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

Grade : 11 | 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 an item worth Rs 3000 is sold at a profit of 12%, calculate the profit?

02) Find the distance that a motorbike which travels at a uniform speed of $80km/h$, covers during 4 hours?

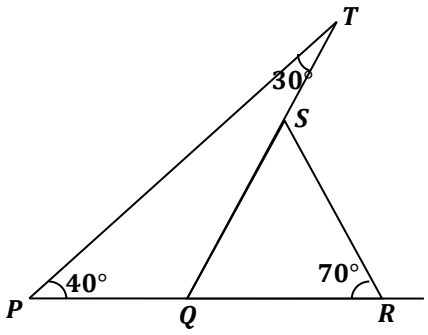
03) Express $2^7 = 128$ as logarithm form

04) Simplify : $\frac{2}{3x} + \frac{1}{6x}$

05) In the given figure PQR is a straightline.

(i) Find the value of $S\hat{Q}R$?

(ii) Name two equal sides.

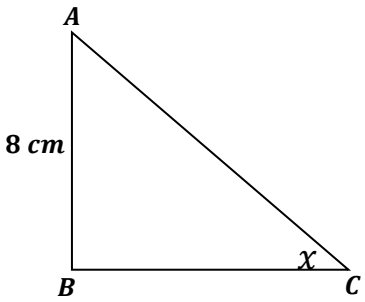


06) It took 8 men 5 days to complete a certain task. How many days will 10 men require to complete the same task?

07) Find the Least common Multiple of the algebraic expressions $4ab$ and $12a^2$.

08) Write two consecutive whole numbers which are closer to $\sqrt{67}$?

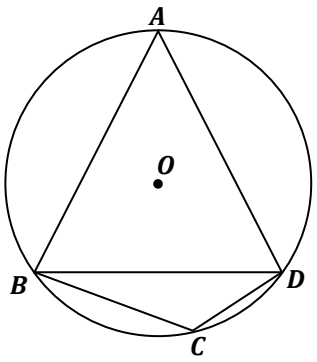
09) According to the given diagram, find the length of AC.
Where $\sin x = \frac{4}{7}$.



10) P and Q are two set. If $n(P) = 5$, $n(Q) = 6$ and $n(P \cap Q) = 3$, Find $n(P \cup Q)$.

11) Factorize $4a^2 - 9$.

12) In the given figure ABD is an equilateral triangle. Find the value of $B\hat{C}D$.

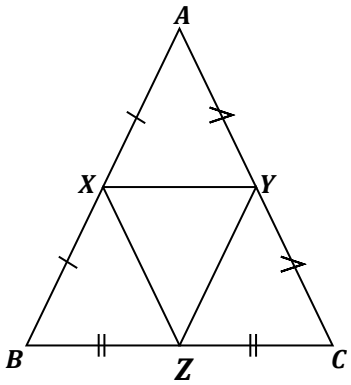


13) Solve : $(a-5)(a+3) = 0$.

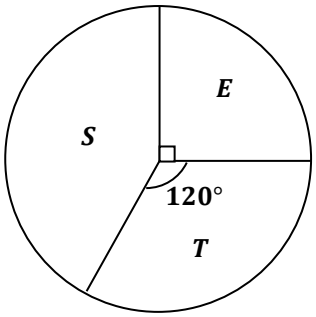
14) Mark '✓' or '✗' according to the following statements.

(i) If the perimeter of ΔABC is 60 cm then the perimeter of ΔXYZ is 30 cm. ( )

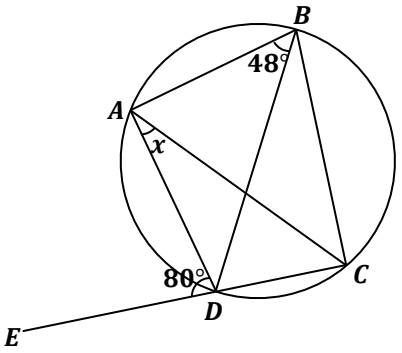
(ii) The ratio between the area of ΔABC and ΔXYZ is $2:1$. ( )



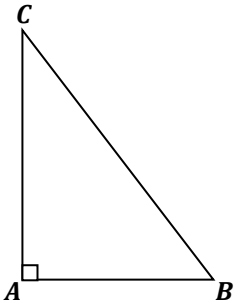
15) The pie chart drawn with the information gathered from grade 11 students of a certain school who learnt Sinhala (S) medium, Tamil (T) medium and English (E) medium.
If the English medium (E) students was 45, find the number of students in Tamil medium (T)?



16) In the given figure, Find the magnitude of x.



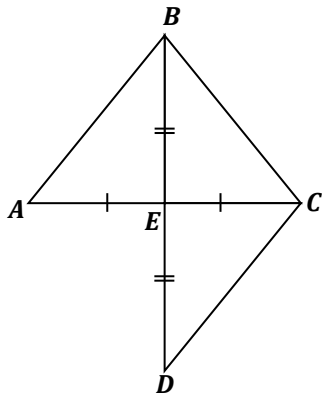
17) The angle of elevation of the top of a building C to the flat ground B is $50°$ and the perpendicular distance from B to the bottom the building is $5\ m$. Represent the given data on the diagram.
(neglect the height of the person)



18) A and B are two matrices where $A = \begin{pmatrix} 1 & 0 \\ 1 & 1 \end{pmatrix}$ and $B = \begin{pmatrix} 2 & 0 \\ 0 & 2 \end{pmatrix}$. Find the matrix $A \times B$.

