A.E. M074

TG 15E /16E

SSC PUBLIC EXAMINATIONS, MARCH - 2025

MATHEMATICS

PRINCIPLES OF VALUATION

General Instructions :

1. Any logical method is valid.
2. Marks should be awarded according to the logical sequential steps.
3. Final answer is not the criteria for awarding marks.
4. Page wise marks should be noted in brackets otherwise Nil.
5. While entering the total marks fraction should be rounded off to the next higher integer.
6. In Section - I, and Section - II there is no choice.

   In Section -III, Marks are to be awarded for any 4 questions.

   If choice questions are attempted, the answer scoring the better marks is to be considered and the one with lesser marks is to be written extra.
7. The solutions given in the principles of Evaluation are suggestive and other solutions which are correct are also to be considered for awarding marks.

PART - A

SECTION - I

1) For writing the formula of area of a triangle — $^1/_2$ M

For calcutating area of a triangle — 1 M

For writing area of a triangle is zero hence the given points are collinear — $^1/_2$ M

2 M

Solution : Points A (-6, 10) B (-4, 6) C (3,-8)

(x_1, y_1) (x_2, y_2) (x_3, y_3)

Area of triangle $= \frac{1}{2}\left|x_1(y_2-y_3)+x_2(y_3-y_1)+x_3(y_1-y_2)\right|$

$= \frac{1}{2}\left|(-6)[6-(-8)]+(-4)[(-8)-(10)]+3(10-6)\right|$

$= \frac{1}{2}\left|-84+72+12\right| = 0$

Since Area of triangle is Zero, the given points are collinear.

Note: Award marks even if it is proved using the concept of distance between two points or concept of slope.

2) For writing the values of Sin 30^0 and Cos 60^0 — $^1/_2$ M

For finding the sum and product of roots — $^1/_2$ M

For writing the formula — $^1/_2$ M

For writing the required quadratic equation — $^1/_2$ M

2 M

Solution: $\text{Sin } 30^0 = \frac{1}{2}$ $\text{Cos } 60^0 = \frac{1}{2}$

Sum of roots $= \frac{1}{2} + \frac{1}{2} = 1$

Product of roots $= \frac{1}{2} \times \frac{1}{2} = \frac{1}{4}$

Quadratic equation : $x^2 - x$ (sum of roots) + Product of roots = 0

$$x^2 - x(1) + \frac{1}{4} = 0$$

$\therefore$ $4x^2 - 4x + 1 = 0$

is the required quadratic equation.

3) For identifying the values of a, l and s_n $^1/_2$ M

For writing the formula $^1/_2$ M

For finding the value of 'n' and writing the conclusion 1 M

2 M

Solution: $a = 1$

$l = 20$

$S_n = 399$

$n = ?$

$S_n = \frac{n}{2}[a+l]$

$$399 = \frac{n}{2}[1+20]$$

$$n = \frac{399 \times 2}{21} = 38$$

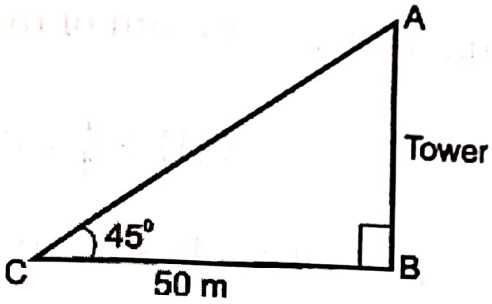
Number of terms in the given arthimetic progression is 38

4) For drawing the suitable diagram and labelling — 2 M

Solution: — **2 M**

AB tower

C Position of observer



5) For finding the values of $a_1, b_1, c_1, a_2, b_2, c_2$ — $^1/_2$ M

For writing the condition — $^1/_2$ M

For solving and finding the value of K — 1 M — **2 M**

Solution: $a_1 = 3k+1$ $b_1 = 3$ $c_1 = -2$

$a_2 = k^2+1$ $b_2 = k-2$ $c_2 = -5$

Given pair of linear equations has no solutions $\Rightarrow \frac{a_1}{a_2} = \frac{b_1}{b_2}$

$$\frac{3K+1}{K^2+1} \times \frac{3}{K-2}$$

$3K^2 + 3 = 3K^2 - 6K + K - 2$ (after cross multiplication)

$5K = -5$

$K = -1$

6) For considering r = 7k and l = 25k — $^1/_2$ M

For writing the formula — $^1/_2$ M

For doing calculations and finding the radius of Cone — 1 M

2 M

Solution: Ratio of radius and slant height

r : l = 7 : 25 (given)

C.S.A. = 550 cm^2

r = ?

