TAKSHILA®
NEET | IIT-JEE | FOUNDATION
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Test Code: IX-A

TNTSE

Takshila's National Talent Scholarship Examination

For Students of Class IX

This booklet contains 4 Pages

SCIENCE : 20 QUESTIONS

MATHEMATICS : 20 QUESTIONS

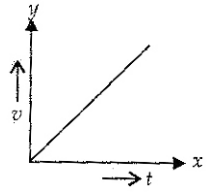
REASONING : 10 QUESTIONS

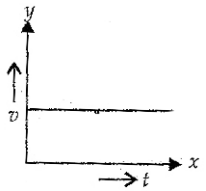
General Instructions:

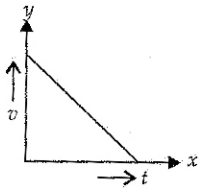
Please do not write anything on question paper.

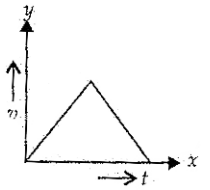
1. *The candidates will use their own ball point pens, HB pencils, erasers etc.*
2. *Candidates will find out the right answer of the question and will darken the appropriate circle completely with Blue or Black Pen Only.*
3. *Total No. of Question = 50,*
4. *All questions carry equal marks. Science, Mathematics & Reasoning are compulsory.*
5. *For each correct Answer = 4 marks, there is no negative marking.*
6. *Please bring separate sheet for Rough work.*
7. *Total Time : 1 Hour*
8. *Maximum Marks : 200*

Q.1 Identify the v, t graph representing uniform velocity.

(a) 

(b) 

(c) 

(d) 

Q.2 The displacement-time graph for two particles A and B are straight lines inclined at angles of 30º and 60º with the time axis. The ratio of velocities of $v_A : v_B$ is :

(a) 1 : 2 (b) 1: $\sqrt{3}$
(c) $\sqrt{3}$: 1 (d) 1 : 3

Q.3 A 150 m long train is moving with a uniform velocity of 45 km/h. The times taken by the train to cross a bridge of length 850 meters is :

(a) 56 sec (b) 68 sec
(c) 80 sec (d) 92 sec

Q.4 A body travelling with a velocity of 200 ms^{-1} is brought to rest in 10s. Calculate the retardation.

(a) 10 ms^{-2} (b) 30 ms^{-2}
(c) 20 ms^{-2} (d) 24 ms^{-2}

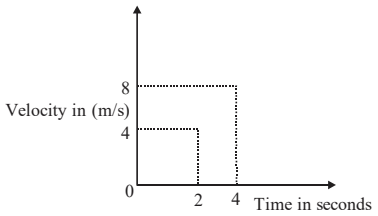
Q.5 A gun of mass 150 kg fires a bullet of mass 1.5 kg with a velocity 150 m/s. Calculate the recoil velocity of the bullet.

(a) 1 m/sec (b) 1.5 m/sec
(c) 3 m/sec (d) 5 m/sec

Q.6 A rocket-driven sled speeds up from 40 meters per second to 55 meters per second in 5.0 seconds, using an engine that produces 3500 Newton's of thrust. How much thrust would be needed to get the same increase in speed in 2.0 seconds ?

(a) 8550 (b) 8750
(c) 8700 (d) 8500

Q.7 Velocity-time graph of an object of mass 2 kg is shown in fig. The force required to move the object for first four seconds is :



(a) 0 (b) 4 N
(c) 2 N (d) 8 N

Q.8 A form of matter has no fixed shape but it has a fixed volume. An example of this form of matter is

(a) Krypton (b) kerosene
(c) Carbon steel (d) Carbon dioxide

Q.9 The number of electrons in an element X is 15 and the number of neutrons is 16. Which of the following the correct representation of the element?

(a) $^{31}_{15}X$ (b) $^{31}_{16}X$
(c) $^{16}_{15}X$ (d) $^{15}_{16}X$

Q.10 The temperature at which Celsius and Fahrenheit scales show the same reading is :

(a) 40° K (b) 100° F
(c) – 40° C (d) – 100°C

Q.11 What mass of carbon dioxide (CO_2) will contain 3.011×10^{23} molecules?