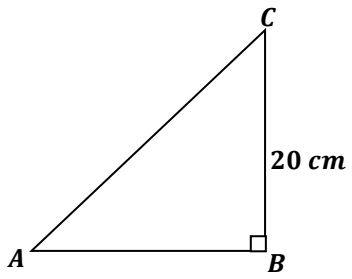
19) According to the given figure,

(i) Write a pair of congruent triangles.

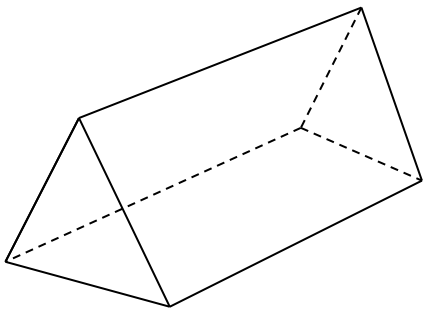


(ii) Give the rules of congruency of that?

20) In the given figure $BC = 20\ cm$. Construct the locus a point moving equidistance $10\ cm$ from AB and mark the point P lies on AC.



21) Find the volume of a prism of which the area of cross section is $25\ cm^2$ and its length is $30\ cm$.

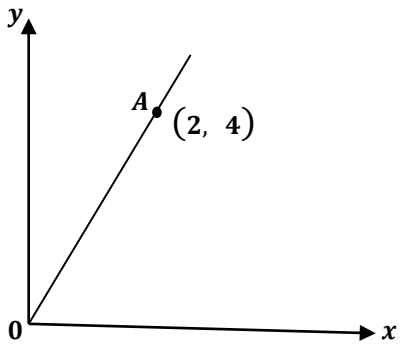


22) Write all positive integer solution of the inequality $\frac{x}{2} + 6 \leq 7$.

23) The curved surface area of a right circular cylinder is $660\ cm^2$ and its radius $7\ cm$. Find its height?

24) Find the probability of taking a triangular number from 1 - 10 numbers.

25) Find the gradient of the given straight line.



Part - I B

Answer all questions

01) A foreign country donated a particular amount of money to a particular school. $\frac{2}{7}$ of that money was spent for buying furniture. $\frac{1}{4}$ for buying books.

(i) What fraction of whole money was spent for furniture and books.

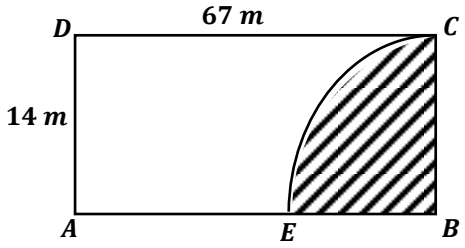
(ii) $\frac{4}{13}$ of remaining money was spent for buying presents. The rest was used to repairing the building. What fraction of whole money was spent for buying presents?

(iii) What fraction of whole money spent for building repairs presents?

(iv) It Rs 180 000 used for repairing buildings, find the total amount of donation was given by foreign country?

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

02)



A quarter circular part of a floor cloth is removed from a rectangular cloth. The length and breadth of this rectangular cloth are $67\ m$ and $14\ m$ respectively.

(i) Find the area of rectangle $ABCD$.

(ii) Calculate the area of quarter circular part?

(iii) Find the area of remaining portion $AECD$?

(iv) Find the length of a side of a square cloth of which the area is equal to the area of remaining portion $AECD$.

(v) Calculate the perimeter of remaining portion $AECDA$.

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

03) Kamal who owned 1500 shares. She then sold all these shares as Rs 90000 after receiving the annual dividend income. She received a capital gain a s Rs 9000.

(i) What was the selling price of a share?

(ii) What was the purchase price of a share?

(iii) The company that pays an annual dividends of Rs. 4 per share. Find the annual dividends income she gained?

(iv) Kamal deposited the money, she received by capital gain and annual dividends income at the rate of 12% annual compound interest. Calculate the total amount she received at the end of 2 years.

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

04)

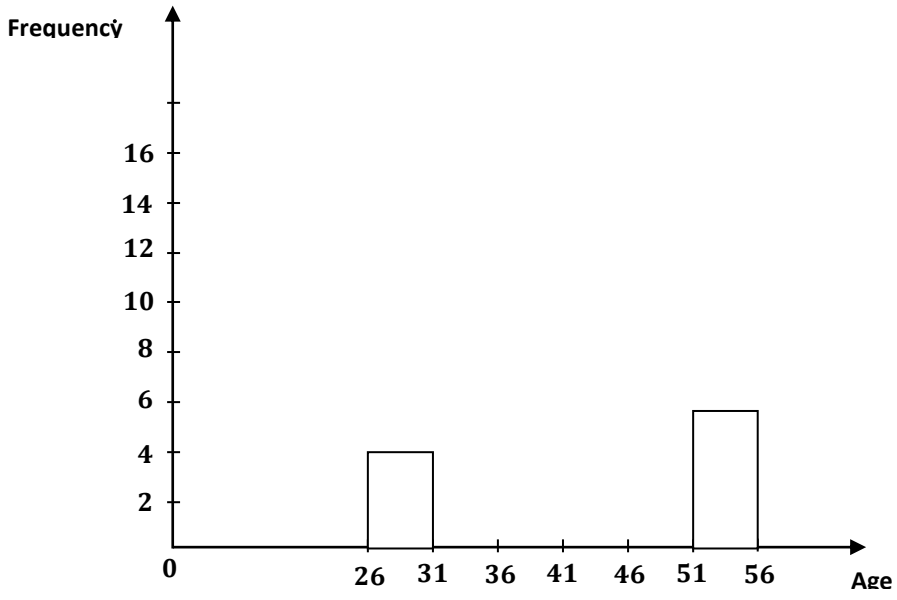
Age (Years)	$26-31$	$31-36$	$36-41$	$41-51$	$51-56$
Frequency	4	12	15	.....	5

$26-31$ means 26, more than 26 and less than 31.

