

This Question Paper contains 20 printed pages.

(Part - A & Part - B)

Sl.No. 0100051

12 (E)

(JULY, 2018)
(NCERT OTHERS)

Question Paper Reading 15 Minutes

Part - A : Time : 1 Hour / Marks : 50

Part - B : Time : 2 Hours / Marks : 50

પ્રશ્ન પેપરનો સેટ નંબર જોની
સામેનું વર્તુળ OMR શીટમાં
ઘટ્ટ કરવાનું રહે છે.

Set No. of Question Paper,
circle against which is to be
darken in OMR sheet.

01

(Part - A)

Time : 1 Hour]

[Maximum Marks : 50

Instructions :

- 1) There are 50 multiple choice type questions in Part - A and all of them are compulsory.
- 2) The questions are serially numbered from 1 to 50 and each carries 1 mark.
- 3) Read each question carefully, select proper alternative and answer in the O.M.R. sheet.
- 4) Separate OMR sheet is given for answering these questions. The answer of each question is to be given by darkening the circle against options (A), (B), (C), (D) . Circle ● representing the most correct answer is to be darken with ball-pen.
- 5) Set No. of Question Paper printed on the upper-most right side of the Question Paper, the same is to be written in the space provided in the OMR sheet and circle depicting the correct set No. is to be darken with ball pen.

Rough Work

- 1) 900 can be expressed as product of prime numbers as _____.

(A) $3^2 \times 2 \times 5^2$

(B) $2^2 \times 3^2 \times 5^2$

(C) $3^3 \times 2^2 \times 5$

(D) $5^3 \times 2 \times 3$

- 2) L.C.M. of 1200 and 1400 = _____.

(A) 6000

(B) 4200

(C) 8400

(D) 2100

- 3) H.C.F. $(a, b) = 12$ then their L.C.M. $\neq$ ____.
- (A) 24 (B) 36
(C) 48 (D) 40
- 4) Product of zeros of $2x^2 - 7x + k$ is $-4 \therefore k =$ ____.
- (A) $\frac{7}{2}$ (B) $-\frac{2}{7}$
(C) -8 (D) 8
- 5) Graph of $3x - 2 - x^2$ intersect X axis in ____ points.
- (A) 2 (B) 0
(C) 3 (D) 1
- 6) Zeros of $-4u^2 + 8u$ are ____.
- (A) 2, -8 (B) $-8, 2$
(C) 0, -2 (D) 0, 2
- 7) If sum of zeros and product of zeros are $-\frac{1}{3}$ and $-\frac{1}{2}$ respectively of a polynomial $p(x)$ then $p(x) =$ ____.
- (A) $k(3x^2 - 2x + 1)$
(B) $k(6x^2 + 2x - 3)$
(C) $k(6x^2 - 2x + 3)$
(D) $k(3x^2 + 2x - 1)$

8) For a Linear Equation $-\frac{3x}{2} + \frac{y}{5} = -\frac{1}{10}$

$\therefore y = \underline{\hspace{2cm}}$.

(A) $\frac{10x-1}{5}$

(B) $\frac{15x-1}{2}$

(C) $\frac{2x-1}{10}$

(D) $\frac{3x-1}{10}$

9) For two pairs of Linear Equation $5x - 4y = 1$, $3x + ky = 4$ for their unique solution. $k \neq \underline{\hspace{2cm}}$.

(A) $\frac{12}{5}$

(B) $\frac{4}{3}$

(C) $\frac{3}{4}$

(D) $-\frac{12}{5}$

10) If $3x - 4y = 6$, $\frac{3}{2}x - 2y = 3$ these pair of Equations have _____ solution.

