

This Question Paper contains 4 Printed Pages.

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15E (A)

SUMMATIVE ASSESSMENT-I (2018-19)

MATHEMATICS, Paper-I

(English Version)

Parts A and B

Time : 2 hrs. 45 min]

[Maximum Marks : 40

Instructions :

1. 15 minutes of time is allotted exclusively for reading the question paper and 2.30 hours for writing the answers.
2. Part-A answers should be written in separate answer book. Write the answers to the questions under Part-B on the Question Paper itself and attach it to the answer book of Part-A.
3. There are three sections in Part-A.
4. Answer all the questions.
5. Every answer should be written visibly and clearly.
6. There is internal choice in Section – III.
7. Part-A and Part-B should be issued at the beginning of the exam.

PART – A

Time : 2 Hrs

Maximum : 30 Marks

Section – I

4 × 1 = 4

Note : (1) Answer all the questions.

(2) Each question carries 1 mark.

1. Write $4 \log 4 + 2 \log 5 - \log 15$ as a single logarithm.
2. The cost of 3 kg of apples and 2 kg of grapes on a day was found to be ₹ 160. After a month the cost of 4 kg of apples and 2 kg of grapes is ₹ 300. Represent the situation as a pair of linear equations in two variables.

15E (A)

P.T.O.

3. If $A = \{\text{Parallelograms}\}$

$$B = \{\text{Square, Rectangle, Rhombus, Trapezium}\}$$

Then find $B - A$.

4. Find the ratio of volumes of cylinder and cone having same base radii and same heights.

Section - II

$5 \times 2 = 10$

Note : (1) Answer *all* the questions.

(2) Each question carries 2 marks.

5. Find the quadratic polynomial for the zeroes $\frac{1}{3}, -2$.

6. Give reasons for the following statements :

(i) $\{2, 3, 5, 7, 9, 11\} \neq \{x : x \text{ is a prime number, } x < 12\}$

(ii) $\{1, 64, 125\} \neq \{x : x \text{ is a perfect square and perfect cube, } x \leq 125\}$

7. (i) Total surface area of right circular cone = $\pi r(l + r)$

(ii) Volume of cuboid = $l bh$.

Explain letters in the above formulae.

8. A sphere, a cylinder and a cone are of the same radius and same height. Find the ratio of their curved surface areas.

9. Solve the following linear equations by the Elimination method :

$$3x + 4y = 10 \text{ and } 2x - 2y = 2.$$

Section - III

$4 \times 4 = 16$

Note: (1) Answer all the questions.

(2) Choose any ONE from each question.

(3) Each question carries 4 marks.

10. (a) Prove that $\sqrt{7}$ is irrational.

OR

- (b) In 10th Class, if three students sit on each bench one student will be left. If four students sit on each bench, one bench will be left. Find the number of students and the number of benches in the class. (Use any appropriate method other than Graph).

- (a) If the zeroes of the polynomial $x^3 - 3x^2 + x + 1$ are $a - b$, a , $a + b$, find 'a' and 'b'.

OR

(b) $A = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$

$B = \{1, 3, 5, 7, 9, 11, 13\}$

$C = \{2, 4, 6, 8, 10, 12, 14\}$

$D = \{2, 3, 5, 7, 11, 13, 17\}$

Then find

(i) $A \cup C$

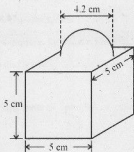
(ii) $B \cap C$

(iii) $A - D$

(iv) $(A - B) \cup (B - A)$

15E (A)

12. (a)



The decorative block shown in figure is made of two solids, a cube and a hemisphere. The base of the block is a cube with edge 5 cm and the hemisphere fixed on the top has a diameter of 4.2 cm. Find the total surface area of the block. (Take $\pi = \frac{22}{7}$)

OR

(b) (i) Find the HCF of 135 and 225 using Euclid's division algorithm.

(ii) If $(2.3)^x = (0.23)^y = 1000$, then find the value of $\frac{1}{x} - \frac{1}{y}$

13. (a) Draw the graph of the polynomial $P(x) = x^2 - 4x + 5$ and find the zeroes from the graph.

OR

(b) Solve the following linear equations by using graphical method.

$$\frac{x}{2} + \frac{2y}{3} = -1 \text{ and } \frac{y}{3} = 3$$

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15E (B)

SUMMATIVE ASSESSMENT-I (2018-19)

MATHEMATICS, Paper-I

(English Version)

Parts A and B

Time : 2 hrs. 45 min]

[Maximum Marks : 40

Instructions : Write the answers to the questions in this **Part-B** on the question paper itself and attach it to the answer book of **Part-A**.

A.S.	A.S. - 1					A.S. - 2				A.S. - 3			A.S. - 4				A.S. - 5		Total	Grade
Q. No.	1	5	9	11	12	14 to 19	6	10	20 to 23	2	7	24 to 25	3	4	8	26 to 29	13	30 to 33		
Marks																				
Total																				

Name : _____ Roll No. _____

PART - B

Time : 30 Minutes

Maximum : 10 Marks

Section - IV

$20 \times \frac{1}{2} = 10$

Note : (1) Answer **All** the questions.

(2) Each question carries $\frac{1}{2}$ mark.

(3) Marks will not be awarded in any case of over-written, rewritten or erased answers.

(4) Each question has four options. Write the CAPITAL LETTERS (A, B, C, D) showing the correct answer for the following questions in the brackets provided against them.