The age groups that 50 development officers serving in a certain educational division belong to are given in the above table.

(i) Find number of development officers who are in the age group $41-51$.

(ii) Complete the following Histogram using the above information.



(iii) Using histogram, draw the frequency polygon.

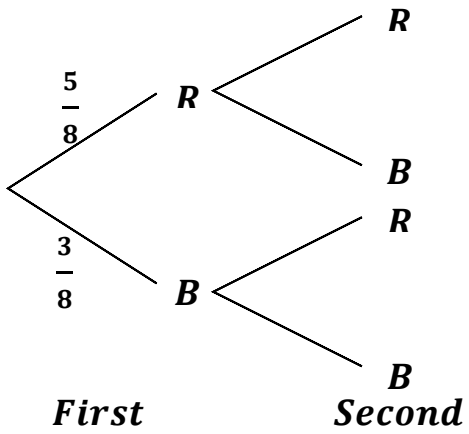
(iv) Which age group of officers worked mostly?

(v) Give the officers as percentage who worked below 41 years of whole officers.

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

05) a) A bag contains 5 red balls and 3 blue balls. A ball is taken from the bag at random and then another ball is taken out without replacement after its colour is recorded. According to

(i) Complete the tree diagram.

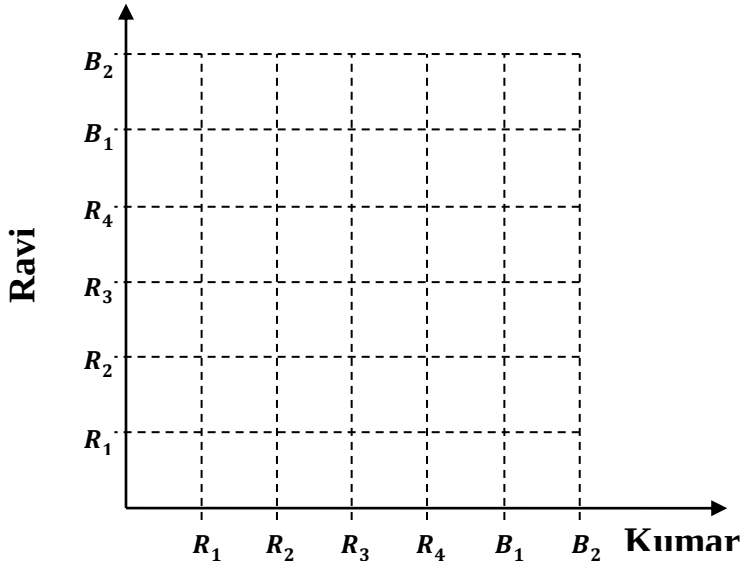


Using tree diagram, find the probability of

(ii) That first ball being red.

(iii) At least one of the balls being red.

b)



A box contains 6 identical marbles 4 red and rest blue. A marble is taken out randomly by Kumar and its colour is recorded and it is put back in the box. A marble is randomly taken out by Ravi and its colour is recorded.

(i) Represent the sample space relevant to this experiment on the given grid.

(ii) Find the probability of Kumar taking blue marble and Ravi taking red marble.

(2+2+2+2+2=10 marks)

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

Grade : 11 | 32 TII | **Time :- 3 Hours**

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

Instructions

- Write your index number correctly.
- To use the answer sheet for Part IIA, IIB questions get answer method.
- Answer ten questions. five from each part be done part II A & II B.

Important:

- Part IIA has 5 questions each has 10 marks totally 50 marks given.
- Part IIB has 5 questions each has 10 marks totally 50 marks given.

Marking examiner:
……

Cross examiner :
……

Examiner use only :

Part	question	Marks
IA	1	
	2	
	3	
	4	
	5	
	6	
IB	7	
	8	
	9	
	10	
	11	
	12	
Total		

Part - II A

Provincial Department of Education
Northern Province
Third Term Examination - 2018

Grade - 11 | **32 T II** | **Time:- 3.00 hours**

- 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 $V = \pi r^2 h$
- The volume V of a sphere of radius r is V= $\frac{4}{3}\ \pi r^3$.

Part - II A

01) An incomplete table of values prepared to sketch the graph of $y = 5 - (x - 1)^2$ is given below.

x	-2	-1	0	1	2	3	4
y	-4	1	4		4	1	-4

(i) Complete the table when $x = 1$.

(ii) Draw the graph of the given function, By taking 10 small divisions to be one unit as x - axis and the y axis to be one unit as scale.

(iii) Using the table Write down the coordinates of turning point.

(iv) Find the range of values of x for which the function is increasing and y is $1 \leq y < 5$.

(v) Find the positive root of the equation $(x - 1)^2 - 5 = 0$ to first decimal place..

(vi) Write down the approximate value of $\sqrt{5}$.

02) The information obtained from tourists who came a particular Hotel during 50 days in 2018 is given below.

No. of tourists	50 – 60	60 – 70	70 – 80	80 – 90	90 – 100	100 – 110	110 – 120
No. of days	2	4	8	10	12	8	6

According to the above table,

(i) What is the model class?

(ii) By taking the mid value of the modal class as the assumed mean, find the mean value of a tourist who came in one day year 2018?

(iii) If the mean obtained of 50 days in 2017 is 75, find the increased percentage in 2018 than 2017.

03) Ravi who takes loan of 10 times of his monthly salary at the rate of 4% annual simple interest. And he intends to repay in 5 years with equal monthly instalement. The monthly salary of Ravi is Rs. 36000.

(i) Find the loan amount can Ravi acquires?