(A) Infinite

(B) Finite

(C) Unique

(D) No solution

- 11) For a Quadratic Equation $ax^2 + bx + c = 0$ if value of $b^2 - 4ac < 0$ then its roots are _____.
- (A) Real
(B) Non-Real
(C) Positive integers
(D) Negative integers
- 12) For a Quadratic Equation $9x^2 - kx + 1 = 0$ has identical roots $\therefore k =$ _____.
- (A) $\pm \sqrt{6}$
(B) ± 6
(C) ± 9
(D) $\pm \sqrt{3}$
- 13) Discriminant of Equation $3x^2 - 2x + \frac{1}{3} = 0$ is _____.
- (A) 1
(B) 2
(C) 3
(D) 0
- 14) $2k + 1, 13, 5k - 3$ are the consecutive terms of A.P. then $k =$ _____.
- (A) 4
(B) 3
(C) 1
(D) 2

15) For an A.P. if $T_7 = 4$, $T_4 = 7$

$$\therefore T_{10} = \underline{\hspace{2cm}}$$

(A) 2

(B) 5

(C) 7

(D) 1

16) For an A.P. if $a = 2$, $d = 4$

$$\therefore S_{20} = \underline{\hspace{2cm}}$$

(A) 100

(B) 500

(C) 800

(D) 300

17) A line l intersect $\overline{AB}$ & $\overline{AC}$ in two distinct points D & E respectively. If line l is parallel to $\overline{BC}$ and $AD = 3$, $BD = 0.75$, $AE = 1.2$

$$\therefore AC = \underline{\hspace{2cm}}$$

(A) 1.5

(B) 1.2

(C) 1.6

(D) 1.9

18) Diagonals of a trapezium $\square ABCD$ where $\overline{AB} \parallel \overline{CD}$ intersect each other at point O if $AB = 2CD$
 $\therefore \text{Ar}(\triangle AOB) : \text{Ar}(\triangle COD) = \underline{\hspace{2cm}}$

(A) 1 : 2

(B) 2 : 1

(C) 4 : 1

(D) 1 : 4

19) Which of the following is not a triplet of a right angled triangle

- (A) 15, 8, 17
- (B) 12, 5, 13
- (C) 24, 7, 25
- (D) 20, 9, 21

20) Area of $\triangle ABC$ where A (5, 2), B (4, 7), C (7, -4) is _____.

- (A) 6
- (B) 2
- (C) 8
- (D) 10

21) Distance of point A($a+b$, $a-b$) from origin is _____.

- (A) $\sqrt{a^2 + b^2}$
- (B) $2\sqrt{a^2 + b^2}$
- (C) $\sqrt{2(a^2 + b^2)}$
- (D) $\sqrt{2(a^2 - b^2)}$

22) In $\odot(O, r)$ $\overline{AB}$ is diameter A(-5, 4), B (5, -4) then coordinates of O are _____.

- (A) (1, 1)
- (B) (0, 0)
- (C) (2, 1)
- (D) (-2, 1)

23) Coordinates of foot of perpendicular from point P (4, -5) on y axis are _____.

- (A) (0, 0)
- (B) (-5, 4)
- (C) (0, -5)
- (D) (4, -5)

24) $\frac{5 \cos^2 60 + 4 \sec^2 30 - \tan^2 45}{\sin^2 60 + \cos^2 60} = \underline{\hspace{2cm}}$.

- (A) $\frac{59}{12}$
- (B) $\frac{43}{12}$
- (C) $\frac{79}{12}$
- (D) $\frac{67}{12}$

25) If $\sin 2A = 2 \sin A$ is true then $A = \underline{\hspace{2cm}}$.

- (A) 0
- (B) 45
- (C) 60
- (D) 90

26) If $\tan(A + B) = \sqrt{3}$, $\tan(A - B) = \frac{1}{\sqrt{3}}$, $0 < A + B \leq 90$, $A > B$ then

A = _____.

(A) 30

(B) 60

(C) 90

(D) 45

27) If $A + B = 90$ then $\sec B =$ _____.

(A) $\cos A$

(B) $\operatorname{cosec} A$

(C) $\cot A$

(D) $\tan A$

28) A ladder leans against a wall its lower end touches the ground and makes 60° with it, if the height of wall is $\sqrt{3}$ m then length of ladder is _____ m.

(A) $\frac{2}{\sqrt{3}}$

(B) 1

(C) $\frac{\sqrt{3}}{2}$

(D) 2

29) On walking _____ meters on a hill making an angle of 30° with ground, one can reach height of x meters from ground.

(A) $\frac{\sqrt{3}x}{2}$

(B) $\frac{2x}{\sqrt{3}}$

(C) $2x$

(D) $\frac{x}{2}$

30) Angle of elevation of a tower $50\sqrt{3}$ m high from a point 50 m away from its base is _____.

