PROVINCIAL DEPARTMENT OF EDUCATION
NORTHERN PROVINCE
Year End Examination– 2018
Mathematics

Grade : 10 | 32 TI | **Time :- 2 Hours**

Index No :.....
Supervisor Signature :…….

Instructions

- Write your index number correctly.
- To use the under space Part IA, IB questions get answer method.
- Answer the all questions must be done part I A & I B.
- Not allowed to get out the answer sheet from the exam hall after the examination.

Important:

- Part IA has 25 questions each has 2 marks totally 50 marks given.
- Part I B has 5 questions each has 10 marks totally 50 marks

Marking examiner:
……

Cross examiner :
…….

Examiner use only :

Part	Question	Marks
IA	1-25	
IB	1	
	2	
	3	
	4	
	5	
Total		

Part - I A

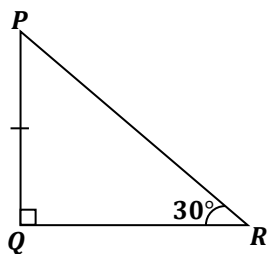
Answer all questions

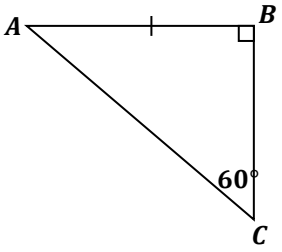
01) If Rs. 280 has to paid as quarterly custom duty for a house, calculate the annual custom duty of that house?

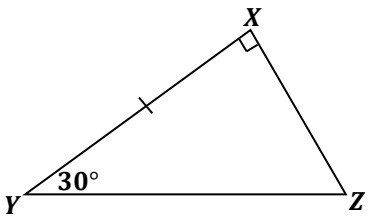
02) Calculate the speed of a motorcar which travels $100\ m$ road in 5 secons?

03) Solve : $\frac{3}{a} + \frac{5}{a} = 2$

04) Simplify: $\left(\frac{4}{7} - \frac{3}{14}\right) \div \frac{5}{7}$

05) 





According to the give figures,

(i) Write a pair of congruent triangles?

(ii) Write the rules of congruency of the above two triangles?

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06) Last 6 data of a distribution is given below. The distribution contains 11 data.

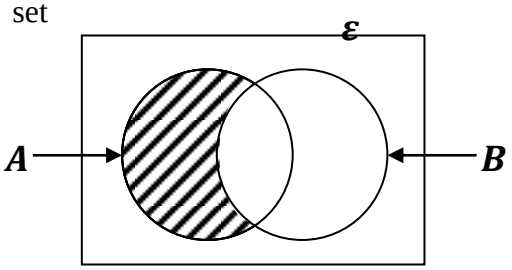
60, 65, 68, 68, 70, 75 Find the median?

07) Put (✓) or (✕) according to the given statements.

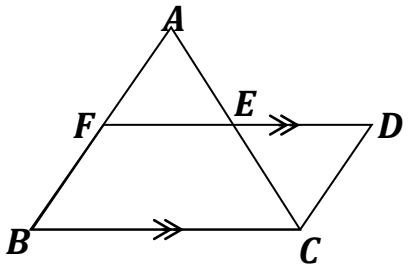
The area of a rhombus is equal to multiple of its diagonals	
The diagonals of a rhombus are bisect perpendiculary	

08) Factorize : $a^2 - 49$

09) In the Venn diagram, write the shaded region as set notation.



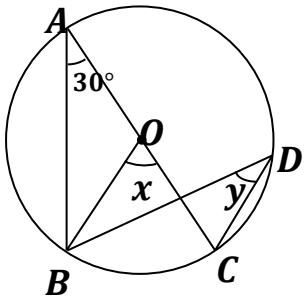
10) In the given figure the midpoint of AC is E, $B\hat{A}C = 80°, C\hat{E}D = 50°$ and $AE = 7\ cm$, find the length of AB.



11) Find the L. C. M $6a^2b$ and $3ab^2$.

12) If X and Y are two independent events, $P(X) = \frac{3}{5}$ and $P(Y) = \frac{1}{3}$, find $P(X \cap Y)$.

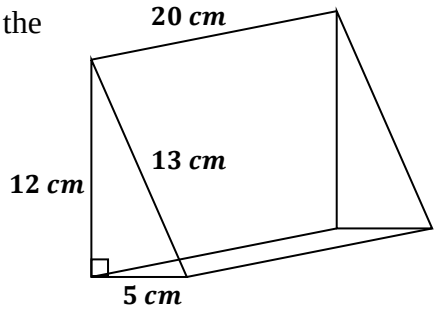
13) In the given figure, O is a centre of circle and A, B, C, D are on the circle. Find the value of x and y?



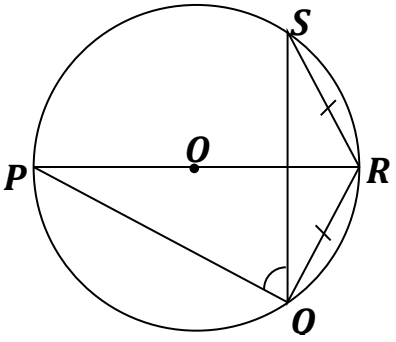
14) Which two consecutive whole numbers lies $\sqrt{59}$.

