SUMMATIVE ASSESSMENT - I - 2017-2018

MATHEMATICS - Paper - I

(English Medium)

PART - A & B

Class : X] **(Max. Marks : 40)** **[Time : 2-45 Hrs.**

Instructions :

1. **Question paper contains 2 parts (Part A & B)**
2. **Part-A & B should be given at the beginning of the exam only.**
3. **15 Minutes are allotted for reading the question paper (Part A &B) in addition to 2.30 hours for writing the answers.**
4. **Part - A answers should be written in a separate answer book.**
5. **There are three Sections in Part - A.**
6. **Answer all the questions.**
7. **Every answer should be visible and legible.**
8. **There is internal choice in Section - III.**

Marks : 30] **PART - A** **[Time : 2-15 Hrs.**

Section - I

Note : 1. Answer ALL the questions.

2. Each question carries 1 Mark. **$4 \times 1 = 4$**

1. Find the Quadratic polynomial whose sum and product of zeroes are – 3 and 2 respectively.
2. Find the discriminant of the Quadratic equation $2x^2 - 4x + 3 = 0$
3. State the fundamental theorm of Arithmetic.
4. Represent A and B, If $A \cap B = \phi$ using Venn - Diagram

[Turn Over

Section - II

Note : 1. Answer ALL the questions.

2. Each question carries 2 Marks. **$5 \times 2 = 10$**

5. If sum of the squares of zeroes of the Quadratic polynomial $f(x) = x^2 - 8x + k$ is 40, find the value of k.

(Hint: a,b are zeroes then $a^2 + b^2 = 40$)

6. Solve the following pair of linear equation.

$21x + 47y = 110$

$47x + 21y = 162$

7. Find the roots of the Quadratic equation $2x^2 - 2\sqrt{2}x + 1 = 0$

8. State which of the following sets are finite or infinite. Give reasons

i) P = $\{x : x \in N$ and $x^2 = 4\}$

ii) Q= $\{x : x$ is an integer, $x < 10\}$

9. A cylinder and a cone are of the same radius and same height. Express ratio of the their curved surface areas.

Section - III

Note : 1. Answer ALL the questions.

2. Each question has internal choice.

3. Each question carries 4 Marks. **$4 \times 4 = 16$**

10. a) If A = $\{x : x$ is a natural number less than 20$\}$

B = $\{x : x$ is an even natural number less than 20$\}$

C = $\{x : x$ is an odd natural number less than 20$\}$

D = $\{x : x$ is a prime number less than 20$\}$

then find (i) A – B (ii) C – D (iii) $A \cup C$ (iv) $B \cap D$

(OR)

[Contd... 3

b) Slove the pair of equations by reducing them into "a pair of linear equations".

$\frac{2}{x}+\frac{3}{y}=13;\frac{5}{x}-\frac{4}{y}=-2$ (When $x\neq 0, y\neq 0$)

11. a) Prove that $\sqrt{3}+\sqrt{5}$ is an irrational number by contradiction method.

(OR)

b) If 1,-1 and -3 are the Zeroes of the cubic polynomial x^3+3x^2-x-3 then study the instructions in the table given and write your observations?

Step1 : Find $(\alpha+\beta+\gamma)$ sum of the zeroes
Step2 : Find $(\alpha\beta+\beta\gamma+\gamma\alpha)$ sum of the zeroes
Step3 : Find the value of $\alpha\beta\gamma$
Step4 : Compare the polynomial with ax^3+bx^2+cx+d
Step5 : Find a, b, c, d by comparison
Step6 : Find $\frac{-b}{a}, \frac{c}{a}, \frac{-d}{a}$
Step7 : Write your Obsevation

12. a) A right circular cone of height 8.4 cm and the radius of its base is 2.1cm. It is melted and recast into a sphere. Find the radius of the sphere.

(OR)

b) The hypotenutes of a right angled triangle is 25m. If one side is 5m, more than the other side, find its area.

