

MT

2018 ____ ____ 1100

Seat No.

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MT - MATHEMATICS (71) Algebra - SEMI PRELIM - I - PAPER - IV

Time : 2 Hours

(Pages 6)

Max. Marks : 40

Q.1. (A) Solve the following : (Any 4)

4

1. Check whether the following numbers are in continued proportion.
2, 4, 8.
2. Find the mode of the following data.

Marks	35	36	37	38	39	40
No. of students	09	07	09	04	04	02

3. Observe the table given below. Check and decide, whether the individuals have to pay income tax

Sr. No.	Individuals	Age	Taxable income (₹)	Will have to pay income tax or not
1.	Miss. Nikita	27	₹ 2,34,000	
2.	Mr. Desilva	81	₹ 4,50,000	

4. For an individual (age 55 years), if annual income is ₹ 5,50,000 and deduction under section 80C is ₹ 1,80,000. Then amount of taxable income will be ?
5. For class interval 20-25 write the lower class limit and the upper class limit:
6. If amount of income tax is ₹ 4000, then total tax payable will be ?

Q.1. (B) Solve the following : (Any 2)

4

1. Compare the following pairs of ratios: $\frac{\sqrt{5}}{3}$, $\frac{3}{\sqrt{7}}$
2. Find the median of the observations, 59, 75, 68, 70, 74, 75, 80.

3. Alka spends 90% of the money that she receives every month, and saves ₹ 120. How much money does she get monthly?

Q.2. (A) Solve the following :

4

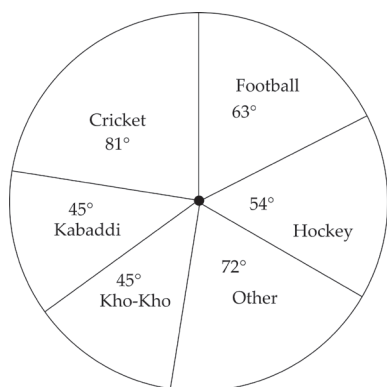
1. If for an any A.P., $d = 5$ then $t_{18} - t_{13} = \dots\dots\dots$
(A) 5 (B) 20
(C) 25 (D) 30
2. What is the amount of dividend received per share of face value ₹ 10 and dividend declared is 50%.
(A) ₹ 50 (B) ₹ 5
(C) ₹ 500 (D) ₹ 100
3. The persons of O- blood group are 40%. The classification of persons based on blood groups is to be shown by a pie diagram. What should be the measures of angle for the persons of O- blood group?
(A) 114° (B) 140°
(C) 104° (D) 144°
4. Cumulative frequencies in a grouped frequency table are useful to find
.....
(A) Mean (B) Median
(C) Mode (D) All of these

Q.2. (B) Solve the following : (Any 2)

4

1. Find the first term and common difference for each of the A. P.
 $\frac{1}{4}, \frac{3}{4}, \frac{5}{4}, \frac{7}{4}, \dots$
2. Smt. Deshpande purchased shares of FV ₹ 5 at a premium of ₹ 20. How many shares will she get for ₹ 20,000 ?

3. A survey of students was made to know which game they like. The data obtained in the survey is presented in the below pie diagram. If the total number of students are 1000.



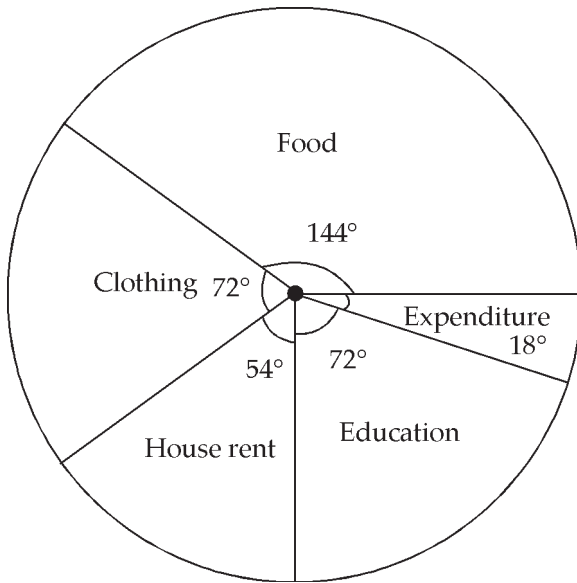
- (i) How many students like cricket?
 (ii) How many students like football?