- (A) 45
- (B) 60
- (C) 30
- (D) 90

31) Angle of depression of a ship from the top of a tower 30 m high measures 60° then distance of ship from base of tower is _____ m.

- (A) 10
- (B) $\frac{10}{\sqrt{3}}$
- (C) $10\sqrt{3}$
- (D) $30\sqrt{3}$

32) A circle can have atmost _____ tangents from an external point.

- (A) 1
- (B) 2
- (C) 0
- (D) 4

33) From a point Q in the exterior of circle, a tangent is drawn to the circle. If length of the tangent is 15 cm and its distance from center is 17 cm then radius of circle = _____ cm.

- (A) 16
- (B) 8
- (C) 10
- (D) 17

34) If AT and BT are two tangents touching $\odot(O, r)$ in two distinct points A and B if $m\angle AOB = 150$ then $m\angle ATB =$ _____.

- (A) 60
- (B) 90
- (C) 30
- (D) 45

35) If perimeter and area of a circle are numerically equal then radius of circle = _____.

- (A) 1
- (B) 2
- (C) 3
- (D) 4

36) Area of a sector of a circle whose radius is 14 cm, angle of sector is 90° is _____ cm.

- (A) 140
- (B) 154
- (C) 160
- (D) 180

37) Area of minor segment of a circle = _____.

- (A) Area of sector – length of Arc
- (B) Area of sector – major segment
- (C) Area of sector – area of circle
- (D) Area of sector – area of corresponding triangle

38) If the ratio of areas of two circles is 1 : 4 then ratio of their circumferences is _____.

(A) 1 : 4

(B) 1 : 2

(C) 4 : 1

(D) 2 : 1

39) Formula to find volume of Frustrum of a cone = _____.

(A) $\frac{1}{3} \pi h (r_1^2 + r_2^2 + r_1 r_2)$

(B) $\frac{1}{3} \pi r^2 h$

(C) $\frac{1}{3} \pi h (r_1^2 + r_2^2 + 2r_1 r_2)$

(D) $\frac{1}{3} \pi r h (r_1^2 + r_2^2 + r_1 r_2)$

40) In case of a right circular cone where l is slant height, h is height and r is radius of cone then $r =$ _____.

(A) $\sqrt{l^2 + r^2}$

(B) $\sqrt{l^2 - h^2}$

(C) $\sqrt{l + h}$

(D) $\sqrt{l - h}$

41) A frustrum of cone $h = 15$ cm, $r_1 = 12$ cm, $r_2 = 4$ cm then its slant height $l =$ _____.

(A) 16

(B) 17

(C) 18

(D) 20

42) Formula to find volume of a 5 Rupee coin = _____.

(A) $2\pi rh$

(B) $\pi r^2 h$

(C) $\frac{1}{3}\pi r^2 h$

(D) πr^2

43) For a statistical data, if Mean = 6, Mode = 18, then value of its Median $M =$ _____.

(A) 5

(B) 15

(C) 12

(D) 10

44) If $\text{Mean} - \text{Mode} = 3$ and $\text{Mean} + \text{Mode} = 45$ then
Median = _____.

- (A) 24 (B) 22
(C) 26 (D) 23

45) The modal class of following frequency distribution is
_____.

Class	0 - 10	10 - 20	20 - 30	30 - 40	40 - 50
Frequency	8	12	23	17	10

- (A) 30 - 40
(B) 20 - 30
(C) 0 - 10
(D) 40 - 50

46) For a statistical data $n = 100$, $l = 24$, $C.F = 16$, $f = 34$, $h = 10$
then value of Median $M =$ _____.

- (A) 34 (B) 26
(C) 29 (D) 30

47) Probability of getting at most one head, when two coins are
tossed is _____.

- (A) $\frac{1}{4}$ (B) $\frac{3}{4}$
(C) $\frac{1}{2}$ (D) 1

- 48) 25 defective screws are mixed in a bag containing 175 non-defective screws, then probability of taking out one screw, randomly, out of the bag is non - defective is _____.