Let r = 7k and l = 25k

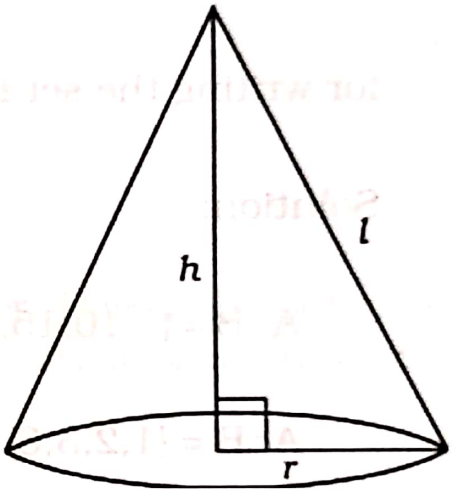
CSA = πrl

$\frac{22}{7} \times 7k \times 25\,k = 550$

$550k^2 = 550$

$k^2 = 1 \Rightarrow k = 1$

radius (r) = 7k = 7 × 1 = 7 cm



Right Circular Cone

SECTION - II

7) for writing the set $A \cup B$ 1 M

for writing the set $A \cap B$ 1 M

for writing the set $A - B$ 1 M

for writing the set $B - A$ 1 M

4 M

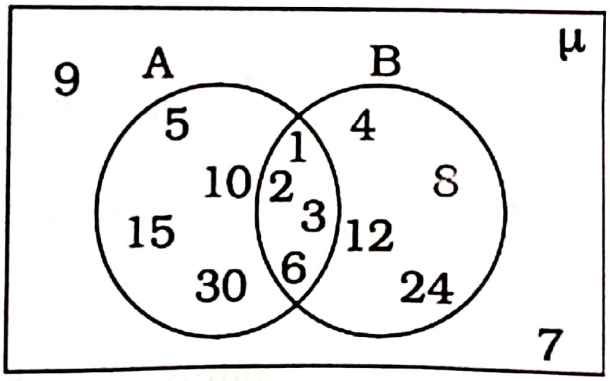
Solution:

$A \cup B = \{5,10,15,30,1,2,3,6,4,8,12,24\}$

$A \cap B = \{1,2,3,6\}$

$A - B = \{5,10,15,30\}$

$B - A = \{4,8,12,24\}$



8) For finding the probability getting a red coloured king 1 M

For finding the probability getting a black coloured face card 1 M

For finding the probability getting a diamond card with no.11 1 M

For finding the probability getting queen of clubs 1 M

4 M

Solution:

(i) P (Getting a red coloured King) = $\frac{\text{Number of favourable out comes}}{\text{Number of total out comes}}$

$= \frac{2}{52} = \frac{1}{26}$

(ii) P (Getting a black coloured face cards) $= \frac{6}{52} = \frac{3}{26}$

(iii) P (Getting a diamond card with No. 11) $= \frac{0}{52} = 0$

(∵ Imposible event)

(iv) P (Getting Queen of clubs) $= \frac{1}{52}$

9) For substituting $Cot^2 A = \frac{1}{\tan^2 A}$ 1 M

For proving $\left(\frac{1+\tan^2 A}{1+\cot^2 A}\right) = \tan^2 A$ 1 M

For substituting $CotA = \frac{1}{\tan A}$ 1 M

For proving $\left(\frac{1-\tan A}{1-\cot A}\right)^2 = \tan^2 A$ 1 M

4 M

Solution:

$$\frac{1+\tan^2 A}{1+\cot^2 A} = \left(\frac{1+\tan^2 A}{1+\frac{1}{\tan^2 A}}\right)^2$$

$$= \frac{\tan^2 A\left(1+\tan^2 A\right)}{\left(\tan^2 A+1\right)} = \tan^2 A \quad \ldots\ldots\ldots(1)$$

$$\left(\frac{1-\tan A}{1-\cot A}\right)^2 = \left(\frac{1-\tan A}{1-\frac{1}{\tan A}}\right)^2$$

$$= \left(\frac{-1(1-\tan A)\tan A}{(\tan A-1)}\right)^2$$

$$= (-\tan A)^2 = \tan^2 A \quad \ldots\ldots(2)$$

From 1 & 2 $\left(\frac{1+\tan^2 A}{1+\cot^2 A}\right) = \left(\frac{1-\tan A}{1-\cot A}\right)^2 = \tan^2 A$

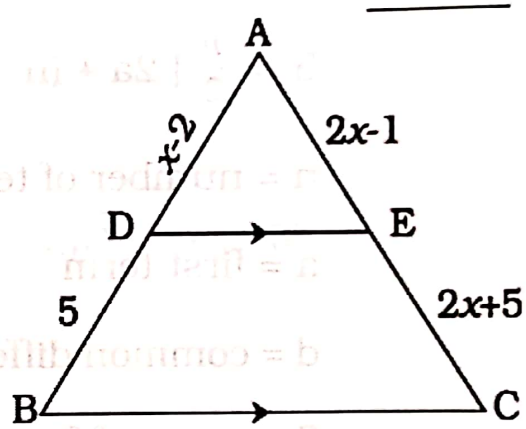
10) For identifying that B.P.T. is to be used and writing $\frac{AD}{DB} = \frac{AE}{EC}$ 1 M

