

[11]

**SARDAR PATEL UNIVERSITY****JANUARY : 2021 EXAMINATION, B.B.A. (GENERAL) SEMESTER : III (NC)***Wednesday, 6/01/2021***MORNING SESSION TIME : 10.00 TO 12.00****SUBJECT CODE : UM03CBBA06****STATISTICS FOR MANAGEMENT - I****TOTAL MARKS : 60****Note : Attempt any four questions.**

- Q-1 (A) If  $M = 46$  and  $\sum f_i = 230$  then find missing frequencies for the following and also find Mean and mode. [07]

Class	10-20	20-30	30-40	40-50	50-60	60-70	70-80
Frequency	12	30	?	65	?	25	18

- Q-1 (B) For the following distribution find range, quartile deviation and standard deviation. [08]

Class	80-90	90-100	100-110	110-120	120-130	130-140	140-150	150-160	160-170
f	6	18	78	80	100	72	30	10	6

- Q-2 (A) Find mean, median and mode of first ten natural numbers. [07]

- Q-2 (B) The runs of two batsmen in different innings are as follow. Decide which batsman is more stable, why? [08]

A	12	115	6	73	7	19	119	36	84	29
B	47	14	76	42	4	51	37	48	13	00

- Q-3 (A) State and prove addition theorem of probability for two events. [07]

- Q-3 (B) Two cards are drawn at random from a pack of 52 cards. Find the probabilities that (1) one is king and other is queen (2) both are diamond (3) both are queen (4) both are of the same colour. [08]

- Q-4 (A) Define the term : Random Experiment, Union and intersection of two event, Sample space, complementary event, mutually exclusive event, exhaustive event. [07]

- Q-4 (B) If  $P(A) = 1/3$ ,  $P(B) = 3/4$ ,  $P(A \cap B) = 1/6$ , then find  $P(A \cup B)$ ,  $P(A' \cap B')$ ,  $P(A'/B')$ ,  $P(A/B)$ ,  $P(A')$ ,  $P(B')$ ,  $P(B/A)$ ,  $P(A \cup B)$  [08]

- Q-5 (A) Write the properties and uses of normal distribution. [07]

- Q-5 (B) A car hire firm has two cars which it hires out day by day. The numbers of demands for a car on each day is distributed as a poisson variate with mean 1.5. calculate the proportion of days in which (1) Neither car is used (2) one car is used. [ $e^{-1.5} = 0.2231$ ] [08]

- Q-6 (A) The probability that a bomb dropped from a plane will hit a target is  $2/5$ . Two bombs are enough to destroy a bridge if 4 bombs are dropped on a bridge then find the probabilities the bridge will (1) be saved (2) partially destroyed (3) totally destroyed. [07]

- Q-6 (B) In a normal distribution mean is 21.5 and S.D. is 2.5 then find the following [08]  
 (1)  $P\{18 \leq x \leq 25\}$   
 (2)  $P\{x \leq 18\}$   
 (3)  $P\{x \geq 28\}$

- Q-7 (A) Write the difference between [07]  
 (1) P-chart and  $nP$ -Chart.  
 (2) Variable chart and attribute chart.

[1]

[P.T.O.]

Q-7 (B) Draw  $\bar{x}$  and R chart for the following data and state your conclusion. [08]

Sample No.	1	2	3	4	5	6	7	8	9	10
$\bar{x}$	12.8	13.1	13.5	12.9	13.2	14.1	12.1	15.5	13.9	14.2
R	2.1	3.1	3.9	2.1	1.9	3.0	2.5	2.8	2.5	2.0

[for  $n=5$ ,  $A_2=0.5777$ ,  $D_3=0$ ,  $D_4 = 2.115$ ]

Q-8 (A) From a pharmaceutical company samples of 400 bottles were taken daily for 15 days. The number of defective seals in these bottles are given below. Draw P-Chart. And stat your conclusion. [07]

Date	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Defective items	28	18	40	42	32	62	50	10	30	22	80	62	76	56	30

Q-8 (B) Write the uses of C-chart. The number of defects notices in 20 cloth pieces are given below. [08]  
 1, 4, 3, 2, 5, 4, 6, 7, 2, 3, 2, 5, 7, 6, 4, 5, 2, 1, 3, 8  
 Using C-chart decide whether the process is in a state of statistical control or not.

————— X —————