15) If $x^2 - 5x - 24 = (x - a)(x - b)$, find the value of $'a'$ and $'b'$

16) The figure shows about a triangular right prism. find the sum of the area of three rectangular faces?



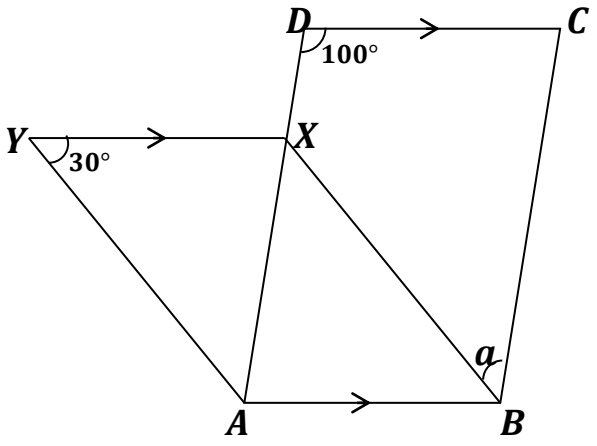
17) In the given figure O is a centre of circle, $P\hat{Q}S = 65°$ and $RQ = RS$, find the magnitude $Q\hat{S}R$.



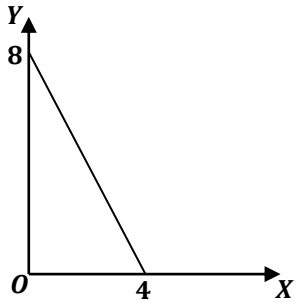
18) Find the value of $(a + b)$ without solving the simultaneous equations $a + 3b = 5$ and $4a + 2b = 15$.

19) Find the radius of a right circular cylinder of which the height $10\ cm$ and the volume is $1540\ cm^3$.

20) In the given figure $ABCD$ and $ABXY$ are two parallelograms. According to the data, find the value of a.

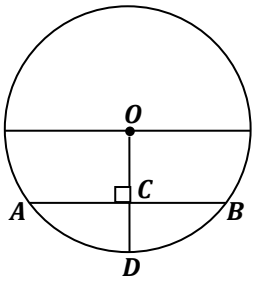


21) According to the figure, find the gradient of this straight line?

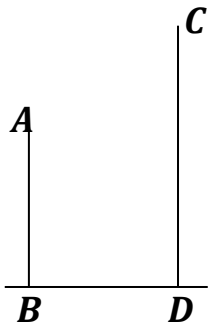


22) It took 12 men 4 days to complete a certain task. How many men working 6 days can complete the same task?

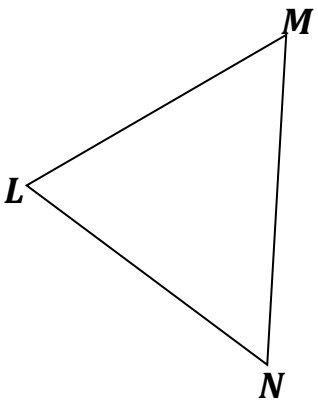
23) In the given figure, O is the centre of circle, $OC = 12\ cm$ and $CD = 8\ cm$, find the length of AB.



24) A person observes a top C of the building CD from A, the angle of elevation 30° and D is angle of depression from the same point is 40°. Mark the above data on this figure.



25) Construct the locus of a point moving equidistance from the lines LM and LN and lies on MN. Mark the point at 'P'



Part - I B

Answer all questions

01) A bank manager who spends $\frac{2}{5}$ of his salary on food and $\frac{3}{10}$ for children's education, $\frac{1}{2}$ of the remaining amount on travelling and $\frac{2}{3}$ of the remaining amount spends on other expenses. If he save Rs. 3250 for a month,

(i) What fraction of total salary does he spend for food and children's Education.

(ii) What fraction of total salary does he spend on travelling?

(iii) What fraction of total salary does he spend for other expenses.

(iv) Give the saving money as fraction of total salary?

(v) Find his monthly salary?

$(2 + 2 + 2 + 2 + 2 = 10$ Marks)

02) A person takes a loan on a monthly simple interest rate of 2%, promising to settle the loan in 3 years. However he was only able to settle the loan in 5 years at which the time he had to pay Rs. 72000 as extra interest.

(i) Calculate the interest he has paid for a year.

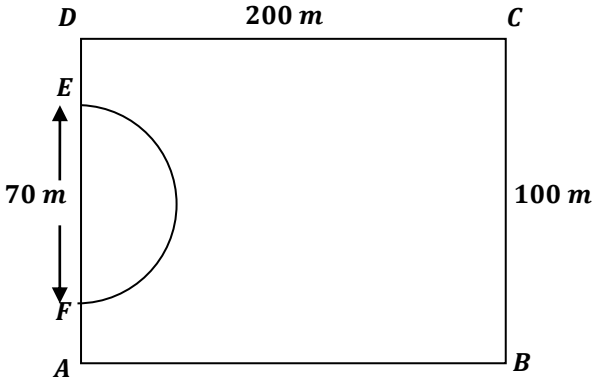
(ii) Calculate the monthly interest he has paid?

(iii) What was the amount he borrowed?

(iv) Calculate the total amount he has paid to settle the loan?