For simplification and obtaining quadratic equation $1\frac{1}{2}$ M

For solving quadratic equation and finding the value of 'x' $1\frac{1}{2}$ M

Solution: **4 M**

In Δ ABC DE $\parallel$ BC



$\Rightarrow \frac{AD}{DB} = \frac{AE}{EC}$ (by BPT)

$\frac{x-2}{5} \times \frac{2x-1}{2x+5}$

$(x-2)\ (2x+5) = 5\ (2x-1)$

(after cross multiplication)

$2x^2 + 5x - 4x - 10 = 10x - 5$

$2x^2 - 9x - 5 = 0$

$2x^2 - 10x + x - 5 = 0$

$2x(x-5) + 1(x-5) = 0$

$(x-5)(2x+1) = 0$

$x = 5$ or $x = -\frac{1}{2}$

but x value can't be $-\frac{1}{2}$ as length can't be negetive.

So, $x = 5$ is the required solution.

11) For writing the formula for sum of first 'n' terms of an arithmetic progression 2 M

For writing each term in it @ $^1/_2$ M $4 \times {}^1/_2 = 2$ M

4 M

Solution:

Sum of first 'n' terms of an arithmetic progression

$S_n = \frac{n}{2}[2a + (n-1)d]$

n = number of terms

a = first term

d = common difference

S_n = sum of first 'n' terms

(or)

$S_n = \frac{n}{2}[a + l]$

n = number of terms

a = first term

l = last term

S_n = sum of first 'n' terms

12) For writing formula of distance between 2 points $^1/_2$ M

For finding the lengths of sides AB, BC and CA (Each 1M) $3 \times 1 = 3$M

For proving $(AB)^2 + (BC)^2 = (AC)^2$ concluding that it is a right angled triangle and specifying reason $^1/_2$ M

4 M

Solution:

A (-4, 2) B (2, -4) C (12, 6)

if (x_1, y_1) (x_2, y_2) are any two points then the distance between those two points

$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

Length of side AB $= \sqrt{(2-(-4))^2 + (-4-2)^2}$

$= \sqrt{(6)^2 + (-6)^2} = \sqrt{36+36}$

$= \sqrt{72}$

Length of side BC $= \sqrt{(12-2)^2 + (6-(-4))^2}$

$= \sqrt{(10)^2 + (10)^2} = \sqrt{100+100}$

$= \sqrt{200}$

Length of side AC $= \sqrt{(12-(-4))^2 + (6-2)^2}$

$= \sqrt{(16)^2 + (4)^2} = \sqrt{256+16}$

$= \sqrt{272}$

$$\left(\sqrt{72}\right)^2 + \left(\sqrt{200}\right)^2 = \left(\sqrt{272}\right)^2$$

i.e., $(AB)^2 + (BC)^2 = (AC)^2$

$\therefore$ So, it is a right angled triangle (by converse of Pythagoras theorem)