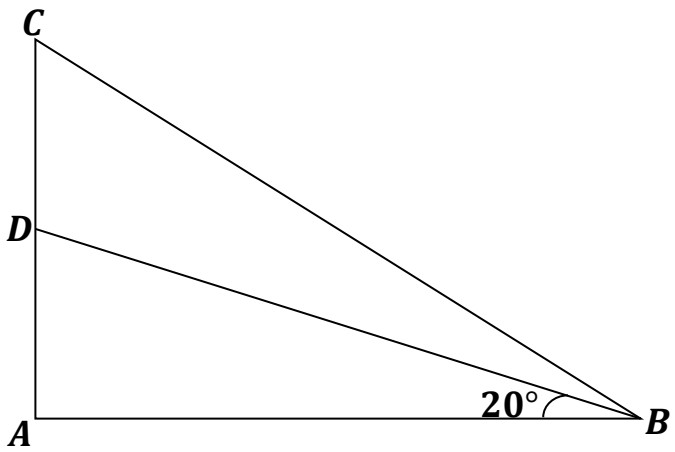
(ii) What is the duration of the loan in months?

(iii) Find the interest for a month unit?

(iv) Find the total interest he should pay?

(v) Find the amount of a monthly instatement?

04)



The given figure shows about a horizontal building where $AB = 20\,m$, $BC = 23.8\,m$ and

(i) In the $\Delta\, ABD$, finding the length AD by using Trigonometric table.

(ii) Find the value of $C\hat{B}D$.

(iii) Find the length of CD.

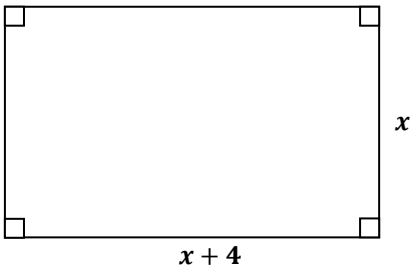
05) The price of eight oranges and six mangoes is Rs 430. Seven mangoes cost the same amount as five oranges.

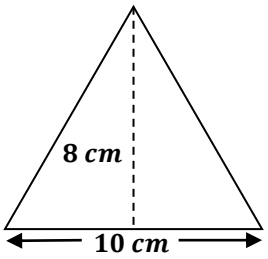
(i) Taking the price of an orange as Rs x and that of a mango as Rs. y. Construct two simultaneous equations?

(ii) Find the price of an orange and a mango separately by solving the two equations?

(iii) A person who has Rs. 1000 and he bought 15 oranges. Then he bought some mangoes for remaining amount of money. How many mangoes he can buy?

06) If the area of two given laminas are equal,





(i) Make a quadratic equation.

(ii) Find the value of x to the nearest first decimal place equation by solving the above (i). $(\sqrt{11} = 3.32)$

Part - II B

07) (a) In an arithmetic progression, the first term is 10 and the fifth term is 30.

(i) Find the common difference.

(ii) Write down the first three terms.

(iii) Find the 15^{th} term.

(iv) Find the sum of first 15 terms.

(b) In a geometric progression, common ratio is 2 and fourth term is 24 more than the third term.

(i) Find the first term.

(ii) Show that 8^{th} term is 768.

08) (i) Construct a triangle ABC where $AB = 7.5\,cm$, $AC = 4\,cm$ and $BC = 8.5\,cm$ by using pairs of compass and straight edge.

(ii) Construct the circum circle of $\Delta\, ABC$.

(iii) Construct a tangent to the circle through the point A

(iv) Name the point of intersection of the tangent drawn through A and BC produced as P.

(v) Construct another tangent to the circle from the point P. Measure and write the length of it?

(vi) If the length of tangent drawn in (V) is equal the length of PA, Give a corresponding theorem for that?

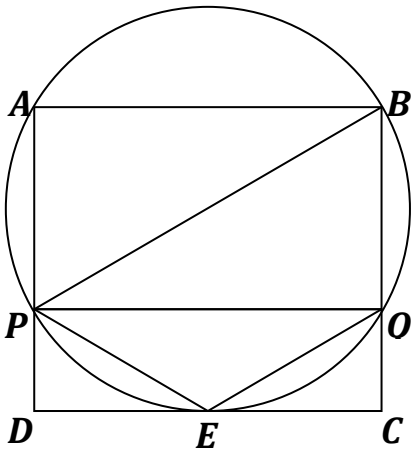
09) In the given figure, $ABCD$ is a square and the side DC touches the circle at E. A, B, Q and P are points on the circle and $AB = 6\,cm$.

(i) If the Centre lies on PB. Give reason?

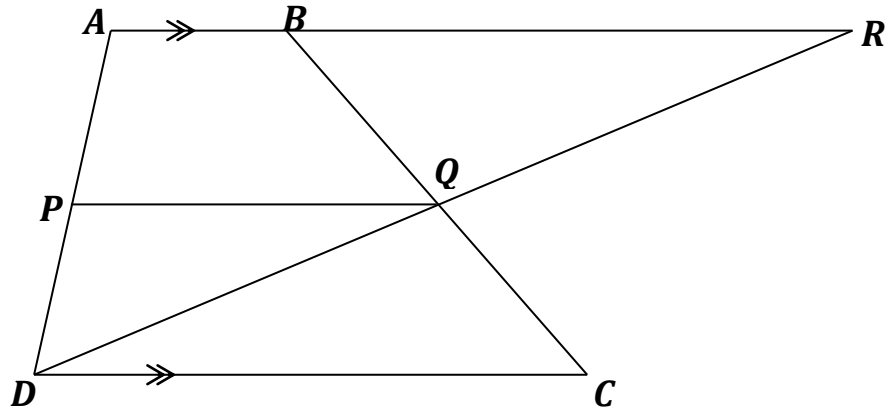
(ii) Write an angle equal to $D\hat{E}P$. Give reason.