$(2 + 2 + 3 + 3 = 10$ Marks$)$

03)



A semicircular stage of which the diameter $70\ m$ is made on a rectangular ground of which the length $200\ m$ and width $100\ m$ and other remaining portion spread by grass.

(i) What is the arc length of EF.

(ii) Calculate the perimeter of ground which spread by grass.

(iii) Calculate the area of ground which spread by grass.

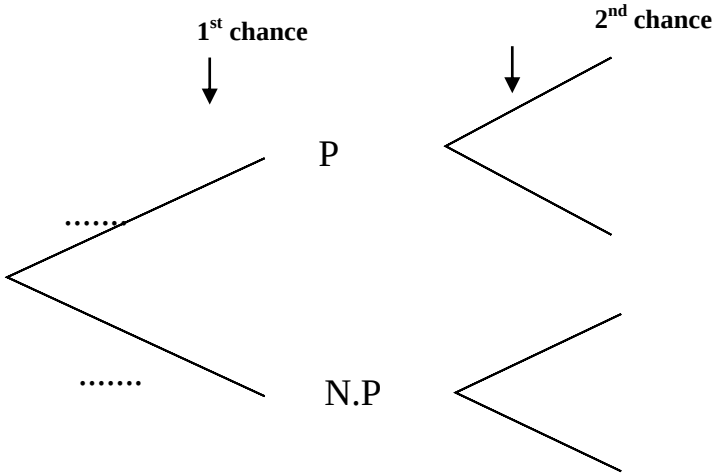
(iv) A triangular shaped land purchased from another person to develop the same ground further. The area of new land is the quarter of area of the rectangle and BC is a one side and other side in expansion of AB. Mark the rough sketch on this figure with measurements.

$(2 + 2 + 4 + 2 = 10$ Marks$)$

04) When randomly taking a card from a bag containing 5 identical cards numbered 2, 3, 4, 5 and 6, its number is recorded and then put back in the bag.

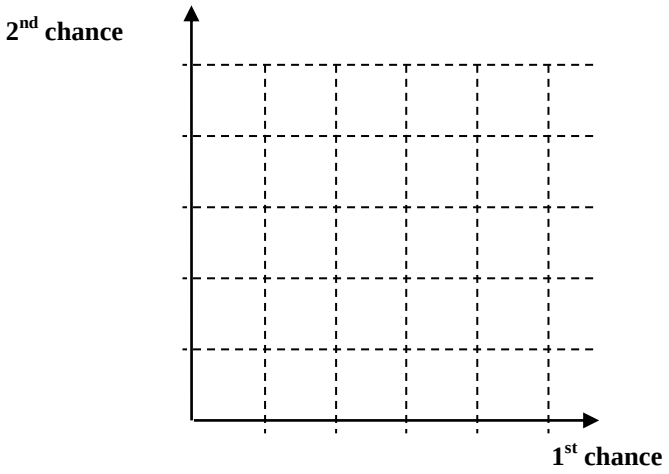
(i) Write the probability of drawing a prime number?

(ii) Depict the sample space on the given tree diagram.



(iii) ,Another card is drawn from the bag and number is recorded. According to this, depict the probability on it.

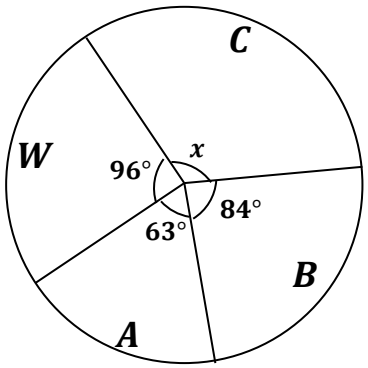
(iv) Show the relevant events on the given grid.



(v) Mark the sum of two numbers being greater than 7 on this grid, and find its probability?

(1 + 2 + 2 + 3 + 2 = 10 Marks)

05)



The pie chart illustrates the information gathered from Grade 10 students of a certain Education Division who got first term mathematics marks.

(i) Find the angle which is represented by C result?

(ii) If the number of students who got B result is 168, Find the total number of students.

(iii) Find the number of students who fail the exam.

(iv) Find the percentage of students who got 'A' result.

(v) 36 students who got C result in the second term exam but not pass in the first term exam. Find the new angle of sector of students who got 'C' result.

$(1 + 2 + 2 + 2 + 3 = 10$ Marks$)$

PROVINCIAL DEPARTMENT OF EDUCATION
NORTHERN PROVINCE
Year End Examination– 2018
Mathematics

Grade : 10 | 32 TII | **Time :- 3 Hours**

Index No :.....
Supervisor Signature :.....

- Answer 10 question where 5 from part A and 5 from part B.
- The volume 'V' a right circular cylinder of radius r and height is $V = \pi r^2 h$

Part - II A

01) Complete the following table of values to draw the graph of the function $y = 2x^2 - 3$.

x	-3	-2	-1	0	1	2	3
y	13	5	-1		-1	5	13

(i) Draw the suitable graph of $y = 2x^2 - 3$.

(ii) Using the graph, find the roots of $2x^2 - 3 = 0$.

(iii) Find the interval of values of x for which the function decreases negatively.