SECTION - III

13) For showing calculations and finding the values y — 2 M

For finding the points of the given polynomial — 1 M

For plotting the points on a graph sheet — 1 M

For joining the points and drawing a parabola — 1 M

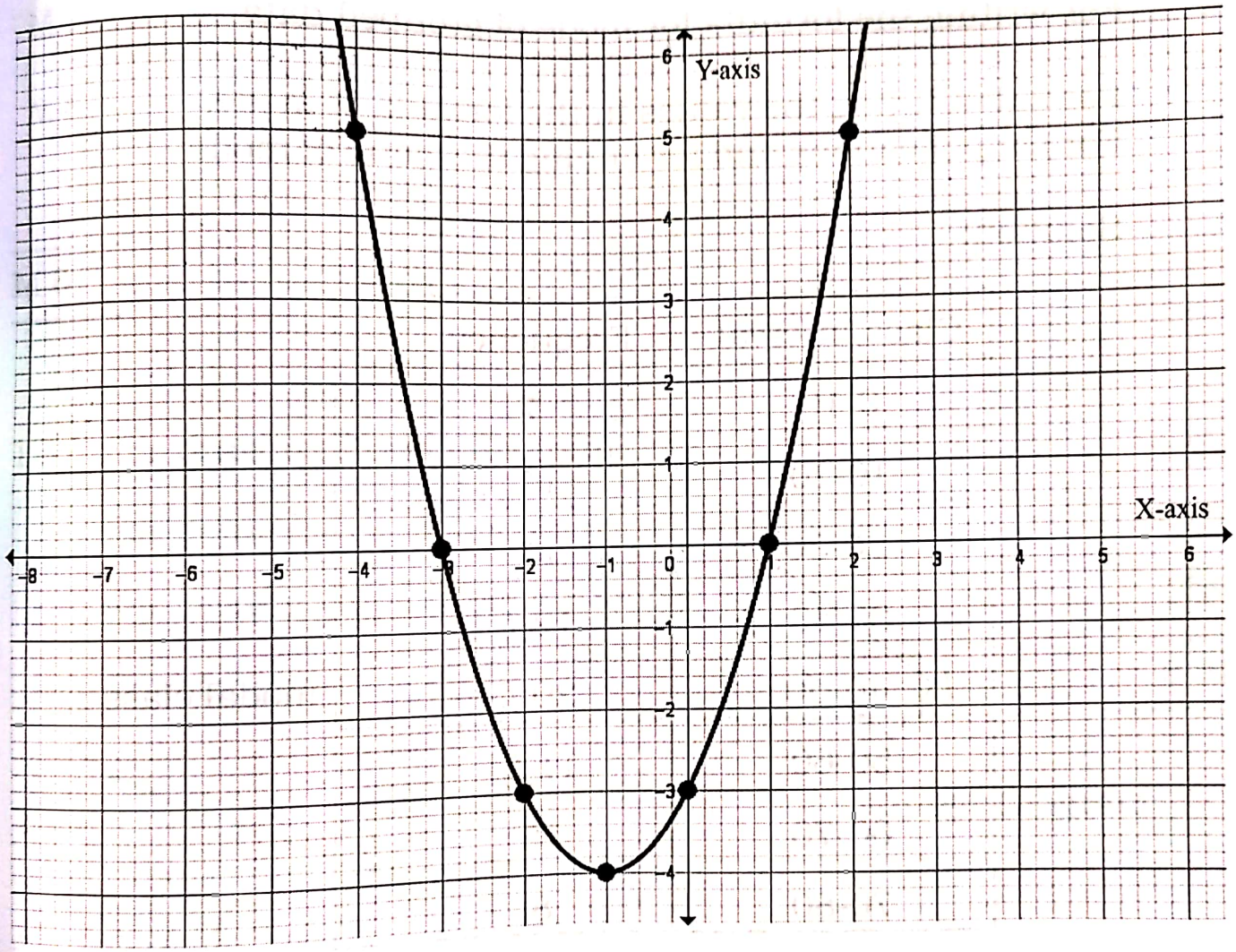
For finding the Zeroes from the graph — 1 M

6 M

Solution: $y = p(x) = x^2 + 2x - 3$

x	-4	-3	-2	-1	0	1	2
x^2	16	9	4	1	0	1	4
$2x$	-8	- 6	-4	-2	0	2	4
-3	-3	-3	-3	-3	-3	-3	-3
y	5	0	-3	-4	-3	0	5
(x,y)	(-4, 5)	(-3,0)	(-2,-3)	(-1,-4)	(0,-3)	(1,0)	(2,5)

Scale:
on X-axis 1cm = 1 unit
on Y-axis 1 cm = 1 unit



Zeroes of the Polynominal are - 3 and 1

14) For identifying modal class — $^1/_2$ M

For identifying l, f_0, f_1, f_2 and h values — $1\ ^1/_2$ M

For writing the formula for mode of grouped data — 1 M

For substituting the values in the formula of mode. — 3 M
For simplifications and for finding the value of mode

6 M

Solution:

Class Interval	Frequency
0-10	7
10-20	14
20-30	13
30-40	$12\ f_0$
l 40-50	$20\ f_1$
50-60	$11\ f_2$
60-70	15
70-80	8

