TAKSHILA®
NEET | IIT-JEE | FOUNDATION

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Test Code: X-A

TNTSE

Takshila's National Talent Scholarship Examination

For Students of Class X

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 : 90 Minutes*
8. *Maximum Marks : 200*

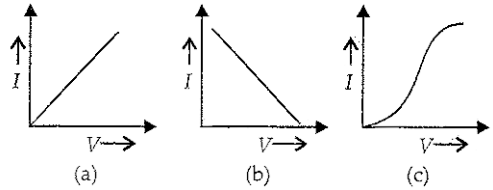
SCIENCE

Q.1 A block of ice is floating on water contained in a beaker. When all the ice melts, the level of water
(a) rises (b) falls
(c) remains unchanged (d) none of these

Q.2 A nichrome wire is 1 m long and 1×10^{-6} m^2 in cross-sectional area. When connected to a potential difference of 2 V, a current of 4 A exists in the wire. The resistivity of this nichrome is :
(a) 10^{-7} Ω m (b) 2×10^{-7} Ω m
(c) 4×10^{-7} Ω m (d) 5×10^{-7} Ω m

Q.3 The resistance wires are made of the material having :
(a) Low specific resistance and low temperature coefficient of resistance
(b) High specific resistance and low temperature coefficient of resistance
(c) Low specific resistance and high temperature coefficient of resistance
(d) High specific resistance and high temperature coefficient of resistance

Q.4 Which of the following graphs depict Ohm's law?



(a) Graph (a) (b) Graph (b)
(c) Graph (c) (d) none of these

Q.5 The magnetic field at a distance r from a long wire carrying current I is 0.4 Tesla. The magnetic field at distance 2r is :
(a) 0.2 tesla (b) 0.8 tesla
(c) 0.1 tesla (d) 1.6 tesla

Q.6 Magnetic lines of force inside a solenoid are
(a) from N to S (b) from S to N
(c) circular (d) intersect one another

Q.7 A metal ring is held horizontally and bar magnet is dropped through the ring with its length along the axis of the ring. The acceleration of the falling magnet is :
(a) Equal to g
(b) Less than g
(c) More than g
(d) Depends on the length of magnet

Q.8 Consider reaction : x Na (s) + O_2(g) → y Na_2O(s). x is
(a) 1 (b) 2
(c) 3 (d) 4

Q.9 White silver chloride in sunlight turns to :
(a) Grey (b) Yellow
(c) Remains white (d) Red

Q.10 An aqueous solution turns red litmus solution blue. Excess addition of which of the following solution would reversed the change ?
(a) Baking powder (b) Lime
(c) NaOH (d) Sulphuric acid

Q.11 The chemical formula of caustic potash is
(a) NaOH (b) Ca(OH)2
(c) NH4OH (d) KOH

Q.12 A pH = 2 solution is more acidic than one with pH = 6 by a factor of :
(a) 4000 (b) 2
(c) 10000 (d) 8000

Q.13 How many periods and groups are present in the Modern periodic table ?
(a) 7periods and 18 groups
(b) 8 periods and 7 groups
(c) 7 periods and 7 groups
(d) 8 periods and 8 groups

Q.14 The metal which is liquid at room temperature is
(a) Bromine (b) Mercury
(c) Iodine (d) Potassium

Q.15 The word 'Sapro' means :
(a) Cell sap (b) Dead
(c) Other (d) Rotten

Q.16 An organism with two unlike genes for a trait is called
(a) homozygous (b) heterozygous
(c) wild variety (d) dominant variety.

Q.17 Which of the following statement(s) is (are) true about heart?
(i) Left atrium receives oxygenated blood from different parts of body while right atrium receives deoxygenated blood lungs.
(ii) Left ventricle pumps oxygenated blood to different body parts while right ventricle pumps deoxygenated blood to lungs.
(iii) Left atrium transfers oxygenated blood to right ventricle which sends it to different body parts.
(iv) Right atrium receives deoxygenated blood from different parts of the body while left ventricle pumps oxygenated blood to different parts of the body.
(a) (i) (b) (ii)
(c) (ii) and (iv) (d) (i) and (iii)

Q.18 A segment of DNA providing information for a protein is called
(a) nucleus (b) chromosomes
(c) trait (d) gene.