13. a) Draw the graph of the given polynomial and find the zeroes from the graph

$$p(x) = x^2 + 3x - 4$$

(OR)

b) Solve the following pair of equations graphically

$$x + y = 3$$

$$3x - 2y = 4$$

*

58 (A)

SUMMATIVE ASSESSMENT - I - 2017-2018

MATHEMATICS - Paper - I

(English Medium)

PART - B

Class : X] **(Max. Marks : 10)** **[Time : ½ Hr.**

Acadamic Standards	AS1							AS2			AS3			AS4			AS5			Total	Grade
Q.No.	1	2	5	6	7	10	14-21	8	11	22-25	3	9	26-27	12	28 - 31		4	13	32 - 33		
Marks																					
Total																					

Name of the Student : ..... **Roll No.:** .....

Note :

1. **Answer ALL questions in Part - B.**
2. **Each question has 4 options. Write the capital letter indicating the answer in the given brackets.**
3. **Marks are not awarded for over writing answers.**
4. **All questions carry equal (½) marks.**

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14. HCF of 231, 396 is ( )

A) 33 B) 66 C) 165 D) 231

15. $n(A)=3, n(B)=5$ and $n(A\cup B)=7$ then $n(A\cap B)=?$ ( )

A) 3 B) 5 C) 7 D) 1

16. If the zeroes of quadratic polynomial $x^2+(a+1)x+b$ are 2 and - 3 then the valus of a and b are ( )

A) a = –7, b = –1 B) a = 5, b = –1

C) a = 2, b = –6 D) a = 0, b = –6

[Turn Over

17. For what value of k, do the equations $3x - y + 8 = 0$ and $6x - ky = -16$ represent coincident lines ( )

A) $\frac{1}{2}$ B) $-\frac{1}{2}$ C) 2 D) –2

18. If $\frac{1}{2}$ is a root of the equation $x^2 + kx - \frac{5}{4} = 0$ then the value of k ( )

A) 2 B) –2 C) $\frac{1}{4}$ D) $\frac{1}{2}$

19. Value(s) of 'k' for which the Quadratic equation $2x^2 - kx + k = 0$ has equal roots are ( )

A) 0 only B) 4 C) 8 only D) 0 or 8

20. Volumes of two spheres are in the ratio 64 : 27 then the ratio of their surface areas is ( )

A) 3 : 4 B) 4 : 3 C) 9 : 16 D) 16 : 9

21. If $x = a, y = b$ is the solution of the equations $x - y = 2$ and $x + y = 4$ then the values of a and b ( )

A) 3 and 5 B) 5 and 3 C) 3 and 1 D) –1 and –3

22. The Decimal expansion of the rational number $\frac{33}{2^2 \times 5}$ will terminate after ( )

A) one decimal place B) two decimal places

C) three decimal places D) more than 3 decimal places

23. The pair of equations $5x - 15y = 8$ and $3x - 9y = \frac{2}{5}$ has ( )

A) One solution B) two solutions

C) Infinitely many D) no solution

[Contd... 3

24. The volume of a largest right circular cone that can be cutout from a cube of edge 4.2 cm is ( )

A) 9.7 cm^3 B) 77.6 cm^3 C) 58.2 cm^3 D) 19.4 cm^3

25. Given that two zeroes of the cubic polynomial $ax^3 + bx^2 + cx + d$ are 0 then third zero is ( )

A) $\frac{-b}{a}$ B) $\frac{b}{a}$ C) $\frac{c}{a}$ D) $\frac{-d}{a}$

26. If two positive intergers p and q can be expressed as $p = ab^2$ and $q = a^3b$ (a,b being prime number) then LCM of p *and* q is ( )

A) ab B) a^2b^2 C) a^3b^2 D) a^3b^3

27. If the discriminent of Quadratic equations less than zero then the roots are ( )

A) two distinct real roots B) two equal roots

C) no real roots D) more than two roots

28. If the HCF of 65 and 117 is expressible in the form $65m - 117$ then the value of m is ( )

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

29. Neeraja has only Rs.1 and Rs.2 coins with her. If the total number of coins that she has 50 and the amount of money with her Rs 75 then the number of Rs1 and Rs2 coins are respectively ( )