modal class

$l = 40,\ f_0 = 12,\ f_1 = 20,\ f_2 = 11,\ h = 10$

Mode $= l + \left(\frac{f_1 - f_0}{2f_1 - f_0 - f_2}\right) \times h$

$$= 40 + \left(\frac{20-12}{2(20)-12-11}\right)\times 10$$

$$= 40 + \left(\frac{8}{40-23}\right)\times 10$$

$$= 40 + \frac{80}{17}$$

$$= 40 + 4.7$$

$$= 44.7$$

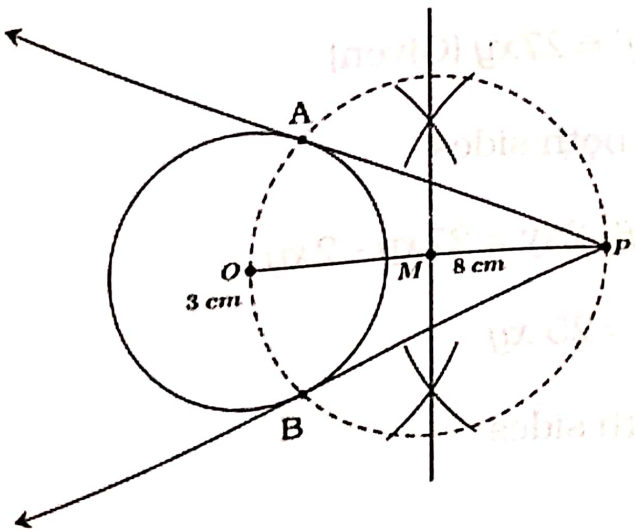
15) For drawing Rough diagram 1 M

For doing construction as per given data 3 M

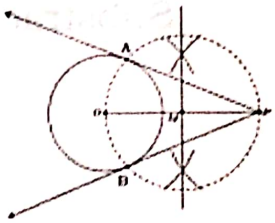
For writing steps of construction 2M

6 M

Construction:



Rough Diagram



Steps of Construction:

1. Draw a circle of radius 3 cm.
2. Locate the point 'P' at a distance of 8 cm from the centre of the circle 'O' and join O, P.
3. Draw a perpendicular bisector for the line segment OP which intersets it at point M.
4. Consider M as centre and MO as the radius draw a circle, which cuts the previous circle at points A and B.
5. Draw PA and PB which are required tangents

16) For selecting appropriate procedure and extending the procedure — 3 M

For making logical argument and writing the proof — 3 M

6 M

Solution:

$$x^2 + y^2 = 27xy \text{ (Given)}$$

Substracting $2xy$ on both sides

$$x^2 + y^2 - 2xy = 27xy - 2xy$$

$$(x-y)^2 = 25\ xy$$

Applying 'log' on both sides

$$\log (x\text{-}y)^2 = \log (25xy)$$

$$= \log (5^2 \times x \times y)$$

$2 \log (x\text{-}y)$ $= \log 5^2 + \log x + \log y$

$$= 2 \log 5 + \log x + \log y$$

Alternative Solution:

LHS $2 \log (x - y)$ $= \log (x - y)^2$

$$= \log (x^2 + y^2 - 2xy)$$

$$= \log (27xy - 2xy) \quad (\because x^2+y^2 = 27xy \text{ given})$$

$$= \log (25\ xy)$$

$$= \log 25 + \log x + \log y$$

$$= \log 5^2 + \log x + \log y$$

$$= 2 \log 5 + \log x + \log y$$

$$= \text{RHS}$$

17) For identifying three points are needed to make it four equal parts — 1 M

For finding the co-ordinates of point P — $1\ ^1/_2$ M

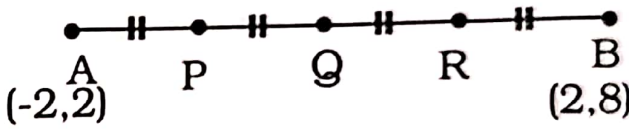
For finding the co-ordinates of point Q — $1\ ^1/_2$ M

For finding the co-ordinates of point R — $1\ ^1/_2$ M

For conclusion — $^1/_2$ M

6 M

Solution:



Line segment AB is to be made into four equal parts for which w need 3 points say P,Q, and R.

(i) Q is the mid - point of AB $= \left(\frac{x_1+x_2}{2}, \frac{y_1+y_2}{2}\right)$

$= \left(\frac{-2+2}{2}, \frac{2+8}{2}\right)$

$= \left(\frac{0}{2}, \frac{10}{2}\right) = (0,5)$

(ii) P is the mid - point of AQ $= \left(\frac{-2+0}{2}, \frac{2+5}{2}\right)$

$$= \left(\frac{-2}{2}, \frac{7}{2}\right) = \left(-1, \frac{7}{2}\right)$$

(iii) R is the mid - point of QB $= \left(\frac{0+2}{2}, \frac{5+8}{2}\right)$

$$= \left(\frac{2}{2}, \frac{13}{2}\right) = \left(1, \frac{13}{2}\right)$$

$\therefore$ The required points are (0,5) $\left(-1, \frac{7}{2}\right)$ and $\left(1, \frac{13}{2}\right)$ to make the given line segment into 4 equal parts.

Note: Award marks even if this problem is solved by using section formula with ratios 1:3, 1:1 and 3:1, and further 1:1 means mid-point only.