Q.19 Select the incorrect statement.
(a) carpel is part of androecium.
(b) secondary nuclei form diploid polar nucleus prior to fertilization.
(c) synergids have filiform apparatus that guides the entry of pollen tube into nucleus.
(d) all of these

Q.20 Bryophyllum is propagated by :
(a) leaves (b) stem
(c) roots (d) none

MATHEMATICS

Q.21 If 2 and 3 are zeroes of polynomial $3x^2 - 2kx + 2m$, then the values of k and m are
(a) $m = \frac{9}{2}$ and $k = 15$ (b) $m = \frac{15}{2}$ and $k = 9$
(c) $m = 9$ and $k = \frac{15}{2}$ (d) $m = 15$ and $k = 9$

Q.22 The zeroes of the quadratic polynomial $f(x) = abx^2 + (b^2 - ac)x - bc$ are
(a) $\frac{b}{ac}$ and $\frac{c}{b}$ (b) $\frac{ab}{c}$ and $\frac{a}{b}$
(c) $\frac{-b}{a}$ and $\frac{c}{b}$ (d) $\frac{b}{a}$ and $\frac{-c}{b}$

Q.23 If α and β are the zeroes of the quadratic polynomial $f(x) = 3x^2 - 5x - 2$, then $\alpha^3 + \beta^3$ is
(a) $\frac{215}{27}$ (b) $\frac{357}{21}$
(c) $\frac{115}{28}$ (d) $\frac{325}{21}$

Q.24 For what value of k, will the following pair of linear equations have infinitely many solutions?
$2x + 3y = 4$ and $(k + 2)x + 6y = 3k + 2$
(a) 1 (b) 2
(c) 3 (d) 4

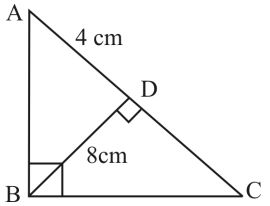
Q.25 Solve the following system of linear equations
$ax + by - a + b = 0$
and $bx - ay - a - b = 0$
(a) 1, –1 (b) –1, 1
(c) 1, 0 (d) 0, 2

Q.26 The coordinate of the vertices of a rectangle whose length and breadth are 6 and 4 units, respectively. Its one vertex is at the origin. The longer side is on the X-axis and one of the vertices lies in second quadrant is
(a) (0, 0) (6, 4) (6, 0) (0, 4)
(b) (0, 0) (0, 4) (6, 0) (6, 4)
(c) (0, 0) (6, 4) (–4, 0) (6, 4)
(d) (0, 0) (0, 4) (–6, 4) (–6, 0)

Q.27 The points (–4, 0), (4, 0) and (0, 3) are the vertices of a
(a) right angled triangle
(b) isosceles triangle
(c) equilateral triangle
(d) scalene triangle

Q.28 If $x - 2y + k = 0$ is a median of the triangle whose vertices are at points A(–1, 3), B(0, 4) and C(–5, 2), then the value of k is
(a) 2 (b) 4
(c) 6 (d) 8

Q.29 In the given figure, $\angle ABC = 90^\circ$ $BD \perp AC$. If BD = 8 cm and AD = 4 cm then the value of CD is



(a) 8 cm (b) 12 cm
(c) 14 cm (d) 16 cm

Q.30 ..... state that in a right angle triangle; the square of hypotenuse is equal to the sum of the square of the other two sides.
(a) BPT theorem
(b) Converse of Pythagoras theorem
(c) Converse of BPT
(d) Pythagoras theorem

Q.31 If the lengths of the diagonals of rhombus are 16 cm and 12 cm. Then, the length of the sides of the rhombus is
(a) 9 cm (b) 10 cm
(c) 8 cm (d) 20 cm

