This Question Paper contains 4 Printed Pages.

15E(A)

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.*
3. *There are* ***three*** *sections in* ***Part-A***.
4. *Answer* ***all*** *questions.*
5. *Every answer should be written visibly and neatly.*
6. *There is an internal choice in section - III of* ***Part-A***.

Part - A

Time : 2 hours ***Marks : 30***

SECTION - I *(Marks : 4×1=4)*

NOTE : *(i) Answer* ***all*** *the following questions.*

(ii) Each question carries ***1*** *mark.*

1. Write $A = \{2, 4, 8, 16\}$ in set-builder form.

2. Find the value of $\log_5 \sqrt{625}$.

www.eenadupratibha.net

3. The larger of two supplementary angles exceeds the smaller by 58°, then find the angles.

4. Find the curved surface area of cylinder, whose radius is 7 cm. and height is 10 cm.

SECTION - II

(Marks : 5×2 = 10)

NOTE : *(i) Write answers to* ***all*** *questions.*

(ii) Each question carries ***2*** *marks.*

5. Rohan's mother is 26 years older than him. The product of their ages after 3 years will be 360. Then write the required quadratic equation to find Rohan's present age.

6. Find the zeroes of the quadratic polynomial $x^2 - x - 30$ and verify the relation between the zeroes and its co-efficients.

7. A Joker's cap is in the form of right circular cone, whose base radius is 7 cm and height is 24 cm. Find the area of sheet required to make 10 such caps.

8. Find the HCF of 1260 and 1440 by using Euclid's division lemma.

9. If the sum of first 15 terms of an A.P. is 675 and its first term is 10, then find 25th term.

www.eenadupratibha.net

SECTION - III

(Marks : 4×4=16)

NOTE : *(i)* *Answer **all** the following questions.*

(ii) *Each question carries **4** marks.*

10. *(a)* Show that $2+5\sqrt{3}$ is irrational.

OR

(b) Check whether -321 is a term of the A.P. : 22, 15, 8, 1, ...

11. *(a)* In a class test, the sum of Moulika's marks in Mathematics and English is 30. If she got 2 marks more in Mathematics and 3 marks less in English, the product of her marks would have been 210. Find her marks in the two subjects.

OR

(b) An oil drum is in the shape of cylinder, whose diameter is 2 m. and height is 7 m. The painter charges ₹ 5 per m^2 to paint the drum. Find the total charges to be paid to the painter for 10 drums.

12. *(a)* If $A = \{x : x$ is a natural number less than is $6\}$.

$B = \{x : x$ is a prime number which is a divisor of $60\}$.

$C = \{x : x$ is an odd natural number less than $10\}$.

$D = \{x : x$ is an even natural number which is a divisor of $48\}$.

Then write roster form for all above sets and find

(i) $A \cup B$ *(ii)* $B \cap C$

(iii) $A - D$ *(iv)* $D - B$.

OR

(b) 6 pencils and 4 note books together cost Rs. 90/- whereas 8 pencils and 3 note books together cost Rs. 85/-. Find the cost of one pencil and that of one note book.

www.eenadupratibha.net

13. *(a)* Find the zeroes of the quadratic polynomial $p(x) = x^2 + x - 20$ using graph.

OR

(b) Solve the following pair of linear equations graphically,

$2x + y = 4$ and $2x - 3y = 12$.

www.eenadupratibha.net

This Question Paper contains 4 Printed Pages.

15E(B)

MATHEMATICS, Paper - I

(English version)

(Parts A and B)

Time : 2 hrs. 45 min.] ***[Maximum Marks : 40***

Instruction : *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***.

Part - B

Time : 30 minutes ***Marks : 10***

NOTE : *(i) 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.*

(ii) Marks are ***not*** *awarded for over-written answers.*

(iii) ***All*** *questions carry equal marks.*

SECTION -IV

Marks : 20 × $\frac{1}{2}$ = 10

NOTE : *(i) Answer* ***all*** *the questions.*

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

14. If $n(A) = 8$, $n(B) = 3$, $n(A \cap B) = 2$, then $n(A \cup B) = ...$ [ ]

(A) 5 (B) 7

(C) 9 (D) 13

15. The discriminant of $6x^2 - 5x + 1 = 0$ is .... [ ]

(A) 1 (B) 2

(C) 6 (D) $-\frac{5}{6}$

16. Sum of the zeroes of the polynomial $x^2 + 5x + 6$ is .... [ ]

(A) 5 (B) -5

(C) 6 (D) $\frac{5}{6}$

17. Which of the following is not irrational ? [ ]

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

(C) $\sqrt{4}$ (D) $\sqrt{5}$

18. One root of the equation $x - \frac{3}{x} = 2$ is ..... [ ]

(A) 1 (B) 2

(C) 3 (D) 4

19. If $4, a, 9$ are in G.P., then a = ... [ ]

(A) 6 (B) ± 6

(C) 7 (D) ± 7

20. If total surface area of a cube is 96 cm^2, then its volume is ... [ ]

(A) 32 cm^3 (B) 64 cm^3

(C) 128 cm^3 (D) 256 cm^3

21. $\log_{10} 0.001$ = ... [ ]