(a) 11.0 g (b) 22.0 g
(c) 4.4 g (d) 44.0 g

Q.12 A 5 percent sugar solution means that :

(a) 5 g of sugar is dissolved in 95 g of water
(b) 5 g of sugar is dissolved in 100 g of water
(c) 5 g of sugar is dissolved in 105 g of water
(d) None of these

Q.13 Air shows the property of

(a) N_2 (b) O_2
(c) both (a) and (b) (d) None of these

Q.14 Which of the following is a compound?

(a) Stainless steel (b) Bronze
(c) Graphite (d) Water

Q.15 Animal cell is limited by :

(a) Plasma membrane (b) Shell membrane
(c) Cell wall (d) Basement membrane

Q.16 Nucleolus was discovered by :

(a) Fontana (b) Schleiden
(c) Altmann (d) Robert Brown

Q.17 The term tissue was given by :

(a) Robert Hooke (b) Leeuwenhoek
(c) Bichat (d) Meyer

Q.18 Causative agent of TB is
(a) *Salmonella* (b) *Streptococcus*
(c) *Mycobacterium* (d) *Pneumococcus*

Q.19 BCG vaccine is anti
(a) emphysema (b) pneumonia
(c) polio (d) tuberculosis

Q.20 Stem of fern is generally :
(a) Bulb (b) Rhizome
(c) Needle-like (d) Corm

MATHEMATICS

Q.21 If $x = 2 - \sqrt{3}$ then the value of $x^2 + \frac{1}{x^2}$ and $x^2 - \frac{1}{x^2}$ respectively, are _____.
(a) $14, 8\sqrt{3}$ (b) $-14, -8\sqrt{3}$
(c) $14, -8\sqrt{3}$ (d) $-14, 8\sqrt{3}$

Q.22 An irrational number between $\sqrt{2}$ and $\sqrt{3}$ is :
(a) $(\sqrt{2} + \sqrt{3})$ (b) $\sqrt{2} \times \sqrt{3}$
(c) $5^{1/4}$ (d) $6^{1/4}$

Q.23 $\frac{7\sqrt{3}}{\left(\sqrt{10}+\sqrt{3}\right)} - \frac{2\sqrt{5}}{\left(\sqrt{6}+\sqrt{5}\right)} - \frac{3\sqrt{2}}{\left(\sqrt{15}+3\sqrt{2}\right)} =$_____.
(a) 1 (b) 2
(c) 1/2 (d) 3

Q.24 The value of $\frac{1}{(216)^{\frac{-2}{3}}} + \frac{1}{(256)^{-3/4}} + \frac{1}{(32)^{\frac{-1}{5}}}$ is :
(a) 102 (b) 105
(c) 107 (d) 109

Q.25 If $a^x = b^y = c^z$ and $b^2 = ac$, then y equals :
(a) $\frac{xz}{x+z}$ (b) $\frac{xz}{2(x-z)}$
(c) $\frac{xz}{2(z-x)}$ (d) $\frac{2xz}{(x+z)}$

Q.26 Which equation satisfies the data given in the table ?_____

x	–1	0	1	2
Y	-3	-1	1	3

(a) $y = x - 2$ (b) $y = 2x - 1$
(c) $y = 3x - 3$ (d) $y = x + 1$

Q.27 The value of $\sqrt[3]{343} \times \sqrt[3]{-64}$ is :
(a) 28 (b) – 28
(c) 18 (d) – 18

Q.28 If $X = \frac{a-b}{a+b}, y = \frac{b-c}{b+c}, Z = \frac{c-a}{c+a}$, then the value of $\frac{(1+x)(1+y)(1+z)}{(1-x)(1-y)(1-z)}$ is _____.
(a) abc (b) $a^2b^2c^2$
(c) 1 (d) –1

Q.29 $(a-b)^3 + (b-c)^3 + (c-a)^3$ is equal to :
(a) 3abc
(b) $3a^3b^3c^3$
(c) $3(a-b)(b-c)(c-a)$
(d) $[a-(a+c)]^3$

Q.30 If $\left(x + \frac{1}{x}\right) = 4$, then $\left(x^4 + \frac{1}{x^4}\right)$ is equal to :
(a) 196 (b) 194
(c) 192 (d) 190

Q.31 A linear polynomial :
(a) may have no zero
(b) may have one zero
(c) has one and only one zero always
(d) may have more than one zero

