

Year End Examination - 2018

MATHEMATICS - I

Grade 10

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Time : 2 hours

Name / Index No.

- Answer all questions on this paper it self.

PART - A

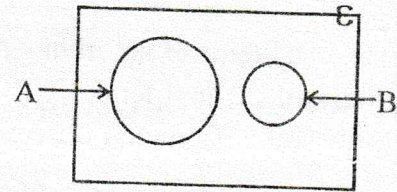
01 Write in index form, $\log_2 x = 3$

02 Solve, $\frac{a}{4} + 3 = 5$

03 Five days take to complete $\frac{1}{3}$ of the work. How many days taken to complete the total work?

04 In the triangle ABC, $\hat{A} + \hat{B} = 140^\circ$ and $\hat{B} + \hat{C} = 100^\circ$. Find the magnitude of \hat{B} .

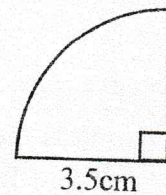
05 Shade $A' \cap B'$.



06 Find factors, $x^2 - 10x + 24$

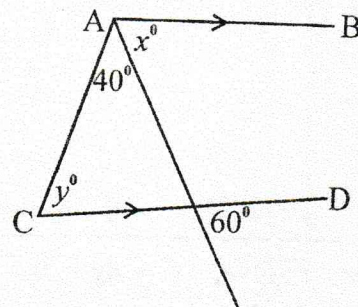
07 Simplify, $\frac{5}{4a} + \frac{1}{2a}$

08 Find area of the following sector.



09 AB and CD are parallel lines. Find,

- (i) x°
- (ii) y°

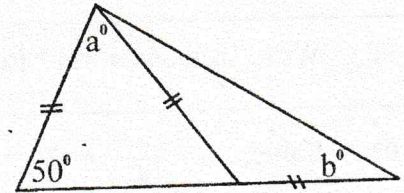


10 Using $2^2 \times 16^2 = 1024$. Find $\sqrt{1024}$

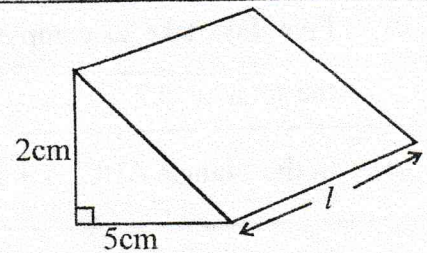
11 Speed of a bus is 80kmh^{-1} . Find the time taken to travel 120km.

12 According to the given figures, find,

- (i) a°
- (ii) b°



13 Volume of the given prism is 240cm^3 . Find the length (l) of the given prism.



14 n^{th} term of an arithmetic progression is $3n - 1$. Find,

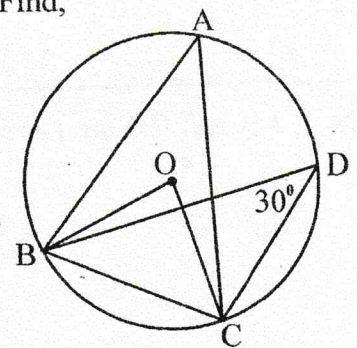
- (i) First term,
- (ii) Common difference.

15 Solve the inequality $3 - x < 5$ and show the solutions on a number line.

16 A dice numbered its surfaces 1 to 6 rolled. Find the probability obtaining a prime number.

17 O is the centre of the given circle and $\hat{BDC} = 30^\circ$. Find,

- (i) \hat{BAC}
- (ii) \hat{BOC}



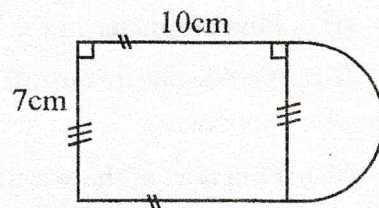
18 Solve, $x^2 + 4x = 0$

19 Mean weight of four children is 37.5kg. A student of 40kg entered to this group. Find mean weight of this new group.

20 Curved surface area of a cylinder is 1760cm^2 . Radius is 14cm. Find its height.

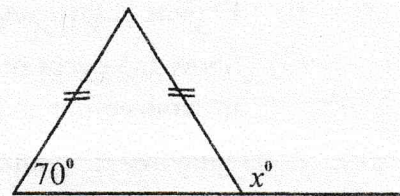
21 Find LCM of $(2x - 10)$ and $(x - 5)^2$

22 Find area of the given figure,

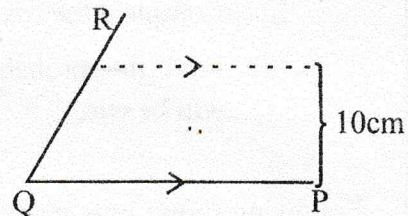


23 Find mid value of the class interval 3 - 9.

24 Find x° of the given figure.



25 PQ and QR are two straight line border of a land. There is a light post 10m away from PQ border and 12m away from the point Q. Following is an incomplete diagram drawn to show the location of light post "L". Complete it to find the place of light post.



(50 marks)

PART - B

● Answer all question\$10 marks for each question.

