statements concerning this reaction are incorrect?

(i)   The product A_2B shows the properties of substances A and B

(ii)   The product will always have a fixed composition

(iii)   The product so formed cannot be classified as a compound

(iv)   The product so formed is an element

(A)   (i), (ii) and (iii),   (B)   (ii), (iii) and (iv)

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

Q.19   In Diabetes, which organ is responsible ?

(A)   Liver   (B)   Gall Bladder

(C)   Pancreas   (D)   Kidney

Q.20   Development of foetus takes place in

(A)   vagina   (B)   uterus

(C)   ovary   (D)   oviduct

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.

Directions: (21 to 23) Find the missing terms :

Q.21   55, 210, ? , 820, 1275

(A)   465   (B)   420   (C)   410   (D)   515

Q.22   BYCXA, EVFUD, HSIRG, KPLOJ, ?

(A)   MNLOL   (B)   NMOLM   (C)   QJRIP   (D)   PKQJO

Q.23

A	?	D
B	35	C
D	189	E

(A)   64   (B)   65   (C)   66   (D)   67

Q.24   If RED is written as 24 and GREEN is written as 44 then WHITE will be written as :

(A)   59   (B)   45   (C)   60   (D)   65

Q.25   Choose the missing terms out of the given alternatives.

Z, Y, X, U, T, S, P, O, N, K, ?, ?

(A)   HG   (B)   GF   (C)   IH   (D)   JI

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ANSWER KEY

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

V-MAT REWARDS & RECOGNITION

V-MAT- 2016 Glimpses

V-MAT- 2017 Glimpses

V-MAT -2018 Glimpse

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