Q.32 If (x – a) is a factor of $(x^3 - 3x^2a + 2a^2x + b)$, then the value of b is :
(a) 0 (b) 2
(c) 1 (d) 3

Q.33 Zero of the polynomial p(x) = 2 – 5x is :
(a) $\frac{2}{5}$ (b) $\frac{5}{2}$
(c) $\frac{-2}{5}$ (d) $\frac{-5}{2}$

Q.34 A surface has
(a) 0 dimensions (b) 1 dimensions
(c) 2 dimensions (d) 3 dimensions

Q.35 The number of planes passing through three non-collinear points is
(a) 2 (b) 3
(c) 4 (d) 1

Q.36 An angle which measures more than 180º but less than 360º is called
(a) an acute angle (b) an obtuse angle
(c) a straight line (d) a reflex angle

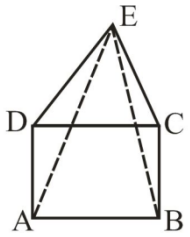
Q.37 In ΔABC, if $\angle A + \angle B = 125^\circ$ and $\angle A + \angle C = 113^\circ$ then $\angle A = ?$

(a) 62.5° (b) 56.5°
(c) 58° (d) 63°

Q.38 The area of an equilateral triangle whose side is 8 cm is

(a) 61 cm^2 (b) $16\sqrt{3}\,cm^2$
(c) $21.3\,cm^2$ (d) $4\sqrt{3}\,cm^2$

Q.39 If ABCD is a square and DCE is an equilateral triangle in the given figure , than $\angle DAE$ is equal to



(a) 45° (b) 30°
(c) 15° (d) $22\frac{1}{2}^\circ$

Q.40 If a , b, care all non – zeroes and a + b + c = 0, then $\frac{a^2}{bc}+\frac{b^2}{ca}+\frac{c^2}{ab}=$_____.

(a) 0 (b) 1
(c) 2 (d) 3

REASONING

Directions(Q.41 to Q.43): The letters in the words given below are coded using symbols. The symbols are in the same order as the letters. Identify the symbols for each letter and find correct answer in the following questions.

NEAT – qbdp
GAP –ydm
BUMP –shlm
TIRE –pxfb

Q.41 PAINT can be coded as

(a) pdxqm (b) mqxdp
(c) mdxqp (d) qdxpm

Q.42 GAME can be coded as

(a) ydlb (b) dybl
(c) bydl (d) ldby

Q.43 The code x l s f h b represent the word

(a) BUMPER (b) IMBRUE
(c) GARNET (d) NATURE

Q.44 If in a certain language 'CATTLE' is written as 'XZGGOV', then how would you write 'WATER' in the same language?

(a) XAGVR (b) DZGVI
(c) AZVGI (d) XZGVI

Q.45 A person drives 40 km towards east. He then takes a left turn and drives 14 km after which he goes 24 km towards west. Next, he takes a right turn and drives 10 km. Finally, he takes left and drives 16 km. How far is he form the starting point?

(a) 34 (b) 16
(c) 24 (d) 10

Q.46 The position of how many digits in the number 321465987 will remain same when the digits are arranged in ascending order ?

(a) 1 (b) 2
(c) 3 (d) 4

Q.47 A man is facing west. He turns 45 degree in the clockwise direction and then another 180 degrees in the same direction and then 270 degree in anti clockwise direction. Which direction is he facing now ?

(a) South – West (b) South – East
(c) North – West (d) North – East

Directions (Q.48 to Q.49)
Read the information given below and answer the following questions.
Kriti and Amit are two children of Smt and Shri Mittal. Amit , married to Ananya, who is daughter of Smt. Goyal. Shri Goyal had married to Rita. Urvi and Poorvi are daughters of ananya and Amit. Sonu and Rakesh are children of sumer and Rita.

Q.48 What is the surname of Rakesh?

(a) Goyal (b) Mittal
(c) Amit (d) Kriti

Q.49 What is the relation of Sumer with Poorvi?

(a) Brother
(b) Uncle
(c) Maternal Grand Father
(d) Father

Q.50 Ten years ago, the age of mother was three times the age of her son. After ten years, mother's age will be twice that of his son. Find the ratio of their present ages.

(a) 11:7 (b) 9:5
(c) 7: 4 (d) 7:3