(iv) If the graph of the function $y = 2x^2 - 3$ moves downwards along the y axis by 2 units, write the equation of the graph?

02) A frequency distribution containing information on the number of electricity units used during a certain month by 100 households is given below.

Number of electricity units	$21-30$	$31-40$	$41-50$	$51-60$	$61-70$	$71-80$	$81-90$
Number of house holds	5	13	24	.....	10	14	4

(i) Find the number of households who used $51-60$ electricity units.

(ii) What is the modal class of this distribution.

(iii) Find the mean number of electricity units used by a household during this month, by taking the assumed mean to be the mid value of the modal class.

03) Kumar who owns a house assessed to be of annual value Rs 40000, has rented it for a year to Ravi. The month rent charged by Kumar is Rs 2500. The relevant provincial council charges 6% of the assessed annual value of the house as rates. Kumar has to spend 20% of the rent on maintenance.

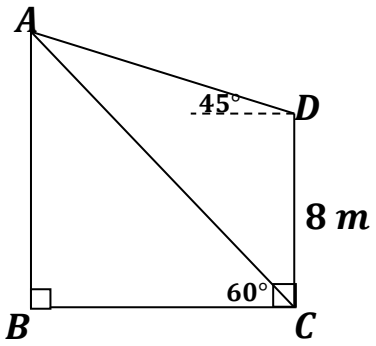
(i) Calculate the rent paid by Ravi for one year?

(ii) How much has to be paid as rates for a year?

(iii) How much has to be paid for maintenance.

(iv) How much of the rent is Kumar left with at the end of the year, after the relevant expenses are met?

04) (i) Draw a scale diagram according to the given information. where $2\,m$ represents $1\,cm$ as scale.



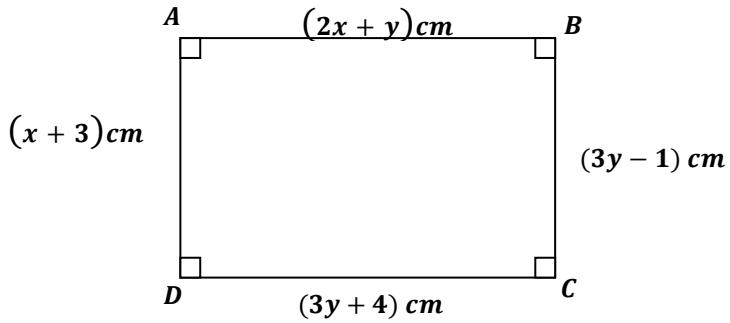
(ii) Using scale diagram,

(a) Find the length of AB.

(b) Find the magnitude of $D\hat{B}C$.

(c) Find the length of AD.

05)



In the given rectangle,

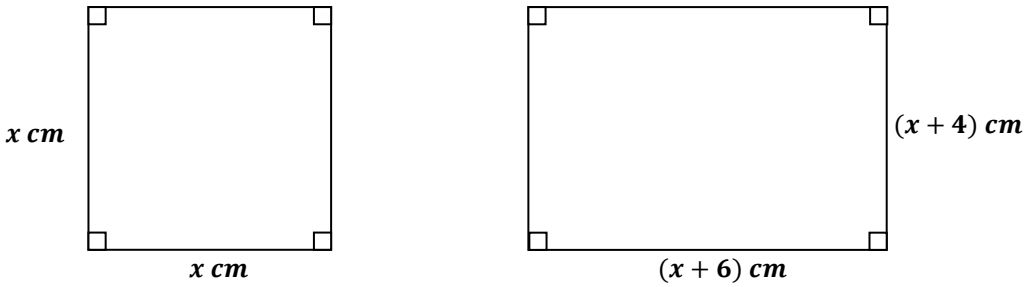
(ii) Make 2 suitable equations according to sides in terms of x and y.

(iii) Find the length and breadth of rectangle by solving the above equations?

(iv) Fin the area of rectangle?

06) (a) Solve : $\frac{5}{2(x+1)} - \frac{1}{(x+1)} = \frac{3}{8}$

(b) According to the given figures,



(i) Find the area of square and rectangle separately.

(ii) If the area of rectangle is equal to two times of the area of square, construct a quadratic equation?

(iii) Solve the above equation and find the length and breadth of the rectangle?

Part - II B

07) The n^{th} term of an arithmetic progression is $3n + 2$.

(i) Write down first three terms.

(ii) In this progression, which term is 62.

(iii) How many terms, starting from the first term that should be added to get a sum of 185.

08) (i) Construct a triangle BCD where $BC = 6\,cm,\ CD = 5cm$ and $B\hat{C}D = 60°$ by using pairs of compass and ruler.

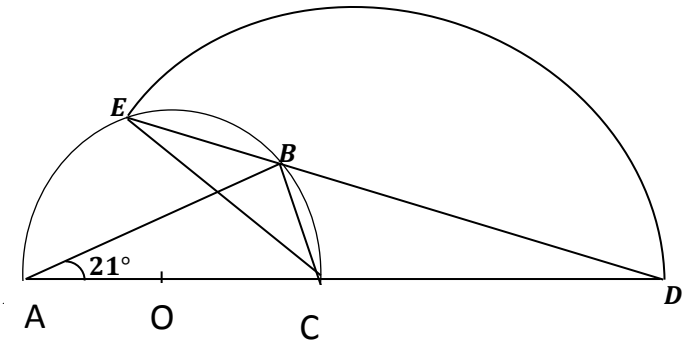
(ii) Draw a straight line which is parallel to CD through B.