(A) $\frac{7}{8}$

(B) $\frac{5}{8}$

(C) $\frac{3}{8}$

(D) $\frac{1}{8}$

- 49) If $P(\bar{A}) = 0.135$, $P(A) =$ _____.

(A) 0.856

(B) 0.815

(C) 0.865

(D) None of the above

- 50) Sum of probabilities of all elementary events of a random experiment is _____.

(A) 0

(B) 2

(C) 1

(D) -1

12 (E)

(JULY, 2018)

(NCERT OTHERS)

(Part - B)**Time : 2 Hours]****[Maximum Marks : 50****Instructions :**

- 1) Write in a clear hand writing.
- 2) There are four sections in Part - B of the question paper and total 1 to 17 questions are there.
- 3) All questions are compulsory. Internal options are given.
- 4) The numbers at the right side represent the marks of the questions.
- 5) New section may be started on a new page of answer book.
- 6) It is advisable to maintain sequence.

SECTION - A**■ Questions (1 to 8) [Each carries 2 marks].**

- 1) Prove that $7 - 2\sqrt{5}$ is irrational. [2]
- 2) Solve following pair of Linear Equation by elimination method. [2]
$$\frac{2}{\sqrt{x}} + \frac{3}{\sqrt{y}} = 2, \quad \frac{4}{\sqrt{x}} - \frac{9}{\sqrt{y}} = -1.$$
- 3) If $\Delta ABC \sim \Delta PQR$ $AB:PQ = 3:5$. If $Ar(ABC) = 81$ find $Ar(PQR)$. [2]

- 4) If $p(x) = x^4 - x^2 + 1$ find value of $p(2\sqrt{2})$. [2]
- 5) Find distance AB if A (a, b) , B $(-a, -b)$. [2]
- 6) If $\sec 4A = \operatorname{cosec}(A - 20)$ where $4A$ is acute angle then find value of A. [2]
- 7) In $\triangle ABC$ prove that [2]
- $$\tan\left(\frac{A+C}{2}\right) = \cot\frac{B}{2}.$$

OR

Evaluate $\frac{\sin^2 19 + \sin^2 71}{\cos^2 53 + \cos^2 37}$.

- 8) In a bag there are 4 yellow balls, 3 red balls and 3 green balls. Find probability that a ball is drawn at random from bag is neither red nor green. [2]

SECTION - B

■ Questions (9 to 12) [Each carries 3 marks].

- 9) A sum of Rs. 2500 cash prize distributed among First Four Rankers of Std. X. [3]
If each prize is Rs. 250 less than its preceding prize, find value of each prize.

- 10) The length of a minute Hand of a clock is 21 cm. Find the area swept by minute hand in 20 minutes. [3]
- 11) Two concentric circles whose radii are 25 cm and 7 cm. A chord of outer circle touches inner circle. Find length of chord. [3]
- 12) Metallic spheres of radii 6 cm, 8 cm, 10 cm respectively, are melted to form a single solid sphere. Find the radius of resulting sphere. [3]

SECTION - C

■ Questions (13-15) [Each carries 4 marks].

- 13) The difference of squares of two numbers is 180. The square of the smaller number is 8 times the larger number. Find those two numbers. [4]
- 14) A tree breaks due to storm and its broken bends so that the top of the tree touches the ground makes an angle of 30° with it. The distance between the foot of the tree to the point where top touches the ground is 8m. Find the height of the tree. [4]
- 15) Mean of the following group data is 18. Find unknown frequency ' f '. [4]

Class	11 - 13	13 - 15	15 - 17	17 - 19	19 - 21	21 - 23	23 - 25
Frequency	7	6	9	13	f	5	4

SECTION - D

■ Questions (16 to 17) [Each carries 5 marks].

- 16) If a line drawn parallel to one side of a triangle to intersect the other two sides in distinct points, then prove that the other two sides are divided in same ratio. [5]

OR

In $\triangle ABC$ if $AC^2 = AB^2 + BC^2$ prove that $\angle B$ is Right angle.

- 17) Draw $\triangle ABC$, where $BC = 6$ cm, $AB = 5$ cm, and $\angle ABC = 60^\circ$. Construct [5]
triangle whose sides are $\frac{3}{4}$ of corresponding sides of triangle $\triangle ABC$. Write the steps of construction.

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