(iii) Show that $\Delta\, DEP \equiv \Delta\, ECQ$.

(iv) Find the length of BQ.



10)



In the trapezium $ABCD$, $AB//DC$. P and Q are the midpoints of AD and BC respectievely.

(i) Prove that $\Delta BQR \equiv \Delta CQD$.

(ii) If $Q = QR$, Give reason for that.

(iii) Show that $PQ//AB$.

(iv) Show that $AB + DC = 2\,PQ$.

11) $8\ cm$ diameter and 6 cm height of a cylindrical shaped vessel contains water of height equal to its radius. Five equal spheres are put into this vessel without wastage of water and keep the level of water is equal to the height of cylinder.

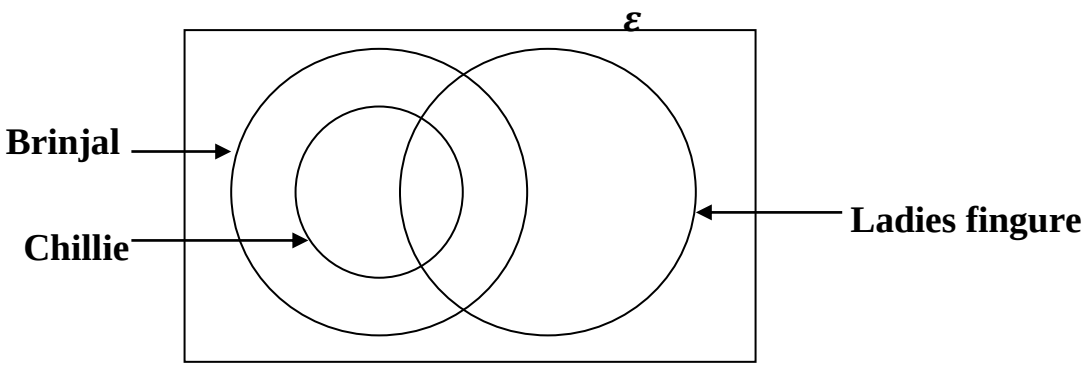
(i) Find the volume of empty space at the beginning.

(ii) Write the equation of volume of a sphere in terms of 'r'. Where r is radius of a sphere.

(iii) Show that $r = \sqrt[3]{\frac{24}{5}}$.

(iv) Find the radius of a sphere by using log table.

12)



In formation on the types of vegetables that were planted by the farmers all who plant either brinjal or chillie or Ladies figure.

1) 14 Farmers who plant brinjal and ladies fingure and do not plant chillie
2) 17 of them who plant only brinjal
3) The number of farmers who plant brinjal and chillie and do not plant ladies fingure is 3, more than the number of farmers who plant ladies fingure only.
4) 26 of them who plant ladies fingure.

(i) Copy the Venn diagram and represent the given data on it.
(ii) Find the number of farmers who plant chillie.
(iii) Find the number of farmers who plant brinjal.

மாகாணக் கல்வித் திணைக்களம்
வடக்கு மாகாணம்
தரம் 11 மூன்றாம் தவணைப் பரீட்சை - 2018
கணிதம் - புள்ளித்திட்டம்

பகுதி - I A

01) $3000 \times \frac{12}{100}$ ..... (1)

$= $ ரூபா 360 ..... (1)

02) $80\ km/h \times 4h$ ..... (1)

$= 320\ km$ ..... (1)

03) $\log_2 128 = 7$ ..... (2)

04) $\frac{4+1}{6x}$ ..... (1)

$= \frac{5}{6x}$ ..... (1)

05) (i) $S\hat{Q}R = 70°$ ..... (1)

(ii) $QS = SR$ ..... (1)

06) $8 \times 5 = 40$ ..... (1)

$40 \div 10 = 4$ நாட்கள் ..... (1)

07) $4ab = 2 \times 2 \times a \times b$

$12a^2 = 2 \times 2 \times 3 \times a \times a$ ..... (1)

பொ. ம. சி $= 12a^2b$ ..... (1)

OR விடை ..... (2)

08) $8,\ 9$ ..... (2)

09) $\sin x = \frac{AB}{AC}$ ..... (1)

$\frac{8}{AC} = \frac{4}{7}$

$AC = 14\ cm$ ..... (1)

10) $n(P \cup Q) = n(P) + n(Q) - n(P \cap Q)$

..... (1)

$= 5 + 6 - 3$

$= 8$ ..... (1)

11) $(2a)^2 - 3^2$ ..... (1)

$= (2a - 3)(2a + 3)$ ..... (1)

12) $B\hat{A}D = 60°$

$B\hat{C}D = 120°$

13) $a = 5 \quad OR \quad a = -3$ ..... (2)

14) (i) ✓ ..... (1)

(ii) ✗ ..... (1)

15) $90° \Rightarrow 45$ மாணவர் ..... (1)

$125° \Rightarrow 60$ மாணவர் ..... (1)

16) $A\hat{D}C = 100°$

$A\hat{B}C = 80°$ ..... (1)

$D\hat{B}C = 32°$

$x = 32°$ ..... (1)

$OR \quad A\hat{C}D = 48° \quad x = 32° \ldots$ (2)

17) $AB = 5\ m$ குறித்தல் ..... (1)

