Instructions:

(1) All questions are compulsory.
(2) Each question carries the same marks.
(3) Only simple calculators are allowed.

Q1 (A) Attempt any 7 sub-questions out of 10. (7)

(a) Write the formula of combined mean for two groups.
(b) Write the formula of median for grouped data.
(c) Class which has maximum frequency called modal class (T/F)
(d) Histogram can be used to locate graphically the value of_____.
(e) Write the formula of Q.D.
(f)$D_{30}=P_{40}$, (TRUE/FALSE)
(g)Write the formula of S.D. for continuous data.
(h) A function is given as $f(x)=5x^2-3$, find the value at x=4.
(i)Write the formula of total revenue function.
(j)At equilibrium point supply will be equal to demand.(TRUE/FALSE)

Q1 (B) Attempt any eight sub-questions out of ten. (8)

(a)Write the formula of $P_{01}(F)$.
(b) Find A.M. if $\sum fx=1680$, $\sum f=10$.
(c)Write the formula of P_{90}, in continuous data.
(d) At break-even point profit will be equal to_____.
(e) Find R: 48,58,60,90,50,57,67,68.
(f) Geometric mean of $P_{01}(L)$ and$P_{01}(P)$ called as _____.
(g)Write formula of upper quartile for group data with denotions.
(h)Find $P_{01}(L)$, if $\sum P_1Q_0=838$, $\sum P_0Q_0=581$.
(i) Write the formula of M.D. from Mode for raw data.
(j) The intersection point of Ogive curve represents._____

Q2 (a) Kanchan wanted to invest a certain amount in a bank at a certain rate of compound interest. The bank promised to pay her Rs. 73205 if she invested in for 4 years and Rs. 88578.05, if she invested it for 6 years. Find the principal amount she wanted to invest and the rate of compound interest. (7)

(b) A company manufactures notebooks. The weekly total cost function is given by C= 15x + 3000. (8)

(i) If each notebook is sold at Rs.25, what is the minimum quantity that needs to be produced to ensure no loss?

(ii) If the selling price of a notebook is increased by 20%, what would be the minimum quantity that needs to be produced and sold to ensure no loss?

(iii) If it is known in advance that at least 400 notebooks can be sold per week, find the selling price to ensure the company, no loss.

OR

Q2 (a) A home theatre is purchased on instalment basis such that Rs.6000 are to be paid initially and 4 quarterly instalments of Rs.3000, each payable at the end of each quarter. If the rate of Compound Interest is 7% p.a., find the cash price of the system. (7)

(b) (i) The difference between S.I. and C.I. on a certain amount for 4 years at 10% p.a. is Rs.1282. Find the principal. (4)

(ii) If $f(x)=2x^2-3x+7$, find x for which f(x)=f(x+2). (4)

Q3 (a) If the mode of the following is 750 and the total frequency is 186 , find the missing frequency.(7)

Life in hrs	200-400	400-600	600-800	800-1000	1000-1200	1200-1400	1400-1600
No. of bulbs	10	-	50	45	30	-	5

(b) Out of a total number of 2000 candidates, interviewed for employment in a company at Nasik, 628 were from pune and the rest from Nasik. Amongst the graduates from pune, 350 were experienced and 80 were inexperienced. While, the corresponding figures for undergraduates from Nasik were 615 and 52 respectively. The total number of inexperienced candidates from Poona and Nasik were 175 and 192 respectively. Present the above information in a suitable tabular form. (8)

Q3 (a) Find the (i) third and eight decile (ii) seventh and seventy second percentile for the following data: (7)

Commission in Rs.	10-20	20-40	40-60	60-80	80-100	100-120	120-150
No. of salesmen	4	5	7	8	3	2	2

(b) Represent the following data by a subdivided bar diagram. The data represents figures of production of papers in thousand tonnes for the years 2010, 2011, 2012. (8)

Types	2010	2011	2012
Printing and writing	35	40	50
Wrapping	18	19	15
Boards	16	15	15
Special varieties	7	5	5

Q4(a)Calculate M.D. from the mean and its coefficient for the following data (7)

Class-interval	0-10	10-20	20-30	30-40	40-50
frequency	15	20	40	20	5

(b) For the following data find (1) $P_{01}(L)$ (2) $P_{01}(P)$ (3) $P_{01}(F)$ (4) $P_{01}(D\text{-}B)$ (8)

Commodity	Base year		Current year	
	Price	Quantity	Price	Quantity
A	4	10	5	12
B	3	8	6	10
C	2	8	3	9
D	5	4	8	5

OR

Q4 (a) Find the standard deviation and C.V. for the following data. (7)

Marks	0-20	20-25	25-30	30-35	35-40	40-50
No. of students	16	28	42	30	18	14

(b) From the following data calculate the cost of living index number for 2006 by the Family Budget Method. Also obtain the expenditure of a persons in the year 2006 if his expenditure in 2001 was Rs. 6000. (8)

Group	Price in 2001	Price in 2006	Weight
Food	15	36	60
Clothing	48	96	5
Lighting &fuel	30	90	10
Rent	60	180	15
Miscellaneous	45	90	10

Q5 (A)Write in short uses of statistics in business and limitations of statistics. (7)
(B) Write in short uses of index number and type of index number (8)

OR

Q5 Attempt any three out five. (15)
(A)Write in short of census and sample survey.
(B) Write in short on present and future value.
(C) Write in short on Qualitative and Quantitative data.
(D) Write in short on Partition values.
(E) Write short note on immediate annuity and annuity due with formula