(iii) Construct parallelogram $ABCD$ where A is in that above parallel line.

(iv) Construct the circumcircle of $\Delta\, BCD$.

(v) Measure and write the diameter of circumcircle?

09)



An arc of which the centre C and a semicircle of which the centre O meet at E. Where ACD and EBD are straight lines and $B\hat{A}C = 21°$.

(i) Find the value of $A\hat{C}E$ Give reason.

(ii) Find the magnitude of $A\hat{B}C$? Give reason.

(iii) Find the magnitude of $C\hat{B}D$? Give reason.

10) In the parallelogram ABCD, the bisectors of the angles A and B meet at R the parallel lines AB and AD drawn through R to the sides DA and BA meet at P and Q respectively. Prove that,

(i) AQRP is a parallelogram.

(ii) $AP = PR$.

(iii) $AP = PB$.

(iv) $PQRB$ is a parallelogram.

11) (a) A and B are two sets where $n(A) = 12$, $n(A \cup B) = \ n(B) = 20$ find $n(A \cap B)$.

(b) Out of 120 students who sat the exam, 40% of students who pass in Mathematics but fail in science.

60 of them fail in science. $\frac{3}{4}$ part of them pass either only one of the obove two exams.

(i) Represent the above data on a Venn diagram?

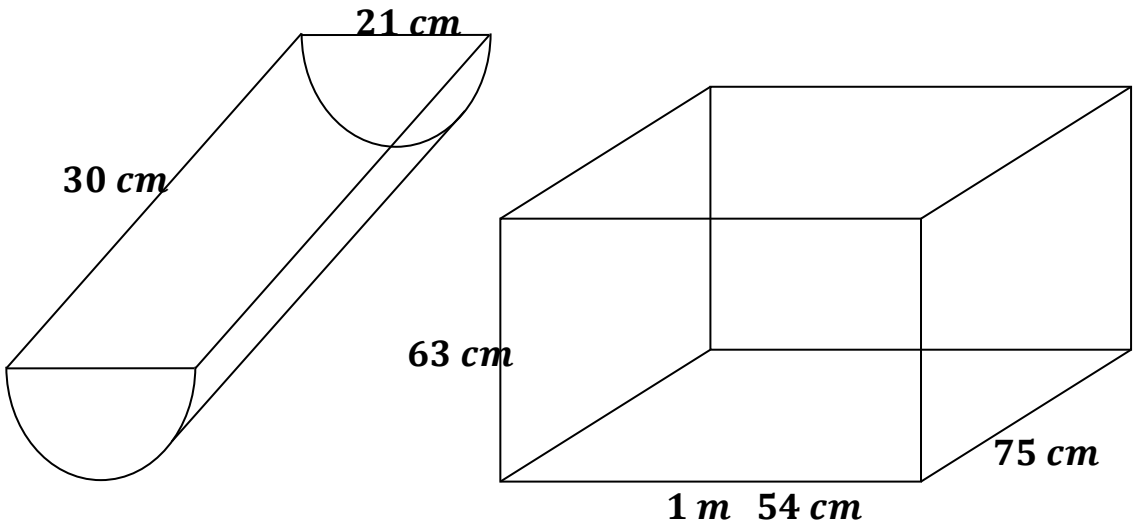
(ii) Using Venn Diagram,

(1) How many of the students who pass both exams.

(2) Express the students who pass in Mathematics as a percentage of total students.

(3) Shade the region of students who pass in science but fail in Mathematics.

12)



A semi cylindrical vessel which contains water is poured into given cuboid without wastage many times.

(i) Find the volume of semi cylindrical vessel.

(ii) Find the volume of cuboid shaped vessel.

(iii) Find the minimum number of semi cylindrical shaped vessel used to completely filled in the given cuboid shaped vessel?

மாகாணக் கல்வித் திணைக்களம்

வடக்கு மாகாணம்

மூன்றாம் தவணைப் பரீட்சை - 2018

கணிதம்

தரம் :- 10

விடைகள்

பகுதி - I A

01) $200 \times 4 =$ ரூபா 1120 ..... (2)

02) கதி $= \frac{100}{5}$ ..... (1)

$= 20\ ms^{-1}$ ..... (1)

03) $\frac{8}{a} = 2$ ..... (1)

$a = 4$ ..... (1)

04) $\frac{5}{17} \times \frac{7}{5}$ ..... (1)

$\frac{1}{2}$ ..... (1)

05) $\Delta\, ABC \equiv \Delta\, XYZ$ ..... (1)

கோ. கோ. ப ..... (1)

06) 60 ..... (2)

07) ✗ ..... (1)

✓ ..... (1)

08) $(a-7)(a+7)$ ..... (1+1)

09) $A \cap B'$ ..... (2)

10) $14\ cm$ ..... (2)

11) $6a^2b = 2 \times 3 \times a \times a \times b$

$3ab^2 = 3 \times a \times b \times b$ ..... (1)

$6a^2b^2$ ..... (1)