18) For drawing suitable diagram $^1/_2$ M

For writing outer surface area is sum of CSAs of cone and cylinder $^1/_2$ M

For finding CSA of cylinder 1 M

For finding the CSA of hemi sphere 1 M

For writing the QE $1^1/_2$ M

For solving the QE and finding radius 1 M

For concluding that radius is positive $^1/_2$ M

6 M

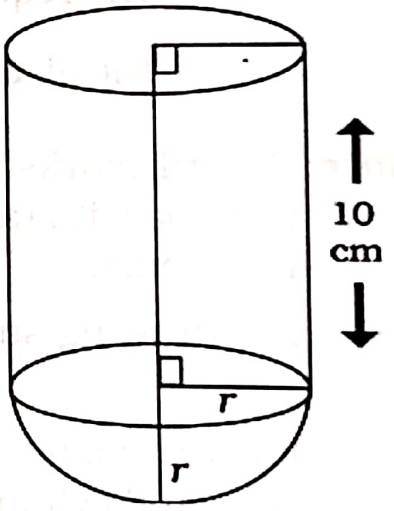
Solution: Outer surface area = 748cm²

Outer surface area = CSA of cylinder + CSA of hemisphere .. (1)

CSA of cylinder $= 2\pi rh$

$= 2 \times \frac{22}{7} \times r \times 10$

$= \frac{440r}{7}$ .....(2)



CSA of Hemisphere= $2\pi r^2$

$= 2 \times \frac{22}{7} \times r^2 = \frac{44}{7} r^2$ .....(3)

Substitute in equation (1), we get

$\frac{44}{7}r^2+\frac{440}{7}r = 748$ [from (2) and (3)]

$\frac{44}{7}(r^2+10r) = 748$

$r^2 + 10r = \cancel{748}^{17} \times \frac{7}{\cancel{44}}$

$r^2 + 10r - 119 = 0$

$r^2 + 17r - 7r - 119 = 0$

$r(r+17) - 7(r + 17) = 0$

$(r-7)(r+17) = 0$

$r = 7$ (or) $r = -17$

but radius can't be negative

So, $r = 7$cm is the required solution

PART - B

1.	B
2.	C
3.	D
4.	D
5.	A
6.	A
7.	C
8.	B
9.	D
10.	B

11.	C
12.	B
13.	D
14.	A
15.	C
16.	B
17.	A
18.	A
19.	C
20.	D

A-E. M074

This Question Paper contains 4 Printed Pages.

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15E/16E(A)

MATHEMATICS

(English Version)

(Parts A and B)

Time : 3 Hours] **Roll Number :** _____ *[Maximum Marks : 80*

Instructions :

1. *Answer **all** the Questions of **Part – A** on a separate answer book.*
2. *Write the answers to the Questions under **Part – B** on the Question paper itself and attach it to the answer book of **Part – A**.*

PART – A

Time : 2 Hours 30 minutes] *[Marks : 60*

SECTION – I

(6 × 2 = 12 Marks)

Notes : *(1) Answer **all** the following questions.*

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

1. Show that the points A(–6, 10), B(–4, 6) and C(3, –8) are collinear.

2. Write a Quadratic equation whose roots are the values of sin 30° and cos 60°.

3. In an arithmetic progression, first term is '1', last term is 20 and the sum of all the terms is 399, then find the number of terms in the progression.

4. "An observer standing at a distance of 50 metre from the foot of a tower observes its top at an angle of elevation of 45°." Draw a suitable diagram for this situation.

 Roll Number : _____

5. If the pair of linear equations :

$(3k + 1)x + 3y - 2 = 0$

and

$(k^2 + 1)x + (k - 2)y - 5 = 0$ has no solutions, then find the value of k.

6. The ratio of radius and slant height of a Right circular cone is 7:25. If its curved surface area is 550 cm^2, then find its radius.

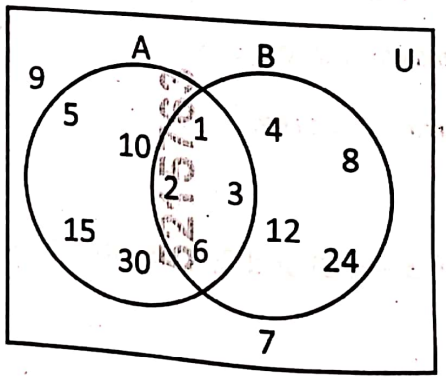
SECTION – II

Notes : *(1) Answer **all** the following questions.* **(6 × 4 = 24 Marks)**

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

7. From the given Venn diagram, find the sets

$A \cup B$, $A \cap B$, $A - B$ and $B - A$.



