Time : 2 hrs **CA - 26** Marks - 60

> **N.B. :- All questions are compulsory.**

Q.1 a) Find out no. of students who got 50 marks from following data, if arithmatic mean of marks is 38. **8**

Marks	10	20	30	40	50	60	70
No. of Students	8	11	20	25	?	10	3

OR

a) Analysis of wages of 2 companies A & B is as follows. **8**

	A	B
1) No. of employees	600	700
2) Average Wages (Rs.)	2000	2500
3) Standard Deviation for wages (Rs.)	80	120

Which company has larger wage bill?

Which company shows more uniformity in wages?

b) A car was purchased for Rs. 200,000. Depreciation is charged at 20% per year by written down value (WDV) method. Find value of car after 4 years. **7**

OR

Q.1 b) Mean weight of 70 students is 39 Kgs. Mean weight of students of age below 12 years, in this 70 students is 25 Kgs. Mean weight of remaining students of age more than 12 years is 45 Kgs. How many students are there in each age group? **7**

Q.2 a) Cost of living index for a state is 176. State is divided in 5 areas. Following table shows relevant details. Find missing data.

Area	Cost of living index	Weight
A	200	5
B	250	3
C	190	?

a) Following table shows price of certain commodities in 2 cities. Using index numbers technique find out which city is cheaper.

Commodity	Price / units Rs		Weight
	City A	City B	
A	48	60	2
B	40	44	3
C	28	20	5
D	20	16	10

Q.2 b) Sum of deviations of certain no. of observations from 13 is 74 and sum of deviations of same no. of observations from 17 is -26 find no. of observations and their mean.   **7**

OR

b) Summary of marks obtained by boys and girls in an examination is as follows.

		Boys	Girls
1)	Number	100	50
2)	Mean	60	90
3)	Standard Deviation	4	6

Find combined means and standard deviation of all 150 students together.   **7**

Q.3 a) Mean and standard deviation of marks of 100 students are 40 and 3 respectively. It was later found that marks of one student were wrongly taken as 73 instead of 37. Calculate corrected mean and standard devioation.   **8**

OR

a) Production recorded on 2 machines is as follows.

Machine	Production (unit / Hour)
A	120, 130, 114, 138, 156
B	60. 120. 108. 72. 90

b) Total cost of a firm is Rs. 20,000 when there is no production and total cost of same firm is Rs. 80,000 when production is 1500 units. Write function for total cost in terms of output assuming relationship between total cost and output is linear. Calculate total cost when production is 1000 units .   **7**

<div align="center">OR</div>

b) In a particular market demand fuction of a commodity is

$q = 2 - 1/5 p$ and

supply function is

$q = 0.2 + 7/10 p$

where,   q = quantity in thousand tons

p = price in Rs./Kg.

Find equilibrium price and quantity offered and purchased at that price.   **7**

Q.4 a) Total cost (TC) of a product is given as function of output (x) as follows.

$TC = 1/9 x^3 - 6 x^2 + 99x + 43$

Define marginal cost and average cost functions.

Calculate marginal cost and average cost if output is 18 units.   **8**

<div align="center">OR</div>

a) Total cost (TC) and total revenue (TR) functions of a produc. expressed as function os output (x) are as follows.

$TC = x^2 + 78x + 2500$

$TR = 600x - 8x^2$

At what level of output profit will be maximum?   **8**

b) Draw " less than" type ogive from following data.   **7**

Weight (Kg.)	40 - 45	45 - 50	50 - 55	55 - 60	60 - 65	65 - 70	70 - 75
No. of Persons	10	18	30	26	22	24	10

b) From following data, calculate interquartile range.   **7**

Earning (Rs./ Hrs.)	20-30	30-40	40-50	50-60	60-70
No. of persons	40	90	36	20	14