01 Mr. Sarath spend $\frac{3}{7}$ of his salary for food and deposit $\frac{1}{2}$ of the remaining in the bank. After doing these he has Rs. 10000 on his hand.

- Find the remaining portion after spending for food.
- Which fraction deposited in the bank ?
- Which fraction of money remain after spending for food and deposit in the bank ?
- Calculate his total salary.

02 According to the given venn diagram answer the following questions.

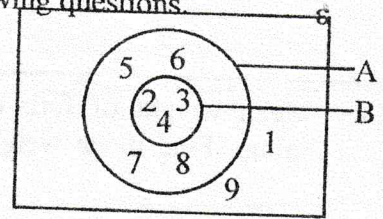
(i) Write set A with its elements.

(ii) Find $n(B)$.

(iii) Write the set $A \cap B$.

(iv) Find, $n(A)'$

(v) Write the relation between A and B in set notation.

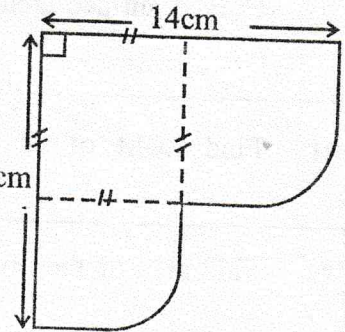


03 Following is a badge prepared by a group of students. It is consisted with a square of length 7cm and two 14cm sectors.

(i) Find perimeter of the badge.

(ii) This badge is cut off by circles of radius 14cm. How many circles need to cut off such 48 badges?

(iii) Find area of the wasting after cut off badges.



04 (a) There are 3 red balls, 2 blue balls in a box. Randomly taken out a ball and record its colour and replaced it. Then take another ball and record its colour.

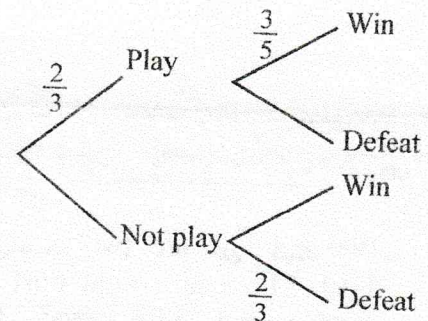
(i) Represent the sample space in a grid.

(ii) Show the event of obtaining two balls in same colour and find its probability.

(b) Following tree diagram shows how a spring baller play for an one day match and the win or defeat from the match.

(i) Complete the tree diagram.

(ii) Find the probability that the match will be win.



05 Following shows how income tax is charged by a certain government.

The first Rs. 50,000/- \rightarrow Tax free

Second Rs. 50,000/- \rightarrow 4%

Third Rs. 50,000/- \rightarrow 8%

Forth Rs. 50,000/- \rightarrow 12% for excess income 15% tax is charged.

If there is a person with Rs. 250 000/- income find followings.

(i) Tax pay for first Rs. 50,000.

(ii) Tax pay for third Rs. 50,000.

(iii) Total tax.

Year End Examination - 2018

MATHEMATICS - II

Grade 10

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Time : 3 hours

Name / Index No.

- Answer 05 questions from Part A and 05 questions from Part B.
10 marks carry for each question.

PART - A

01 Following is an advertisement shown in front of a furniture shop.

10% discount for cash
payments.

- How much pay for a good worth Rs. 500 in this shop?
- A person buys a sofa set worth Rs. 75,000/-. Find his discount and the amount he pays for the sofa set.
- The shop owner marked the price of the sofa set as Rs. 75000/- by keeping a profit of 20%. Find the production cost of the sofa set.

02 Following is an incomplete value table prepared to draw the function of $y = -x^2 + 4$.

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

- Find y when $x = 0$.
 - Using a suitable scale draw the function.
- Using the graph,
 - Write the co-ordinates of the turning point.
 - Write the range of x where the function is positive.
 - Write x co-ordinates of the points where the function intersect $y = 0$ line.
 - When the function $y = -x^2 + 4$ shift 3 units downwards, write the equation of the new function.

03 (i) Solve $\frac{x+1}{3} = 5$

(ii) Solve $x(2x+1) = 15$

(iii) The price of a cap and four handkerchiefs is Rs. 550/- Seven handkerchiefs can be bought for the price of a cap. Build up a pair of simultaneous equations by taking the price of a cap as Rs. x and price of handkerchief as Rs. y . By solving them find the price of a cap and a handkerchief.

04 (a) Find the capacity of a tank, which is filled 40 minutes using a pipe which flows 15l per minute.

(b) An observer is in a upstairs which is in 40m height, observes a car travelling towards him with an angle of depression 35° and after few minutes with an angle of depression 60° .

(i) Represent the above information in a rough figure.

(ii) Draw a scale diagram to the scale 1cm \rightarrow 5m.

(iii) Find the actual distance between two observations.

05 Following is data about mass of 30 fish to the nearest kilogramme.

Mass (kg)	11-15	16-20	21-25	26-30	31-35	36-40	41-45
Number of fish	2	4	7	8	6	2	1

(i) Write the modal class.