8. From a well shuffled deck of cards if a card is selected randomly, then find the probability of getting

(i) A red coloured king

(ii) A black coloured face card

(iii) A diamond card with number 11 on it

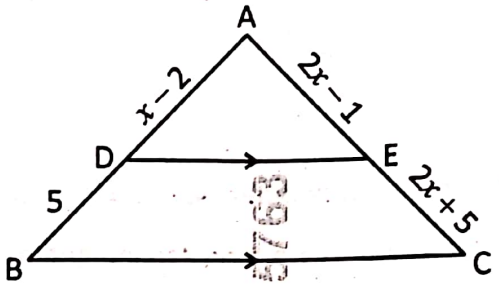
(iv) Queen of clubs

9. Show that

$$\left[\frac{1+\tan^2 A}{1+\cot^2 A}\right] = \left[\frac{1-\tan A}{1-\cot A}\right]^2 = \tan^2 A$$

10. In ΔABC, $DE \parallel BC$.

If $AD = x - 2$, $DB = 5$, $AE = 2x - 1$, $EC = 2x + 5$, then find the value of x.



11. Write the formula for the sum of first 'n' terms of an arithmetic progression and explain each term in it.

12. Show that the triangle with vertices A(–4, 2), B(2, –4) and C(12, 6) forms a Right angled triangle.

SECTION – III

(4 × 6 = 24 Marks)

Notes : *(1) Answer any **4** questions from the given **six** questions.*

*(2) Each question carries **6** marks.*

13. Draw the graph of the polynomial $p(x) = x^2 + 2x - 3$ and find zeroes of the polynomial from the graph.

14. Find the mode of the following data :

Class Interval	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80
Frequency	7	14	13	12	20	11	15	8

A-E. M074

 Roll Number : _____

15. Draw a circle of radius 3 cm. Construct a pair of tangents to the circle from an external point which is at a distance of 8 cm from the centre of the circle.

16. If $x^2 + y^2 = 27xy$, then show that $2 \log (x - y) = 2 \log 5 + \log x + \log y$.

17. Find the coordinates of the points which divide the line segment joining the points A(–2, 2) and B(2, 8) into four equal parts.

18. A metallic vessel is in the shape of a cylinder surmounted over a hemisphere. The radii of cylinder and hemisphere are same and the height of the cylindrical part is 10 cm. If the outer surface area of the vessel is 748 cm^2, then find their radii.

This Question Paper contains 4 Printed Pages.

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15E/16E(B)

MATHEMATICS

(English Version)

(Parts A and B)

Time : 3 Hours] *[Maximum Marks : 80*

Main Answer Book Number : _____ *Signature of the Invigilator :* _____

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 : 20*

Notes :

(1) ***All*** *questions are to be answered.*

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

(3) *Answers are to be written in the Question paper only.*

(4) *Marks will* ***not*** *be given for over-writing, rewriting or erased answers.*

I. Write the CAPITAL LETTER (A, B, C, D) of the correct answer in the brackets provided against each question. **(20 × 1 = 20)**

1. Set builder form of the set {1, 2, 3, 4, 5} [ ]

   (A) $\{x : x \in W \text{ and } 0 < x < 5\}$ (B) $\{x : x \in W \text{ and } 0 < x \leq 5\}$

   (C) $\{x : x \in W \text{ and } 0 \leq x \leq 5\}$ (D) $\{x : x \in W \text{ and } 0 \leq x < 5\}$

2. The $\frac{p}{q}$ $(q \neq 0)$ form of 0.125 is [ ]

   (A) $\frac{125}{10}$ (B) $\frac{125}{100}$

   (C) $\frac{125}{1000}$ (D) $\frac{0.125}{100}$

3. In a random experiment E and $\bar{E}$ are complementary events. If P(E) = 0.43, then the value of P($\bar{E}$) is [ ]

(A) 0.53 (B) 0.47

(C) 0.43 (D) 0.57

4. A = {x : x is a letter of the word "RAMANUJAN"}, then n(A) = ? [ ]

(A) 9 (B) 8

(C) 7 (D) 6

5. The quadratic equation, whose sum of the roots is 5 and product of the roots is 6, is [ ]

(A) $x^2 - 5x + 6 = 0$ (B) $x^2 + 5x + 6 = 0$

(C) $x^2 - 6x + 5 = 0$ (D) $x^2 + 6x + 5 = 0$

6. Centroid of the triangle with vertices A(0, 4), B(4, –2) and C(5, 10) is [ ]

(A) (3, 4) (B) (3, 3)

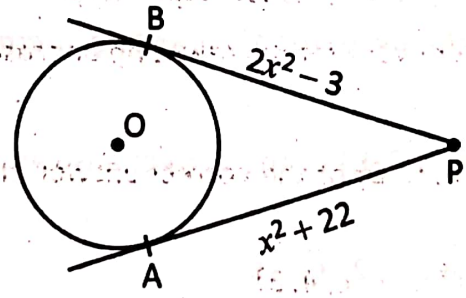
(C) (4, 3) (D) (4, 4)