Q.32 If $4x = \operatorname{cosec}\theta$ and $\frac{4}{x} = \cot\theta$, then the value of $4\left[x^2 - \frac{1}{x^2}\right]$ is
(a) 1/4 (b) 4
(c) 2 (d) 1/2

Q.33 The value of $(1+\tan\theta+\sec\theta)(1+\cot\theta-\operatorname{cosec}\theta)$ is
(a) 0 (b) 1
(c) 2 (d) –1

Q.34 If $\sin\theta-\cos\theta=0$, then the value of $\sin^4\theta+\cos^4\theta$ will be
(a) 1/4 (b) 1/2
(c) 3/4 (d) 1

Q.35 If the perimeter of a protractor is 72 cm, then its area is
(a) 12 cm^2 (b) 13 cm^2
(c) 14 cm^2 (d) None of these

Q.36 If the perimeter of a circle is equal to that of a square, then the ratio of their areas is
(a) 22:7 (b) 14:11
(c) 7:22 (d) 11:14

Q.37 A die is thrown once. The probability of getting a number which is not a factor of 36 is
(a) 1/6 (b) 2/3
(c) 1/5 (d) 0

Q.38 For an event E, P(E) + P $(\bar{E})$ = q, then
(a) $0 \le q < 1$ (b) $0 < q \le 1$
(c) $0 < q < 1$ (d) None of these

Q.39 If two positive integers a and b are written as $a = x^3y^2$ and $b = xy^3$, where x, y are prime numbers, then HCF (a, b) is
(a) xy (b) xy^2
(c) x^3y^3 (d) x^2y^2

Q.40 If the HCF of 65 and 117 is expressible in the form 65 m – 117, then find the value of m.
(a) 1 (b) 2
(c) 3 (c) 4

REASONING

Directions (Q. 41 to Q.45) :
A sales representative plans to visit each of six companies M, N, P, Q, R and S exactly once during the course of one day. She is setting up her schedule for the day according to the following conditions.

- **She must visit M before N and R**
- **She must visit N before Q**
- **The third company she visits must be P.**

Q.41 Which of the following must be true for the sales representatives' schedule :
(a) She visits M before Q
(b) She visits N before P
(c) She visits P before M
(d) None of these

Q.42 If the sales representative visits S first, which company must she visit second :
(a) M (b) N
(c) P (d) Q

Q.43 The sales representative could visit any of the following companies immediately after P except :
(a) R (b) Q
(c) N (d) M

Q.44 If the sales representative visits Q immediately before R and immediately after S, she must visit Q :
(a) First (b) Second
(c) Fourth (d) Fifth

Q.45 Which of the following could be the order in which the sales representative visits the six companies :
(a) M,S,P,N,R,Q (b) Q,N,P,R,S,M
(c) M,R,N,Q,P,S (d) P,S,M,R,Q,N

Direction(Q.46 to 47): The given questions are based on the following alphabet Series.
ABCDEFGHIJKLMNOPQRSTUVWXYZ

Q.46 Which letter is the seventh to the right of the thirteenth letter from the left end?
(a) S (b) T
(c) U (d) V

Q.47 Which letter is seventh to the right of the eighteenth letter from the right end of the alphabet?
(a) K (b) Q
(c) P (d) R

Q.48 If the day, two days after tomorrow be Thursday, what day would have been two days before yesterday?
(a) Friday (b) Tuesday
(c) Monday (d) Saturday

Q.49 A man walked 2 km South, turned right and walked half a km, turned North and walked 5 km, then he turned East and walked 4.5 km. How far is he from the starting point ?
(a) 3 km (b) 4 km
(c) 5 km (d) 6 km

Q.50 A boy goes to see a movie and finds a man who is his relative. The man is the husband of the sister of his mother. How is the man related to the boy?
(a) Nephew (b) Uncle
(c) Brother (d) None of these