Q.3. (A) Solve the following activity : (Any 2)

4

1. The monthly expenditure of a family of different items is shown in the following table. Calculate the related central angles and draw a pie chart.

Different Items	% of Expenditure	Measure of Central angle
Food	40	$\frac{40}{100} \times 360 = \square$
Clothing	20	$\square \times \square = \square$
House rent	15	$\square \times \square = \square$
Education	20	$\square \times \square = \square$
Expenditure	05	$\square \times \square = \square$
Total	100	360°



2. Complete the following table by writing suitable numbers and words.

Sr. No.	Face Value	Share is at	Market Value
(i)	₹ 100	par	
(ii)		Premium ₹ 500	₹ 575
(iii)	₹ 10		₹ 5

3. Write the correct number in the given boxes from the following A.P.

1, 8, 15, 22,

Solution:

$$\text{Here, } t_1 = \square, t_2 = \square, t_3 = \square$$

$$a = \square, d = \square$$

$$\text{working } d = t_2 - t_1$$

$$= 60 - 70$$

$$= \square$$

Q.3. (B) Solve the following activity : (Any 2)

4

- Find the fourth term from the end in an A.P. $-11, -8, -5, \dots, 49$
- Find the purchase price of a share of FV ₹ 100 if it is at premium of ₹ 30. The brokerage rate is 0.3%.

3. Time allotted for the preparation of an examination by some students is shown in the table. Draw a histogram to show the information.

Time (minutes)	60 - 80	80 - 100	100 - 120	120 - 140	140 - 160
No. of students	14	20	24	22	16

Q.4. Solve the following : (Any 3)

9

1. The following table shows the income of farmers in a grape season. Find the mean of their income.

Income (Thousand ₹)	20 - 30	30 - 40	40 - 50	50 - 60	60 - 70	70 - 80
Farmers	10	11	15	16	18	14

2. In an A.P., first term is -5 and last term is 45 . If sum of all the numbers in the A.P. is 120 , then how many terms are there? What is the common difference.
3. Shri Shantilal has purchased 150 shares of FV ₹ 100 , for MV of ₹ 120 . Company has paid dividend at 7% . Find the rate of return on his investment.
4. In an A.P. 19^{th} term is 52 and 38^{th} term is 128 , find sum of first 56 terms.

Q.5 Solve the following : (Any 1)

4

1. Mr. D'souza purchased 200 shares of FV ₹ 50 at a premium of ₹ 100 . He received 50% dividend on the shares. After receiving the dividend he sold 100 shares at a discount of ₹ 10 and remaining shares were sold at a premium of ₹ 75 . For each trade he paid the brokerage of ₹ 20 . Find whether Mr. D'souza gained or incurred a loss ? by how much ?
2. The time required for students to do a science experiment and the number of students is shown in the following grouped frequency distribution table. Show the information by a histogram and also by a frequency polygon.

... 6 ...

Time required for experiment (minutes)	20 - 22	22 - 24	24 - 26	26 - 28	28 - 30	30 - 32
No. of students	8	16	22	18	14	12

Q.6 Solve the following : (Any 1)

3

1. The distances covered by 250 public transport buses in a day is shown in the following frequency distribution table. Find the median of the distances.

Distance (km)	200 - 210	210 - 220	220 - 230	230 - 240	240 - 250
No. of buses	40	60	80	50	20

2. Prepare Business to Business (B2B) Tax Invoice as per the details given below.

name of the supplier, address, Date etc. as per your choice.

Supplier - Name, Address, State, GSTIN, Invoice No., Date

Recipient - Name, Address, State, GSTIN,

Items : (1) Pencil boxes 100, HSN - 3924, Rate ₹ 20, GST 12%

(2) Jigsaw Puzzles 50, HSN 9503, Rate ₹ 100 GST 12%.

Best of Luck 🍀