

SUMMATIVE ASSESSMENT - II - 2016 - 2017

MATHEMATICS - Paper - I

(English Version)

PART - A & B

Class : X

(Max. Marks : 40)

Time : 2-45 Hrs.

Marks : 30

PART - A

Instructions :

- 1) In the time duration of 2 hrs 45 min. 15 minutes is exclusively allotted to read and understand the question paper.
- 2) The question paper comprises of Three Sections I, II, III.
- 3) All questions are compulsory.
- 4) There is no overall choice. However there is an internal choice to the questions under Section - III.

SECTION - I

Note : 1) Answer all the questions.

2) Each question carries 1 mark.

$$4 \times 1 = 4$$

1. Let $A = \{x : x \text{ is a prime factor of } 30\}$
 $B = \{x : x \text{ is a prime below of } 20\}$

Find (i) $A \cup B$ (ii) $A \cap B$

2. The roots of $3x^2 - 2x + \frac{1}{3} = 0$ are real and equal. Justify.
3. What is 'Consistent' system of linear equations in two variables? Give an example.
4. Draw a rough figure of an object, which is a combination of two solids (i.e., a cone and a hemisphere) and name it.

[Turn Over...

SECTION - II

Note : 1) Answer all the questions.

2) Each question carries 2 marks.

5 x 2 = 10

5. Solve $99x + 101y = 499$

$$101x + 99y = 501$$

6. Find the solution of the equation $x^2 - 5x + 6 = 0$ by completing square method.

7. Find the surface area of the largest possible cube made out of a wooden sphere of radius $6\sqrt{3}$ cm.

8. Prove that $\frac{1}{3\sqrt{2}}$ is irrational.

9. Write a pair of linear equations in two variables for the following information.

“There are some honey bees and flowers in a garden. If two honey bees sit on each flower, one honey bee was left out and if three honey bees sit on each flower no flower is left”.

SECTION - III

Note : 1) Answer all the questions.

2) Answer any one from by taking internal choice of each questions.

3) Each question carries 4 marks.

4 x 4 = 16

10. a) If a quadratic equation $x^2 - (m+1)x + 6 = 0$ has one root as $x = 3$ then find the value of m and also the other root of the equation.

(OR)

b) A solid metallic sphere of diameter 28 cm is melted and recast into a number of smaller cones each of diameter $4\frac{2}{3}$ cm and height 3 cm. Find the number of cones so formed.

[Contd...3

11. a) If $x^2 + y^2 = 6xy$, prove that $2 \log(x + y) = 3 \log 2 + \log x + \log y$ using the laws of logarithms.

(OR)

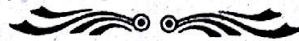
- b) Use Euclid's division lemma to show that the cube of any positive integer is of the form $9m$, $9m + 1$ or $9m + 8$.
12. a) If the speed of a car is increased by 10 km/hr, it takes 18 min. less to cover a distance of 36 km then find the speed of the car.

(OR)

- b) A medical laboratory has made a capsule of length 14 mm and a width of 5 mm. It is in the shape of a cylinder with two hemispheres stuck to each of its ends. Find its volume.
13. a) Draw the graph of the polynomial $p(x) = x^2 - 4x - 5$ and find its zeroes.

(OR)

- b) Check whether the following equations are consistent or inconsistent graphically
- $$2x - y = 5$$
- $$4x - 2y = 12$$



Regd. No. : **58-A**Marks : **SUMMATIVE ASSESSMENT - II - 2016 - 2017****MATHEMATICS - Paper - I****(English Version)****PART - B****Class : X****(Marks : 10)**

Academic Standards	A.S. - 1						A.S. - 2				A.S. - 3			A.S. - 4		A.S. - 5			Total
Question No.	1	5	6	7	10	14 to 23	2	8	11	24 to 25	3	9	26 to 27	12	28 to 31	4	13	32 to 33	
Marks																			
Total																			

Name of the Student Roll No.

Instructions :

- 1) Each question carries equal marks.
- 2) Each question has 4 options. Write the capital letters indicating the answer in the given bracket.
- 3) Marks will not be awarded for over writing answers.