12) $P(X \cap Y) = P(X) \times P(Y)$

$= \frac{3}{5} \times \frac{1}{3}$ ..... (1)

$= \frac{1}{5}$ ..... (1)

13) $x = 60°$ ..... (1)

$y = 30°$ ..... (1)

14) $7,\ 8$ ..... (2)

15) $a = 8,\ b = (-3)$ or $a = (-3),\ b = 8$ ..... (2)

16) $(12 + 13 + 5) \times 20 = 30 \times 20 = 600\ cm^2$ ..... (2)

17) $25°$ or $P\hat{Q}R = 90°$ / $S\hat{Q}R = 25°$ ..... (2)

18) $5(a + b) = 20$ ..... (1)

$a + b = 4$ ..... (1)

19) $1540 = \frac{22}{7} \times r^2 \times 10$ ..... (1)

$r = 7\ cm$ ..... (1)

20) $ABX = 30°$ ..... (1)

$a = 100 - 30$

$= 70°$ ..... (1)

21) $\frac{8-0}{0-4}$ ..... (10

-2 ..... (1)

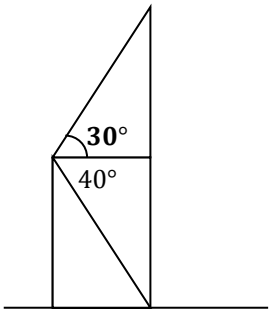
22) $\frac{12 \times 4}{6}$ ..... (1)

$= 8$ மனிதர் ..... (1)

23) $CB/AC = 16\ cm$ ..... (1)

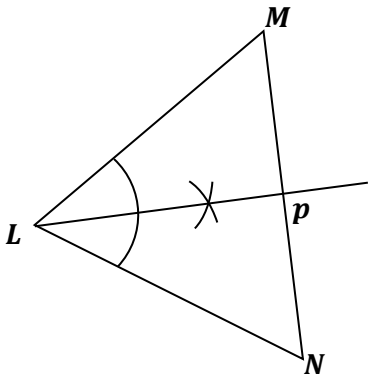
$AB = 32\ cm$ ..... (1)

24)



..... (1+1)

25)



..... (2)

பகுதி - I B

01) (i) $\frac{2}{5}+\frac{3}{10}$ ..... (1)

$=\frac{7}{10}$ ..... (1)

(ii) $\frac{3}{10}\times\frac{1}{2}$ ..... (1)

$=\frac{3}{20}$ ..... (1)

(iii) $\frac{3}{20}\times\frac{2}{3}$ ..... (1)

$=\frac{1}{10}$ ..... (1)

(iv) $\frac{3}{20}-\frac{1}{10}$ ..... (1)

$=\frac{1}{20}$ ..... (1)

(v) $\frac{1}{20}$ பங்கு $=$ ரூ 3250 ..... (1)

மாத வருமானம் $=3250\times 20$

$=$ ரூபா 65000 ..... (1)

02) (i) 1 வருட வட்டி $=\frac{72000}{2}$

$=$ ரூபா 36000 ..... (2)

(ii) 1 மாத வட்டி $=\frac{36000}{12}$

$=$ ரூபா 3000 ..... (2)

(iii) கடன் பணம் $=\frac{100}{2}\times 3000-2$ அல்லது $\frac{100}{24}\times 36000$ ..... (2)

$=$ ரூபா 150000 $=$ ரூ 150000 ..... (1)

(iv) 5 வருட வட்டி $=36000\times 5$

$=180000$ ..... (1)

செலுத்திய தொகை $=15000+180000$

$=$ ரூபா 330000 ..... (2)

03) (i) $\frac{1}{2}\times\frac{22}{7}\times 70=110\,m$ ..... (2)

(ii) $200+100+200+(100-70)+110$ ..... (1)

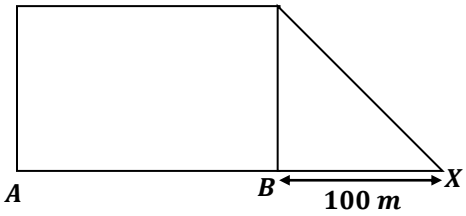
$=640\,m$ ..... (1)

(iii) செவ்வகப் பகுதியின் பரப்பளவு − அரைவட்டப் பகுதியின் பரப்பளவு

200×100 - $\frac{1}{2} \times \frac{22}{7} \times 35 \times 35$ ..... (2)

20 000 - 1975 ..... (1)

$= 18025\ m^2$ ..... (1)

(iv) 

$5000 = \frac{1}{2} \times 1000 \times BX$

$100m = BX$

படம் வரைய ..... (1)

$BX = 100\ m$ குறிக்க ..... (1)

04) (i) $\frac{3}{5}$ ..... (1)

(ii) மரவரிப் படத்தில் குறித்தல் ..... (2)

(iii) மரவரிப் படத்தில் குறித்தல் ..... (2)

(iv) நெய்யரிப் படத்தில் குறித்தல் ..... (3)

(v) குறித்துக் காட்டல் ..... (1)

$\frac{15}{25}$ ..... (1)

05) (i) $360° - (96° + 63° + 84°)$

$117°$ ..... (1)

(ii) $\frac{168}{84} \times 360° = 720$ மாணவர்கள் ..... (2)

