

MT

2018 ____ 1100

Seat No.

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

Time : 2 Hours

(Pages 6)

Max. Marks : 40

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

4

1. Find the reduced form of the ratio of the first quantity to second quantity.
14 ₹, 12 ₹ and 40 paise.
2. For class interval 20-25 write the lower class limit and the upper class limit:
3. For an individual (age 45 years) having annual taxable income of ₹ 3,50,000 how much percent of income tax is applicable?
4. Convert the following ratios into percentage.
47 : 50
5. Find the class-mark of the class 35-40.
6. 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.	Mrs. Kulkarni	36	₹ 3,27,000	
2.	Miss. Mehta	44	₹ 5,82,000	

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

4

1. Compare the following pairs of ratios:
 $\frac{5}{8}$, $\frac{17}{121}$
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

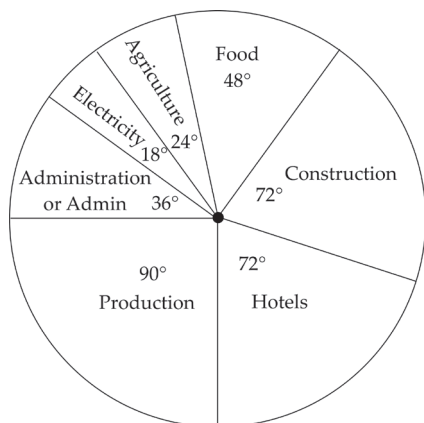
1. In an A.P., 1st term is 1 and the last term is 20. The sum of all terms is 399 then $n = \dots\dots\dots$.
(A) 42 (B) 38
(C) 21 (D) 19
2. To find the cost of one share at the time of buying the amount of Brokerage and GST is to be $\dots\dots\dots$ the MV of share.
(A) added to (B) subtracted from
(C) Multiplied with (D) divided by
3. Different expenditures incurred on the construction of a building were shown by a pie diagram. The expenditure Rs. 45,000 on cement was shown by a sector of central angle of 75° . What was the total expenditure of the construction ?
(A) 2,16,000 (B) 3,60,000
(C) 4,50,000 (D) 7,50,000
4. If for an any A.P., $d = 5$ then $t_{18} - t_{13} = \dots\dots\dots$.
(A) 5 (B) 20
(C) 25 (D) 30

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

4

1. Find the fourth term from the end in an A.P. $-11, -8, -5, \dots, 49$
2. Nazama is a proprietor of a firm, registered under GST. She has paid GST of ₹ 12,500 on purchase and collected ₹ 14,750 on sale. What is the amount of ITC to be claimed ? What is the amount of GST payable?

3. The pie diagram shows the proportions of different workers in a town. Answer the following questions with its help.



- (i) If the total workers is 10,000; how many of them are in the field of construction?
 (ii) How many workers are working in the administration?

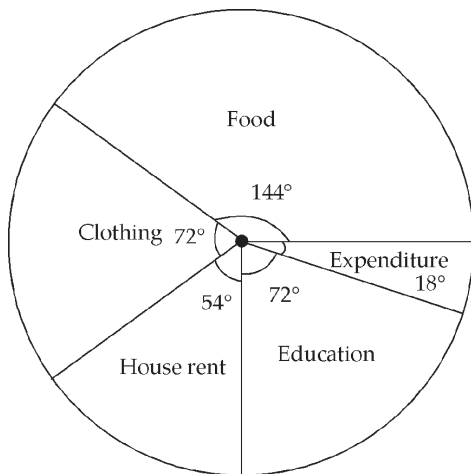
Q.3. (A) Solve the following activity : (Any 2)

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°

... 4 ...



2. Fill in the blanks given in the contract note of sale-purchase of shares.
(B - buy S - sell)

No. of shares	MV of shares	Total value	Brokerage 0.2%	9% CGST on brokerage	9% SGST on brokerage	Total Value of shares
100 B	₹ 45					
75 S	₹ 200					

3. Write the correct number in the given boxes from the following A.P.
1, 8, 15, 22,

Solution:

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

$$t_2 - t_1 = \square - \square = \square$$

$$t_3 - t_2 = \square - \square = \square$$

$$\therefore d = \square$$

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

4

- Find the sum of first 123 even natural numbers.
- A share is sold for the market value of ₹ 1000. Brokerage is paid at the rate of 0.1%. What is the amount received after the sale?

... 5 ...

3. In the following table, the investment made by 210 families is shown. Present it in the form of a histogram.

Investment (Thousand ₹)	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35
No. of families	30	50	60	55	15

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

9

1. The following table shows the information regarding the milk collected from farmers on a milk collection centre and the content of fat in the milk, measured by a lactometer. Find the mode of fat content.

Content of fat (%)	2 - 3	3 -4	4 -5	5 -6	6 -7
Milk collected (Litre)	30	70	80	60	20

2. 11, 8, 5, 2, ... In this A.P. which term is number -151?
3. Mr. Amol purchased 50 shares of Face Value ₹ 100 when the Market value of the share was ₹ 80. Company had given 20% dividend. Find the rate of return on investment.
4. A frequency distribution table for the production of oranges of some farm owners is given below. Find the mean production of oranges by 'assumed mean' method.

Production (Thousand ₹)	25 - 30	30 - 35	35 - 40	40 - 45	45 - 50
No. of farm owners	20	25	15	10	10

Q.5 Solve the following : (Any 1)

4

1. Shri. Batliwala sold shares of ₹ 30,350 and purchased shares of ₹ 69,650 in a day. He paid brokerage at the rate of 0.1% on sale and purchase. 18% GST was charged on brokerage. Find his total expenditure on brokerage and tax.

... 6 ...

2. The following table shows the classification of percentages of marks of students and the number of students. Draw a frequency polygon from the table.

Result (Percentage)	30-40	40-50	50-60	60-70	70-80	80-90	90-100
No. of students	7	33	45	65	47	18	5

Q.6 Solve the following : (Any 1)

3

1. The following table shows classification of number of workers and the number of hours they work in a software company. Find the median of the number of hours they work.

Daily No. of hours	8 - 10	10 - 12	12 - 14	14 - 16
No. of workers	150	500	300	50

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 🍀