

Q.P. SET CODE
A

MT - W

Seat No.

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2017 __ __ 1100 - **MT - W** - MATHEMATICS (71) ALGEBRA - SET - A (E)

Time : 2 Hours

(Pages 4)

Max. Marks : 40

Note :

- (i) All questions are compulsory.
- (ii) Use of calculator is not allowed.

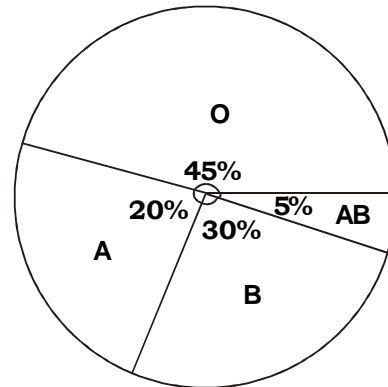
Q.1. Solve ANY FIVE of the following :

5

- (i) For the sequence, find the next four terms :
192, - 96, 48, - 24,
- (ii) Write the following quadratic equation in standard form $ax^2 + bx + c = 0$
 $(m + 4)(m - 10) = 0$.
- (iii) Find the value of discriminant of the following equation :
 $x^2 - 3x + 2 = 0$
- (iv) If $x = 5$ and $y = 3$ is the solution of $3x + ky = 3$, find k .
- (v) Two coins are tossed simultaneously. Write the event of getting one head.
- (vi) For a certain frequency distribution the values of Mean and Mode are 54.6 and 54 respectively. Find the value of median.

Q.2. Solve ANY FOUR of the following :**8**

- (i) Find t_{11} from the following A.P. 4, 9, 14,
- (ii) Form the quadratic equation if its roots are -2 and $\frac{11}{2}$.
- (iii) The following pie diagram shows percentage of persons according to blood group.
Find the measure of central angle for each blood group.



- (iv) If $12x + 13y = 29$ and $13x + 12y = 21$, Find $x + y$.
- (v) In the following experiment, write the sample space S , number of sample point $n(S)$, event A and $n(A)$.
Two coins are tossed, A is the event of getting at most one head.
- (vi) The sum of first n terms of an A.P. is $3n + n^2$ then (i) find first term and sum of first two terms. (ii) find second term.

Q.3. Solve ANY THREE of the following :**9**

- (i) How many three digit natural numbers are divisible by 4 ?
- (ii) Solve the following quadratic equation by factorization method :
 $(2y + 3)^2 = 81$
- (iii) If a card is drawn from a pack of 52 cards, find the probability of getting:
- a black card
 - not a black card
 - a card bearing number between 2 to 5 including 2 and 5

- (iv) The number of hours, spent by a school boy in different activities in a day is given below.

Activity	Sleep	School	Play	Home work	Other	Total
No. of hours	8	7	2	4	3	24

Represent the above information using pie diagram.

- (v) Draw histogram and frequency polygon for the following frequency distribution :

Class	5 - 10	10 - 15	15 - 20	20 - 25	25 - 30
Frequency	20	30	50	40	10

Q.4. Solve ANY TWO of the following :

8

- (i) Find the sum of all odd natural numbers from 1 to 150.
- (ii) Solve the following simultaneous equations :

$$\frac{1}{3x} + \frac{1}{5y} = \frac{1}{15}; \frac{1}{2x} + \frac{1}{3y} = \frac{1}{12}$$

- (iii) In the following experiment write the sample space S, number of sample points n (S), events P, Q, R using set and n (P), n (Q) and n (R).

Find complementary events, mutually exclusive events and exhaustive events.

Two dice are thrown :

P is the event that the sum of the scores on the uppermost faces is a multiple of 6.

Q is the event that the sum of the scores on the uppermost faces is atleast 10.

R is the event that same score on both dice.

Q.5. Solve ANY TWO of the following :

10

(i) Solve the following equation :

$$(x^2 + 2x)(x^2 + 2x - 11) + 24 = 0$$

(ii) Durga's mother gave some 10 rupee notes and some 5 rupee notes to her, which amounts to Rs. 190. Durga said, 'if the number of 10 rupee notes and 5 rupee notes would have been interchanged, I would have Rs. 185 in my hand.' So how many notes of rupee 10 and rupee 5 were given to Durga ?

(iii) Following table gives age distribution of people suffering from 'Asthama' due to air pollution in certain city. Find mean by step deviation method.

Age in years	7-11	11-15	15-19	19-23	23-27	27-31	31-35	35-39
No. of people	5	9	13	21	16	15	12	9

Best Of Luck 🍀