(iii) $\frac{96°}{360°} \times 720 = 192$ மாணவர்கள் ..... (2)

(iv) $\frac{63}{360} \times 100 = 17.5\ \%$ ..... (2)

(v) 2ம் தவணையில் C தரம் பெற்றோர் $= 117 \times 2 + 36$

$= 234 + 36$

$= 270$ மாணவர்கள் ..... (2)

$\frac{270}{720} \times 360° = 135°$ ..... (1)

பகுதி - II A

01) (i) -3 ..... (1)

(ii) சரியான அச்சுக்கள் ..... (1)

சரியாக 6 புள்ளிகள் குறித்தல் ..... (1)

ஒப்பமான வளையி வரைதல் ..... (1)

(iii) $x = -1.2,\ 1.2\ (\pm 0.1)$ ..... (2)

(iv) $-1.2 < x < 0$ ..... (2)

(v) $y = 2x^2 - 5$ ..... (2)

(10 புள்ளிகள்)

02) (i) 30 ..... (1)

(ii) $51 - 60$ ..... (1)

(iii)

மின்னலகுகளின் எண்ணிக்கை	மீடிறன் (f)	ந.பெ. (x)	விலகல் (d)	$(f \times d)$
$21 - 30$	5	25.5	-30	-150
$31 - 40$	13	35.5	-20	-160
$41 - 50$	24	45.5	-10	-240
$51 - 60$	30	$\boxed{55.5}$	0	00
$61 - 70$	10	65.5	$+10$	$+100$
$71 - 80$	14	75.5	$+20$	$+280$
$81 - 90$	4	85.5	$+30$	$+120$
	100			$500 - 650 - 150$

x நிரல்

(1 பிழையைத் தவிர்க்க) ..... (1)

fd நிரல்

(x நிரலிற்கேற்ப, தவிர்க்க) ..... (1)

$5\ fd$

இடை $= 55.5 - \frac{150}{100}$ ..... (1+1)

$= 54$ ..... (1)

03) (i) ரூபா 2500×12

$=$ ரூபா 30000 ..... (1+1)

(ii) இறைவரி $= 40000 \times \frac{6}{100}$ .....

$=$ ரூபா 2400 ..... (1+1)

(iii) பராமரிப்பு $= 30000 \times \frac{20}{100}$ ..... (1+1)

$=$ ரூபா 6000 ..... (1)

(iv) எஞ்சிய பணம் $=$ ரூபா $(30000 - 6000 - 2400)$ ..... (1+1)

$=$ ரூபா 21600 ..... (1)

(10 புள்ளிகள்)

04) (i) $8m \Rightarrow \frac{8}{2} = 4\ cm$ ..... (1)

$90°$ வரைதல் ..... (1)

C இல் $4\ cm$ வரைதல் ..... (1)

$60°$ வரைதல் ..... (1)

D குறித்தல் ..... (1)

$45°$ வரைதல் ..... (1)

A குறித்தல் ..... (1)

(ii) (a) $19\ m\ (\pm 0.1)$ ..... (1)

(b) $36°$ ..... (1)

(c) $15.3\ m\ (\pm 0.1)$ ..... (1)

(10 புள்ளிகள்)

05) (i) $2x + y = 3y + 4$

$2x - 2y = 4$ ..... (1)

$x + 3y = 3y - 1$

$x - 3y = -4$ ..... (1)

(ii) $x - y = 2$ ..... (1)

$x - 3y = -4$

$2y = 6$

$y = 3$ ..... (1+1)

$x - y = 2$

$x = 2 + 3$

$= 5$ ..... (1)

நீளம் $= 9 + 4 = 13\ cm$ ..... (1)

அகலம் $= 5 + 3 = 8\ cm$ ..... (1)

(iii) $13 \times 8 = 104\ cm^2$ ..... (1+1)

(10 புள்ளிகள்)

06) (a) $\frac{5}{2(x+1)} - \frac{1}{(x+1)} = \frac{3}{8}$

$x = 3$ ..... (1)

(b) (i) சதுரப் பரப்பு $= x^2\ cm^2$ ..... (1)

செவ்வகப் பரப்பு $= (x + 6)(x + 4)$ ..... (1)

(ii) $x^2 + 10x + 24 = 2x^2$ ..... (1)

$x^2 - 10x - 24 = 0$ ..... (1)

(iii) $x^2 - 10x - 24 = 0$

$x^2 - 12x + 2x - 24 = 0$ ..... (1)

$(x - 12)(x + 2) = 0$ ..... (1)

$x = 12$ அல்லது $x = -2$ ..... (1)

$x = -2$ பொருந்தாது

நீளம் $= 18\,cm$ ..... (1)

அகலம் $= 16\,cm$ ..... (1)

பகுதி - II B

07) (i) $n = 1, \quad T_1 = 3 \times 1 + 2 = 5$ ..... (1)

$n = 2, \quad T_2 = 3 \times 2 + 2 = 8$ ..... (1)

$n = 3, \quad T_3 = 3 \times 3 + 2 = 11$ ..... (1)

(ii) $3n + 2 = 62$ ..... (1)

$3n = 60$

$n = 20$ ..... (1)

(iii) $185 = \frac{n}{2}\{2 \times 5 + (n-1)3\}$ ..... (1)