SECTION - IV**Note : 1) Answer all the questions.****2) Each question carries $\frac{1}{2}$ mark.** **$20 \times \frac{1}{2} = 10$** 14. If $\log_{\sqrt{2}} x^2 = 16$ then the value of x ()

A) 128

B) 256

C) 16

D) $16\sqrt{2}$ 15. The lines $y = 2x$ and $y = x+3$ intersect at a point ()

A) (1, 3)

B) (3, 6)

C) (3, 2)

D) (1, 3)

[Turn Over...

16. If $a + b = 5$ and $3a + 2b = 20$ then $2a + b$ ()
A) 25 B) 20 C) 15 D) 10
17. Which of the following is a solution of the equations
 $2x + y = 15$ and $x - 2y = 5$ ()
A) (7, -1) B) (5, 5) C) (-1, -3) D) (7, 1)
18. For what value of 'K' will the equations $4x + 6y = 11$ and
 $2x + ky = 7$ will be inconsistent ()
A) 2 B) 3 C) 4 D) 8
19. If $\frac{1}{x-3} + \frac{1}{x+3} = \frac{1}{4}$, then the positive value of x is ()
A) 9 B) -1
C) 3 D) Both A and B
20. The ratio of sum and product of roots of quadratic equation
 $7x^2 - 12x + 18 = 0$ ()
A) 7 : 12 B) 2 : 3 C) 3 : 2 D) 7 : 18
21. The area of the base of a cone is 616 sq. cm and its height is
48 cm then its volume ()
A) 9586 cm^3 B) 9658 cm^3
C) 9856 cm^3 D) 9865 cm^3
22. The side of a cube is 'x' units then the maximum length
between any two vertices of the cube is ()
A) $(\sqrt{2} + 1)x$ units B) $\sqrt{2}x$ units
C) $\sqrt{3}x$ units D) $2x$ units
23. The number of spherical balls can be made out of a solid cube
of lead, whose edge measures 22 cm and each ball being 2 cm
in diameter is ()
A) 2541 B) 2451 C) 1270 D) 1331

[Contd...3

24. Which is not a linear equation among the following ()

(i) $x + \frac{1}{x} = 2$

(ii) $x = 3y$

(iii) $y = 5$

(iv) $(x + y)(x - y) = 0$

A) (i) only

B) (i) and (ii)

C) (i) and (iii)

D) (i) and (iv)

25. The quadratic equation $px^2 + qx + r = 0$ has no real roots then one of the following is true ()

A) $q^2 = 4pr$

B) $q^2 > 4pr$

C) $p^2 < 4qr$

D) $q^2 < 4pr$

26. "The product of two consecutive odd numbers is 35" can be expressed in quadratic equation as ()

A) $x^2 - 2x - 35 = 0$

B) $x^2 + x - 35 = 0$

C) $x^2 + 2x - 35 = 0$

D) Both A and C

27. Find the correct matching among the following ()

1) Volume of sphere

()

a) $\pi r^2 h$

2) Volume of hemisphere

()

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

3) Volume of cone

()

c) $\frac{2}{3} \pi r^3$

4) Volume of cylinder

()

d) $\frac{4}{3} \pi r^3$

A) 1-a, 2-b, 3-c, 4-d

B) 1-d, 2-c, 3-b, 4-a

C) 1-b, 2-d, 3-a, 4-c

D) 1-d, 2-b, 3-c, 4-a

28. A complementary angle exceeds other by 40° then the two angles are ()





A) $90^\circ, 50^\circ$

B) $140^\circ, 40^\circ$

C) $65^\circ, 25^\circ$

D) $20^\circ, 320^\circ$

[Turn Over...

29. The perimeter and area of a rectangular park are 80 m and 300 m^2 respectively then its length ()
 A) 20 m B) 15 m C) 30 m D) 40 m
30. Which one is not an example to give as quadratic function ()
 A) The path of a rocket fired upwards
 B) The product of two consecutive integers
 C) The shape of a parabola
 D) The sum of three angles in a triangle
31. The length of the equator of a globe is 44 cm then its surface area ()
 A) 576 cm^2 B) 756 cm^2 C) 616 cm^2 D) 176 cm^2
32. If $A \subset B$ then $A \cap B = A$ then it can be represented as ()
 A)  B)  C)  D) 
33. Choose the graph of the quadratic function, which has imaginary roots. ()