(ii) Taking the mid value of the modal class as assumed mean, find the mass of a fish to the nearest kilogramme.

(iii) According to the above mean, find the weight of 50 fish.

06 (a) (i) Simplify,
 $\frac{1}{x} + \frac{3}{x}$

(ii) Simplify,
 $\frac{3}{2x+3} - \frac{3}{(x-3)}$

(b) (i) Solve the inequality, $4x + 2 > 10$.

(ii) Solve the inequality $3 - 2x \leq 7$ and mark the solutions on a number line.

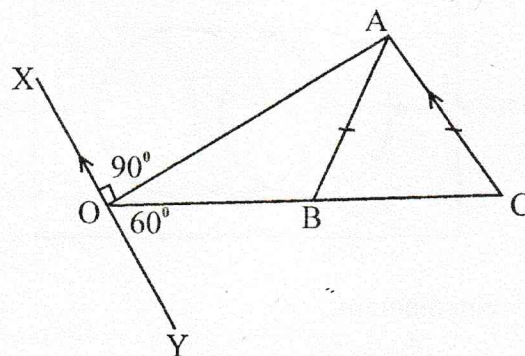
PART - B

- 07 Nimal deposited Rs. 1,000/- and opened an account. After that month he deposited Rs. 200/- more than the previous month. Nimal continuously do this in each and every month.
- (i) Write the amount of money deposited in the first three months in order and show that they are lie in an arithmetic progressions.
 - (ii) Find the amount deposited in the 12th months.
 - (iii) Calculate the total amount deposited at the end of the year. Show that it is greater than Rs. 25,000/-.

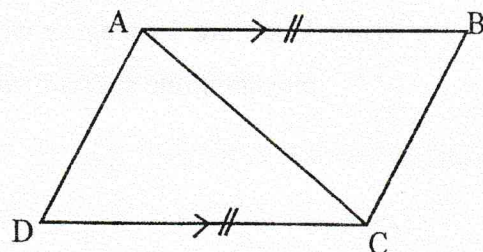
- 08 Using only a straight edge with cm/mm scale and a pair of compasses do the following construction.

- (i) Construct the triangle ABC, such that $AB = 6\text{cm}$, $\hat{BAC} = 60^\circ$ and $AC = 5.5\text{cm}$.
- (ii) Construct a line parallel to AB through C.
- (iii) Construct the locus of a point moving equi-distant to AC and AB.
- (iv) Name the intersection point of above part (ii) and (iii) as D.
- (v) Construct a perpendicular to AB from D and name its foot as E.

- 09 (a) In triangle ABC, $AB = AC$. Side CB is produced up to O. A and O are joined. XY is drawn parallel to AC trough O.



- (i) Show that triangle ABC is an equilateral.
 - (ii) Show that $AB = OB$.
- (b) In the given figure $AB \parallel CD$ and $AB = CD$. Show that $\triangle ABC$ and $\triangle ACD$ are congruent.



10 (a) Circumference of a base of a cylinder is 66cm. Height of the cylinder is 25cm.

(i) Find the base radius of the cylinder.

(ii) Find area of the base of the cylinder.

(iii) Find capacity of the cylinder.

(b) Using logarithm tables find value of following.

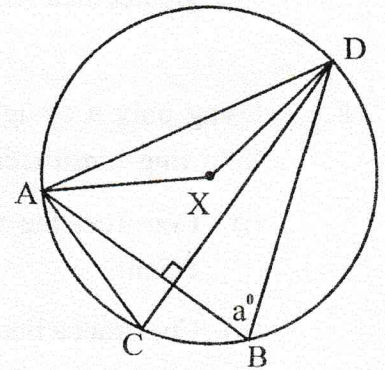
$$\frac{89.35 \times 3.8}{6.75}$$

11 AB and CD are two chords which are perpendicular to each other. Centre of the circle is x.

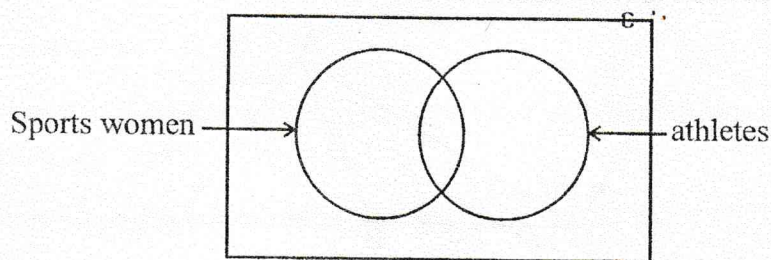
If $\hat{ABD} = a^\circ$ show the followings.

(i) $\hat{XAD} = 90^\circ - a$

(ii) $\hat{BAD} = \hat{XAC}$



12 Following is an incomplete venn diagram shows the information of a sportsmeet. There are 23 sports women. 17 participated for athletics. 12 sports men participated for athletics.



(i) Complete the venn diagram.

(ii) How many sports women participated for athletics ?

(iii) There are 33 players who don't play athletics. Calculate the total number of players in the sports meet.

$$(10 \times 5 = 50)$$