$370 = n(7 + 3n)$ ..... (1)

$3n^2 + 7n - 370 = 0$ ..... (1)

$(3n + 37)(n - 10) = 0$ ..... (1)

$n = 10$ ..... (1)

10 உறுப்புக்களின் கூ. தோ

(10 புள்ளிகள்)

08) (i) Δ வரைதல் ..... (3)

(ii) சமாந்தரம் வரைதல் ..... (2)

(iii) இணைகரம் $ABCD$ வரைதல் ..... (2)

(iv) சுற்று வட்டம் வரைதல் ..... (2)

(v) ஆரை $= 3.1\ (\pm 0.1)$ ..... (1)

(10 புள்ளிகள்)

09) (i) $C\hat{E}D = 21°$ (ஒரே. து. கோ)

$C\hat{D}E = 21°\ [CE = CD]$

$\therefore \quad A\hat{C}E = 21 + 21$

$= 42°$ ..... (4)

(ii) $A\hat{B}C = 90°$ (சிறிய $\frac{1}{2}$ வட்டி கோணம்) ..... (2)

(iii) $B\hat{C}A = 90° - 21°$

$= 69°$

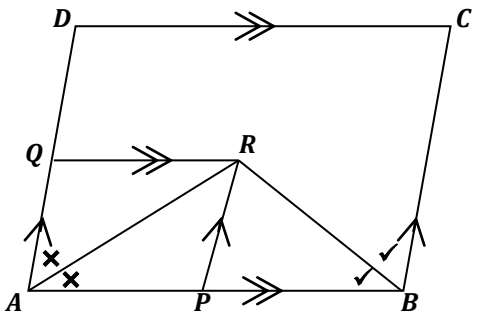
$C\hat{B}D = B\hat{C}A - C\hat{D}E$ (பு. கோ = அ. எ. கூ)

$= 69° - 21°$

$= 48°$ ..... (4)

(10 புள்ளிகள்)

10)



(i) $AQ//PR$ (தரவு)

$QR//AP$ (தரவு)

$\therefore$ $AQRP$ ஓர் இணைகரம்

(இரு சோடி எ.ப. $//$) ..... (2)

(ii) $Q\hat{A}R = A\hat{R}P$ (ஒ. வி. கோ)

$Q\hat{A}R = R\hat{A}P$ ($\hat{A}$ இன் இரு கூறாக்கி)

$\therefore$ $A\hat{R}P = R\hat{A}P$ (வெ. உ)

$\therefore$ $AP = PR$ ..... (2)

(iii) $R\hat{B}P = P\hat{B}C$ ($\hat{B}$ இன் இரு கூறாக்கி)

$B\hat{R}P = R\hat{B}C$ (ஒ. வி. கோ)

$\therefore$ $R\hat{B}P = B\hat{R}P$ (வெ. உ)

$\therefore$ $PR = PB$

ஆனால் $PR = AP$ (நி. ப)

$\therefore$ $AP = PB$..... (3)

(iv) $APRQ$ ஓர் இணைகரம்

$AP = QR$ (இணை எ. ப)

$AP = PB$ (நி. ப)

$\therefore \quad QR = PB$ (வெ. உ)

$QR // PB$ (தரவு)

$\therefore \quad PQRB$ ஓர் இணைகரம்

(ஒரு சோடி எ. ப, $=$, $//$) ..... (3)

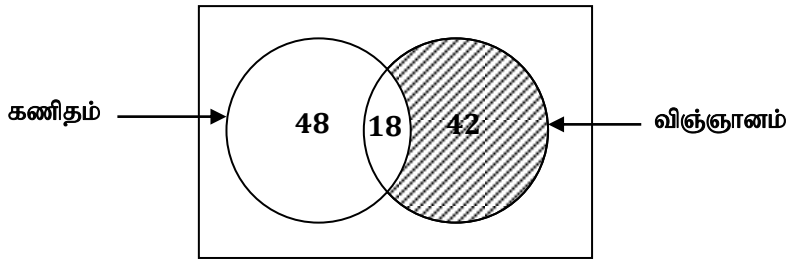
(10 புள்ளிகள்)

11) (a) $n(A \cap B) = n(A) + n(B) - n(A \cup B)$

$= 12 + 20 - 20$

$= 12$ ..... (2)

(b)



48 பேர் ..... (1)

12 பேர் $[60 - 48]$ ..... (1)

42 பேர் $[90 - 48]$ ..... (1)

18 பேர்

(i) 18 பேர் ..... (1)

(ii) $\frac{54}{120} \times 100\ \%$

$= 45\ \%$ ..... (1+1)

(iii) நிழற்றுதல்..... (2)

(10 புள்ளிகள்)

12) (i) $\frac{1}{2} \times \pi r^2 h$

$= \frac{1}{2} \times \frac{22}{7} \times \frac{21}{2} \times \frac{21}{2} \times 30\ cm^3$

$= \frac{10395}{2} = 5197.5\ cm^3$ ..... (4)

(ii) $154 \times 75 \times 63\ cm^3$

$= 727650\ cm^3$ ..... (3)

(iii) $\frac{727650}{5197.5} = 140$ தடவை ..... (3)

(10 புள்ளிகள்)