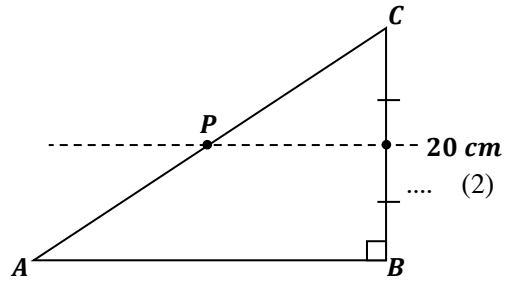
ஏற்றக்கோணம் $50°$ குறித்தல் ..... (1)

18) $\begin{pmatrix} 2 & 0 \\ 2 & 2 \end{pmatrix}$ ..... (2)

19) $ABE,\ DEC$ ..... (1)

ப. கோ. ப ..... (1)

20)



.... (2)

21) 30×25 ..... (1)

$750\ cm^3$ ..... (1)

22) $\frac{x}{2} + 6 \leq 7$

$\frac{x}{2} \leq 1$

$x \leq 2$ ..... (1)

$1,\ 2$ ..... (1)

23) சுற்றளவு $= 2\pi r$

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

$= 44\ cm$ ..... (1)

உயரம் $= \frac{660}{44} = 15\ cm$ ..... (1)

24) $\frac{4}{10}$ ..... (2)

25) $m = \frac{4-0}{2-0}$

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

பகுதி - I B

01) (i) $\frac{2}{7}+\frac{1}{4}$ ..... (1)

$=\frac{8+7}{28}$

$=\frac{15}{28}$ ..... (1)

(ii) மீதி $= 1-\frac{15}{28}$

$= \frac{13}{28}$ ..... (1)

$\frac{13}{28}\times\frac{4}{13}$ ..... (1)

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

(iii) $\frac{13}{28}-\frac{4}{28}$ ..... (1)

$= \frac{9}{28}$ ..... (1)

(iv) $\frac{20000}{9}\times 28$ ..... (2)

$=$ ரூ $560\,000$ ..... (1)

02) (i) செவ்வகப்பரப்பு $=$ நீளம் $\times$ அகலம்

$= 67\times 14$ ..... (1)

$= 938\,m^2$ ..... (1)

(ii) $A = \frac{1}{4}\times \pi r^2$

$= \frac{1}{4}\times\frac{22}{7}\times 14\times 14$ ..... (2)

$= 154\,m^2$ ..... (1)

(iii) $938-154$

$= 784\,cm^2$ ..... (1)

(iv) ஒரு பக்க நீளம் $= \sqrt{784}$

$= 28\,cm$ ..... (2)

(v) $14+67+22+53$ ..... (1)

$= 156\,m$ ..... (1)

03) (i) $\frac{90000}{1500}$ ..... (1)

= ரூபா 60 ..... (1)

(ii) முதலீடு செய்த தொகை = 90000 – 9000

= ரூ 81000 ..... (1)

பங்கு ஒன்றின் கொள்விலை = $\frac{81000}{1500}$ ..... (1)

= ரூ 54 ..... (1)

(iii) 1500×4 ..... (1)

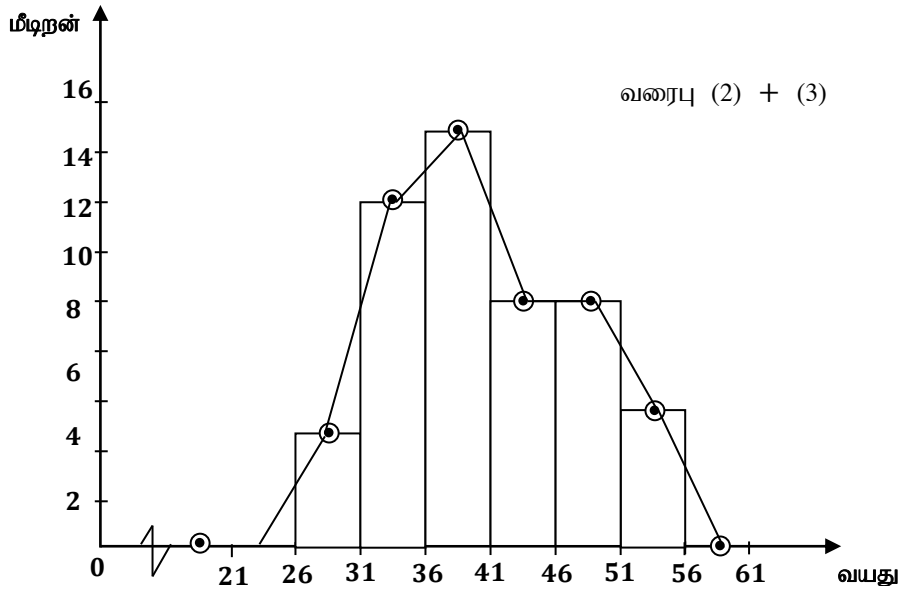
= ரூ 6000 ..... (1)

(iv) $\frac{112}{100} \times \underbrace{\frac{112}{100} \times 15000}$ ..... (1)+(1)

= ரூ 18816 ..... (1)

04) (i) 50 – 36

= 14 ..... (2)



வரைபு (2) + (3)

(iv) 36 – 41 ..... (1)

(v) $\frac{31}{50} \times 100\%$ ..... (1)

= 62% ..... (1)

05) a) (i) மரவரிப்படத்தைப் பூரணப்படுத்துதல். .....(2)

(ii) P (சி, நீ) $= \frac{5}{8} \times \frac{3}{7} = \frac{15}{56}$ .....(2)

(iii) $1 - \left(\frac{3}{8} \times \frac{2}{7}\right) = 1 - \frac{6}{56}$

$= \frac{50}{56}$ .....(2)

b) (i) நெய்யரியில் குறித்துக் காட்டல் .....(2)