(A) 2 (B) 3

(C) -2 (D) -3

www.eenadupratibha.net

22. Match the following :

If α, β, γ are zeroes of a cubic polynomial $ax^3 + bx^2 + cx + d$, $(a \neq 0)$, then .... [ ]

(i)	$\alpha + \beta + \gamma$	*(a)*	$-\frac{d}{a}$
(ii)	$\alpha\beta + \beta\gamma + \gamma\alpha$	*(b)*	$\frac{c}{a}$
(iii)	$\alpha\beta\gamma$	*(c)*	$-\frac{b}{a}$

(A) *(i)* $\rightarrow c$, *(ii)* $\rightarrow b$, *(iii)* $\rightarrow a$ (B) *(i)* $\rightarrow a$, *(ii)* $\rightarrow b$, *(iii)* $\rightarrow c$

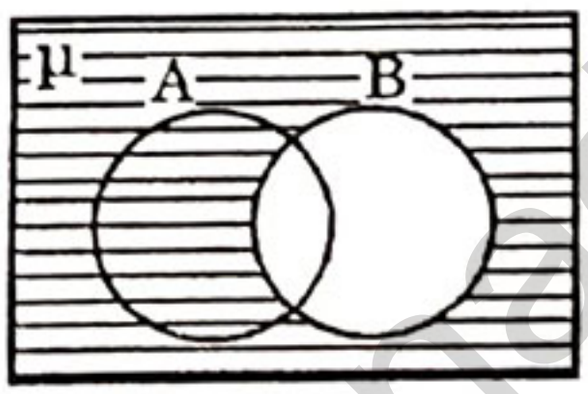
(C) *(i)* $\rightarrow b$, *(ii)* $\rightarrow a$, *(iii)* $\rightarrow c$ (D) *(i)* $\rightarrow c$, *(ii)* $\rightarrow a$, *(iii)* $\rightarrow b$

23. The next term in A.P. $\sqrt{3}, \sqrt{12}, \sqrt{27}$ is ... [ ]

(A) $\sqrt{32}$ (B) $\sqrt{36}$

(C) $\sqrt{42}$ (D) $\sqrt{48}$

24. The shaded region in the given figure shows ... [ ]



(A) A – B (B) B – A

(C) μ – B (D) A ∪ B

25. $5x - 3$ represents ..... polynomial. [ ]

(A) Linear (B) Quadratic

(C) Cubic (D) A and B

26. The common difference of A.P. $\log_2 2, \log_2 4, \log_2 8$ is .... [ ]

(A) 1 (B) 2

(C) 3 (D) 4

27. The sum of first 'n' odd natural numbers is ..... [ ]

(A) n (B) n^2

(C) $n(n+1)$ (D) $\frac{n(n+1)}{2}$

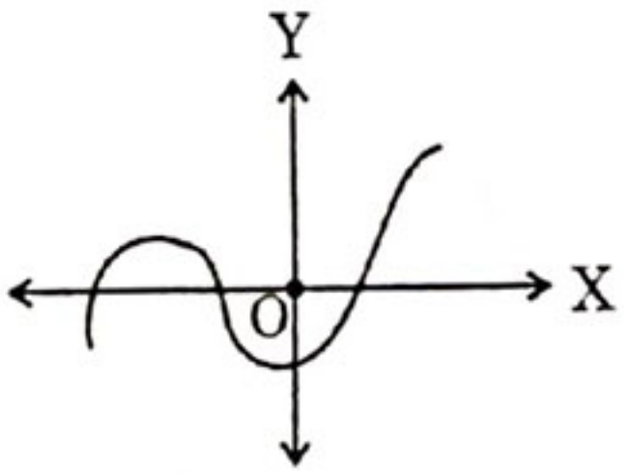
B

28. The quadratic polynomial, whose zeroes are $\sqrt{2}$ and $-\sqrt{2}$ is .... [ ]

(A) $x^2 - 2$ (B) $x^2 + 2$

(C) $x^2 + \sqrt{2}$ (D) $x - 2$

29. The number of zeroes of the polynomial in the graph is .... [ ]



(A) 0 (B) 1

(C) 2 (D) 3

30. The line $2x - 3y = 8$ intersects X-axis at .... [ ]

(A) $(2, -3)$ (B) $(0, -3)$

(C) $(2, 0)$ (D) $(4, 0)$

31. The volume of cone, whose radius is 3 cm and height is 8 cm, is ... cm^3. [ ]

(A) 6π (B) 12π

(C) 18π (D) 24π

32. If $6x + 2y - 9 = 0$ and $kx + y - 7 = 0$ has no solution, then k = ... [ ]

(A) 3 (B) 2

(C) -3 (D) -2

33. If the equation $x^2 + 5x + K = 0$ has real and distinct roots, then ... [ ]

(A) $K = 6$ (B) $K < 6.25$

(C) $K > 6$ (D) $K > 25$

www.eenadupratibha.net