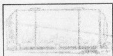
15E (B)

15E (B)

2

14. The digit at units place in the resultant number of $5^{2018} \times 6^{2019}$ is []
 (A) 0 (B) 2 (C) 5 (D) 6
15. $A = \{2, 3, 5, 7\}$, $B = \{1, 3, 5, 7, 9\}$, then $n(A \cap B) =$ []
 (A) 1 (B) 3 (C) 6 (D) 9
16. Total surface area of Hemisphere whose radius is 10.5 cm is []
 (A) 4851 cm^2 (B) 1039.5 cm^2 (C) 693 cm^2 (D) 346.5 cm^2
17. For which values of k does the pair of equations $3x + 4y - 5 = 0$ and $9x + 12y + k = 0$ has infinite solutions. []
 (A) $k = \frac{-27}{5}$ (B) $k = 0$ (C) $k = -15$ (D) $k \neq -15$
18. α, β are zeroes of $3x^2 - 13x + 12 = 0$, then $\alpha^2 + \beta^2 =$ []
 (A) $10\frac{7}{9}$ (B) $7\frac{1}{3}$ (C) $8\frac{1}{3}$ (D) $17\frac{1}{3}$
19. $P(x) = x^2 - 5x - 6$, then $P(-1) =$ []
 (A) -12 (B) 0 (C) 2 (D) 12
20. Which of the following is not a real number? []
 (A) π (B) $\sqrt{-9}$ (C) $3 - 2\sqrt{5}$ (D) 1.457
21. $A = \{2, 3, 5\}$, $B = \{5, 6, 7\}$, then $A - (A \cap B) =$ []
 (A) $B - (B \cap A)$ (B) A (C) $A - B$ (D) $A \cap (B - A)$
22. The increase in the curved surface area of a cylinder if its radius is tripled and height is doubled []
 (A) 6 times (B) 5 times (C) 3 times (D) 2 times
23. $a_1x + b_1y + c_1 = 0$, $a_2x + b_2y + c_2 = 0$ are pair of Linear equations. Then read the following statements and choose the correct. []
 A: If $\frac{a_1}{a_2} \neq \frac{b_1}{b_2}$ then pair of the Linear equations are consistent.
 B: If $\frac{a_1}{a_2} = \frac{b_1}{b_2} \neq \frac{c_1}{c_2}$ then the pair of the Linear equations are Inconsistent.
 C: If $\frac{a_1}{a_2} = \frac{b_1}{b_2} = \frac{c_1}{c_2}$ then the pair of Linear equations are consistent and dependant.
 (A) A, B, C are true. (B) A, B are true, C is false.
 (C) A is true and B, C are false. (D) A, B, C are false.
24. $A = \{1, 2, 3\}$, $B = \{3, 4, 5\}$, then $A - B$, $B - A$ and $A \cap B$ are []
 (A) Equal Sets (B) Equivalent Sets
 (C) Null Sets (D) Disjoint Sets

25.



Adjacent figure is which solids combination ?

- (A) Hemisphere + Cylinder + Sphere (B) Hemisphere + Cylinder + Cuboid
 (C) Hemisphere + Cone + Cylinder (D) Hemisphere + Cylinder + Hemisphere

[]

26. Which of the following set is infinite set ?

- (A) $A = \{x : x \in \mathbb{N} \text{ and } x < 100\}$ (B) $B = \{x : x \in \mathbb{Q} \text{ and } 1 \leq x \leq 2\}$
 (C) $C = \{x : x^2 = 4 \text{ and } x \in \mathbb{N}\}$ (D) $D = \{x : x \in \mathbb{Z} \text{ and } -5 \leq x \leq 7\}$

[]

27.

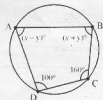


If a sphere is inscribed in a cylindrical shaped bowl, then

- (A) Surface Area of Sphere is equal to Total Surface Area of Cylinder.
 (B) Surface Area of Sphere is equal to curved surface Area of Cylinder.
 (C) Volume of the Sphere is equal to the Volume of Cylinder.
 (D) Total Surface Area of the sphere is equal to the volume of Cylinder.

[]

28.

From the figure, ABCD is a cyclic Quadrilateral, then the values of x and y

- (A) $x = 50^\circ, y = 30^\circ$ (B) $x = 50^\circ, y = -30^\circ$
 (C) $x = 130^\circ, y = 30^\circ$ (D) $x = 30^\circ, y = 50^\circ$

[]

29. Product of zeroes of the cubic polynomial $3x^3 - 5x^2 + 6x + 2$ is

- (A) $\frac{5}{3}$ (B) $-\frac{2}{3}$ (C) 2 (D) $-\frac{5}{3}$

[]

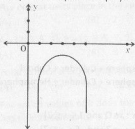
30. $(A - B) \cup B$ Venn diagram is

- (A) (B) (C) (D)

[]

15E (B)

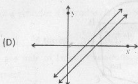
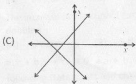
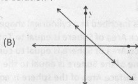
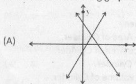
31. Graph of the quadratic polynomial is drawn below :



Then for that quadratic polynomial

- (A) $a < 0$, No real zeroes (B) $a > 0$, No real zeroes
 (C) $a < 0$, unique real zeroes (D) $a > 0$, two distinct zeroes

32. Which of the following graph represent No solution ?



33.



This figure represents

- (A) $N \subset W \subset Z \subset Q \subset R$ (B) $N \supset W \supset Z \supset Q \supset R$
 (C) $Q \subset S \subset R$ (D) $Q \cup Z = R$