(ii) $\frac{8}{36} = \frac{2}{9}$ .....(2)

மாகாணக் கல்வித் திணைக்களம்
வடக்கு மாகாணம்
தரம் 11 மூன்றாம் தவணைப் பரீட்சை - 2018

கணிதம் - புள்ளித்திட்டம்

பகுதி - II A

01) (i) 5 ..... (1)

(ii) சரியான அச்சுக்கள் ..... (1)

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

ஒப்பமான வளையி வரைதல் ..... (1)

(iii) $(1,\ 5)$ ..... (1)

(iv) $-1 \leq x < 1$ ..... (1)+(1)

(v) $y = 0$

$(x-1)^2 = 5$ ..... (1)

$\sqrt{5} \quad = x - 1$

$= 3.3 - 1$ ..... (1)

$= 2.3$ ..... (1)

02) (i) $90 - 100$ ..... (1)

(ii)

பயணிகளின் எண்ணிக்கை	மீடிறன் f	ந. பெ (x)	விலகல் (d)	$(f \times d)$
$50 - 60$	2	55	-40	-80
$60 - 70$	4	65	-30	-120
$70 - 80$	8	75	-20	-160
$80 - 90$	10	85	-10	-100
$90 - 100$	12	$\boxed{95}$	00	00
$100 - 110$	8	105	$+10$	$+80$
$110 - 120$	6	115	$+20$	$+120$
	50			$200 - 460$ -260

x நிரல்

(1 பிழையைத் தவிர்க்க)..... (1)

fd நிரல் ..... (1)

(x நிரலிற்கேற்ப 1 பிழையைத் தவிர்க்க)

$\sum fd$ ..... (1)

இடை $= 95 + \left(\frac{-260}{50}\right)$ ..... (1)

$= 89.8$ ..... (1)

$= 90$ ..... (1)

(iii) $\frac{90\times50-75\times50}{50\times75} \times 100\ \%$ ..... (1)+(1)

$= 20\ \%$ ..... (1)

03) (i) $36\,000 \times 10$

$=$ ரூபா $360\,000$ ..... (1)

(ii) 5×12

$= 60$ மாதங்கள் ..... (1)

(iii) $\frac{360\,000}{60} \times \frac{1}{12} \times \frac{4}{100}$ ..... (1)

$=$ ரூபா 20 ..... (1)

(iv) மா. அ. எண்ணிக்கை $= \frac{60\times61}{2}$

$= 1830$ ..... (1)

மொத்த வட்டி $=$ ரூ 1830×20

$=$ ரூபா 36600 ..... (1)+(1)

(v) 1 தவணைத் தொகை $= \frac{36\,000+36\,600}{60}$ ..... (1)+(1)

$=$ ரூபா 6610 ..... (1)

04) (i) $\tan 20° = \frac{AD}{20}$ ..... (1)

$AD = 20 \times 0.3640$ ..... (1)

$= 7.28\,m$ ..... (1)

(ii) $\sin A\hat{C}B = \frac{20}{23.8}$ ..... (1)

(iii) $\sin A\hat{C}B = 0.8401$

$A\hat{C}B = 57°\,9'$ ..... (1)+(1)

$C\hat{B}D = 70° - 57° 9'$

$= 12° 51'$ ..... (1)

(iv) $\tan 32° 51' = \frac{AC}{20}$ (அல்லது வேறுமுறை) ..... (1)

$AC = 20 \times 0.6457$

$= 12.914\, m$ ..... (1)

$CD = 5.634\, m$ ..... (1)

05) (i) $8x + 6y = 430$ ..... (1)

$5x = 7y$ ..... (1)

(ii) $5x - 6y = 0$ (2)

(1)×(5) $40x + 30y = 2150$ (3) ..... (1)

(2)×(8) $40x + 56y = 0$ (4) ..... (1)

(3)−(4) $86\, y = 2150$

$y = 25$ ..... (1)+(1)

$x = \frac{7 \times 25}{5}$

$= 35$ ..... (1)

1 தோடம்பழத்தின் விலை = ரூபா 35

1 மாம்பழத்தின் விலை = ரூபா 25 ..... (1)

(iii) வாங்கிய மாம்பழங்கள் $= \frac{1000 - 15 \times 35}{25}$ ..... (1)

$= 19$ ..... (1)

06) (i) $x(x + 4) = \frac{1}{2} \times 10 \times 8$ ..... (1)+(1)

$x^2 + 4x = 40$ ..... (1)

$(x + 2)^2 = 44$ ..... (1)

$x + 2 = \pm\sqrt{44}$ ..... (1)

$x = \pm 2\sqrt{11} - 2$ ..... (1)+(1)

$x = \pm 2 \times 3.32 - 2$ ..... (1)

$x = 4.64$ ..... (1)

$x = 4.6$ ..... (1)

பகுதி - II B

07) (a) (i) $a = 10$

$a + 4d = 30$

$4d = 20$

$d = 5$ ..... (1)+(1)

(ii) $10,\ 15,\ 20$ ..... (1)

(iii) $T_{15} = 10 + 14 \times 5$

$= 10 + 70$

$= 80$ ..... (1)

(iv) $S_{15} = \frac{15}{2}(10 + 80)$

$= 15 \times 45$

$= 675$ ..... (1)+(1)

(b) (i) $r = 2$

$ar^3 = ar^2 + 24$

$8a = 4a + 24$

$4a = 24$

$a = 6$ ..... (1)+(1)

(ii) $T_8 = 6 \times 2^7$

$= 6 \times 128$

$= 768$ ..... (1)+(1)

08) (i) சரியான முக்கோணியை வரைந்து பூரணப்படுத்துதல்..... (1)+(1) +(1)