A) 35 and 15 B) 35 and 20 C) 15 and 35 D) 25 and 25

30. If α and β are the roots of $x^2 + 7x - 60 = 0$ then the value of $\alpha + \beta + \alpha\beta$ is ( )

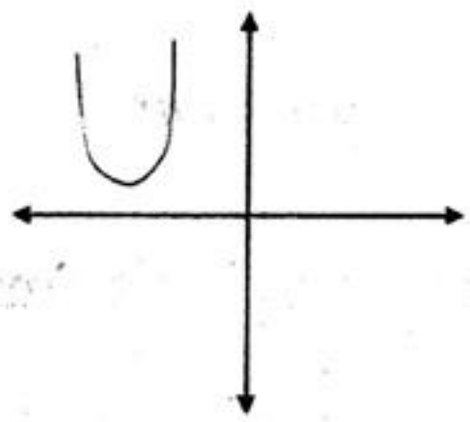
A) –53 B) –67 C) –60 D) 53

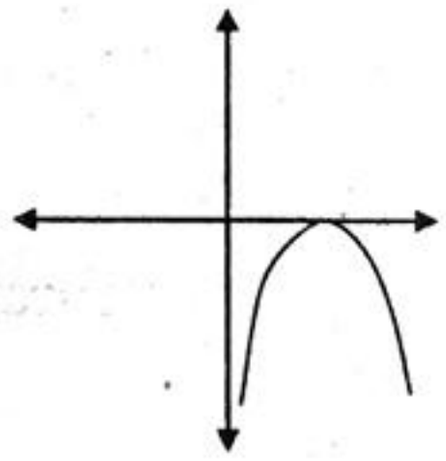
31. A cylindrical pencil sharpened at one edge is the combination of ( )

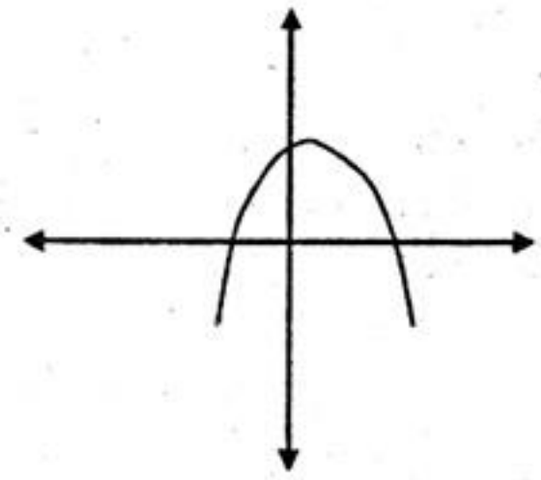
A) a cone and a cylinder B) cylinder and sphere

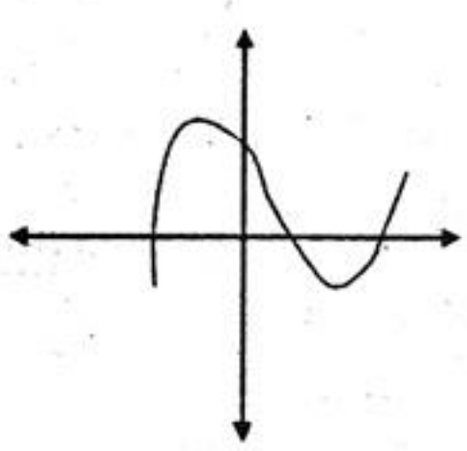
C) hemisphere and cylinder D) two cylinders

32. Which of the following is not the graph of a Quadratic equation ( )

A) 

B) 

C) 

D) 

33. Graphically the pair of equations $6x-3y+10=0, 2x-y+9=0$ represents two lines which are ( )

A) Intersecting at exactly one point

B) Intersecting exactly in two points

C) Coincident

D) Parallel to each other

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