7. If one root of a quadratic equation $x^2 - 5x + k = 0$ is 2, then the value of k is [ ]

(A) 2 (B) 4

(C) 6 (D) –6

8. The lengths of tangents from an external point P to a circle with centre 'O' are $2x^2 - 3$ and $x^2 + 22$, then the value of x is [ ]



(A) 3 (B) 5

(C) 22 (D) 19

9. Sum of first 10 terms of arithmetic progression log 3, log 9, log 27, ... is [ ]

(A) 45 log 3 (B) 90 log 3

(C) 10 log 3 (D) 55 log 3

10. Nature of roots of a quadratic equation $x^2 - 4x + 4 = 0$ is [ ]

(A) Real and distinct (B) Real and equal

(C) Not Real and distinct (D) Not Real and equal

11. The median of factors of 36 is [ ]

(A) 4 (B) 9
(C) 6 (D) 12

12. Among the following, a pair of inconsistent equations is [ ]

(A) $x + 2y = 5, 2x + 4y = 10$ (B) $x + 2y = 5, 2x + 4y = 7$
(C) $x + 2y = 5, 4x + 2y = 8$ (D) $2x + y = 4, 2x + 4y = 10$

13. If $\sin \alpha = \frac{\sqrt{3}}{2}$ and $\cos \beta = \frac{\sqrt{3}}{2}$ $(0° < \alpha, \beta < 90°)$, then the value of $\tan(\alpha - \beta)$ is [ ]

(A) $\sqrt{3}$ (B) 0
(C) 1 (D) $\frac{1}{\sqrt{3}}$

14. A ladder of length 10 m is leaning against a wall. If it touches the wall at height of 5 m, then the angle made by the ladder with the ground is [ ]

(A) 30° (B) 60°
(C) 45° (D) 90°

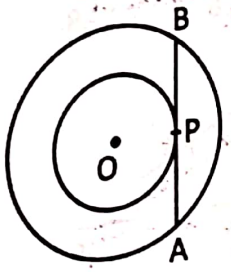
15. The area of one face of a cube is 25 cm^2, then its volume is (in cm^3) [ ]

(A) 150 (B) 100
(C) 125 (D) 200

16. If $\frac{1}{x} + \frac{1}{y} = \frac{5}{6}$ and $\frac{1}{x} - \frac{1}{y} = \frac{1}{6}$, then the values of x and y respectively are [ ]

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

17. The radii of two concentric circles with centre 'O' are 8 cm and 10 cm. If the chord AB of larger circle is a tangent to the smaller circle at P, then the length of chord AB is [ ]



(A) 12 cm (B) 6 cm
(C) 18 cm (D) 9 cm

18. Among the following, which is an example for a certain (sure) event ? [ ]

(A) Getting a black ball when a ball is selected randomly from a bag containing black balls.

(B) Getting a white ball when a ball is selected randomly from a bag containing black balls.

(C) Getting a black ball when a ball is selected randomly from a bag containing 3 black and 4 white balls.

(D) Not getting a white ball when a ball is selected randomly from a bag containing 3 black and 4 white balls.

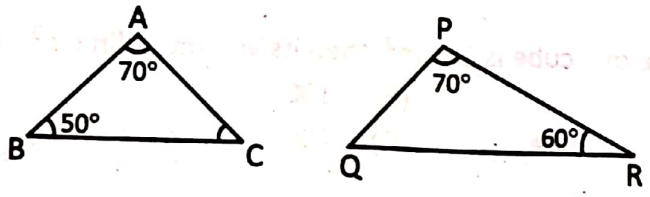
19. If $p(x) = 2x^2 - 5x + 6$, then $p(1) + p(-1) =$ _____. [ ]

(A) 3 (B) 13

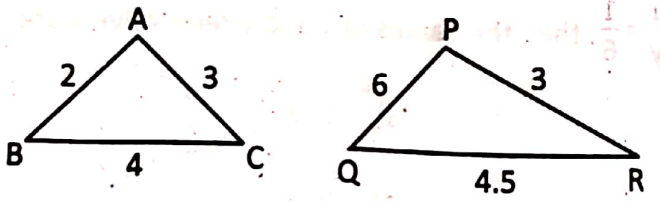
(C) 16 (D) 10

20. Among the following, which pair of triangles are not similar ? [ ]

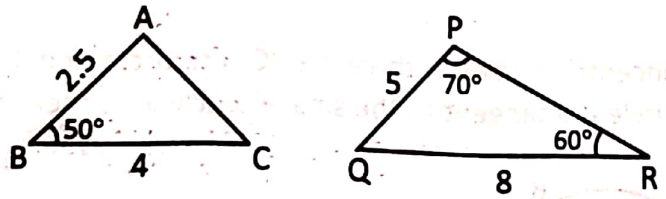
(A)



(B)



(C)



(D)