(ii) சுற்றுவட்டம் அமைத்தல் ..... (1)+(1)

(iii) தொடலி அமைத்தல் ..... (1)

(iv) P குறித்தல் ..... (1)

(v) நீளம் $= 6.3\ cm\ (\pm 0.1)$ ..... (1)

(vi) தேற்றத்தை எழுதுதல் ..... (2)

09) (i) $\hat{A} = 90°$ (சதுரக் கோணம்)

$\frac{1}{2}$ வட்டக் கோணம் செங்கோணம் ..... (1)

(ii) $P\hat{Q}E$ (ஒன்றுவிட்ட துண்டக் கோணம்) ..... (1)+(1)

(iii) $P\hat{Q}B = 90°$ ($\frac{1}{2}$ வட்டக் கோணம் செங்கோணம்)

$\therefore E\hat{C}Q = P\hat{Q}B = 90°$

$\therefore DC//PQ$ ..... (1)

$P\hat{E}D = E\hat{P}Q$ (ஒ. வி. கோ)

$P\hat{E}D = P\hat{Q}E$ (ஒ. வி. து. கோ)

$E\hat{P}Q = P\hat{Q}E$

$\therefore PE = EQ$ (இரு சமபக்க Δ தேற்றம்) ..... (1)

ΔDEP, ΔECQ என்பவற்றில்

$PE = EQ$ (நி.ப)

$P\hat{D}E = E\hat{C}Q = 90°$ (சதுரக் கோணம்)

$D\hat{E}P = P\hat{Q}E = C\hat{E}Q$

$\therefore \Delta DEP \equiv \Delta ECQ$ (கோ. கோ. ப) ..... (1)+(1)

(iv) ΔBEC இல்

$BE^2 = 6^2 + 3^2 = 45$ ..... (1)

$PD = x$ என்க

$PE^2 = x^2 + 3^2 = x^2 + 9$

$BP^2 = 6^2 + (6 - x)^2$

$= 72 - 12x + x^2$

செங் ΔBPE இல்

$72 - 12x + x^2 = x^2 + 9 + 45$

$12x = 18$

$x = 1.5$

$BQ = 6 - 1.5$

$= 4.5\ cm$ ..... (1)+(1)

10) (i) ΔBQR, ΔCQD இல்

$BQ = QC$ (நடுப்புள்ளி)

$Q\hat{B}R = Q\hat{C}D$ (ஒ. வி. கோ)

$B\hat{Q}R = C\hat{Q}D$ (கு. எ. கோ)

$\therefore \Delta BQR \equiv \Delta CQD$ (கோ. கோ. ப) ..... (1)+(1)+(1)

(ii) $DQ = QR$ ($\equiv$ ஆல்) ..... (1)

(iii) $\Delta\, ADR$ இல்

$DP = PA$ (நடுப்புள்ளி)

$DQ = QR$ (நி . ப)

∴ நடுப்புள்ளித் தேற்றப்படி $PQ//AR$

$PQ//AB$ ..... (1)+(1)

(iv) $DC = BR$ (≡ ஆல்) ..... (1)

$AR = 2\,PQ$ (நடு. தேற்றப்படி) ..... (1)

$AB + BR = 2PQ$ ..... (1)

$AB + DC = 2\,PQ$ ..... (1)

11) (i) $\frac{22}{7} \times 4 \times 4 \times 2$ ..... (1)

$100\frac{4}{7}\ cm^3$ ..... (1)

(ii) $\frac{4}{3} \times \frac{22}{7} \times r^3\ cm^3$ ..... (1)

$$\frac{88\,r^3}{21} cm^3$$

(iii) $5 \times \frac{88\,r^3}{21} = \frac{704}{7}$

$r^3 = \frac{24}{5}$

$r = \sqrt[3]{\frac{24}{5}}$ ..... (1)+(1) +(1)

(iv) $\lg x = \frac{1}{3}\lg 24 - \frac{1}{3}\lg 5$

$= \frac{1}{3} \times 1.3802 - \frac{1}{3} \times 0.6990$

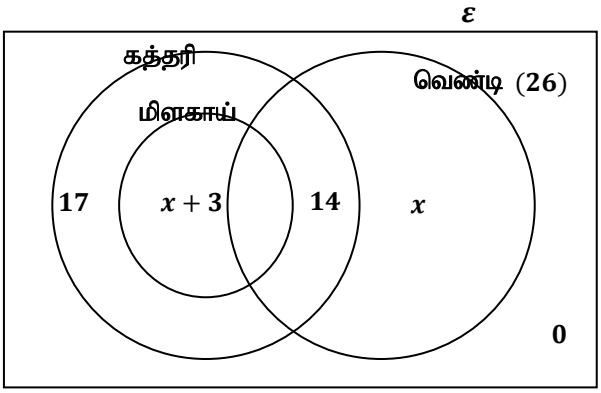
$= 0.4601 - 0.2330$

$= 0.2271$

$x = \text{anti}\log 0.2271$

$x = 1.687\ cm$ ..... (1)+(1)+(1)

12)



(i) 14 ஐ சரியாகக் குறித்தல்..... (1)

17 ஐ சரியாகக் குறித்தல்..... (1)

வெண்டி மட்டும் பயிரிடுவோர் x என எடுத்து

$x + 3$ ஐ பொருத்தமான இடத்தில் குறித்தல்..... (2)

26 ஐ சரியாகக் குறித்தல் ..... (1)

(ii) $26 - (14 + x) = 12 - x$..... (1)

(iii) $12 - x + x + 3 = 15$ ..... (2)

(iv) $17 + 14 + 15$ ..... (1)

46 ..... (1)