SARDAR PATEL UNIVERSITY
BBA (III Sem.) (Gen.) Examination
Monday, 10 December 2012
2.30 - 4.30 pm
UM03CBBA06 - Statistics for Management I

Total Marks: 60

Note: Figures to the right indicate full marks.

Q.1
(a) Write the types of data, with their sources and write any one of the [07]
source in detail.
(b) For the following data, it is known that M=44 and N=100. [08]

Class	10-20	20-30	30-40	40-50	50-60	60-70	70-80
f	5	12	?	30	?	10	4

Find the missing frequencies and hence obtain Mean and Mode.

OR

Q.1
(a) Find Median, Quartile Deviation D_4, P_{50} and P_{77} for following: [08]

Class	10-19	20-29	30-39	40-49	50-59
f	2	9	15	14	10

(b) From the following prices of shares A and B, state which share is more [07]
stable? Why?

A	55	54	52	53	56	58	52	50	51	49
B	108	107	105	105	106	107	104	103	104	101

Q.2
(a) Define the terms: Sample space, Mutually Exclusive Events, [04]
Exhaustive Events and Complementary Event.
(b) There are 6 black and some white balls in an urn. The probability of [06]
drawing 2 black balls from it is 1/3. Find the number of white balls in an
urn.
(c) Find the probability of 53 Sundays in a leap year. [05]

OR

Q.2
(a) State and prove: [08]
(1) Addition theorem of probability
(2) Multiplication theorem of probability
(b) If A, B and C are three mutually exclusive and exhaustive events and [07]
if $3P(A) = 2P(B) = 6P(C)$; then find
(1) $P(A \cup B)$ (2) $P(B \cup C)$ (3) $P(A \cup C)$

Q.3
    (a)   Write the properties and uses of Normal distribution. [06]
    (b)   Between the hours of 2 and 4 p.m. the average number of phone calls [04] per minute coming into the switch board of a company is 2.5. Find the probabilities that during one particular minute there will be
(1) No phone call at all (2) Exactly 3 calls. $(e^{-2.5} = 0.0821)$
    (c)   The probability that a bomb dropped from a plane will hit a target is 2/5. [05] Two bombs are enough to destroy a bridge. If 4 bombs are dropped on a bridge. Find the probabilities that
(1) The bridge will be saved
(2) The bridge will be partially destroyed
(3) The bridge will be destroyed.

OR

Q.3
    (a)   In a normal distribution 31% of the observations are less than 45 and 8% [06] are more than 64. Find mean and standard deviation of the distribution.
    (b)   For a Poisson variate $P(1) = P(2)$. Find the value of $P(0)$. [04]
    (c)   For a Binomial variate n=10 and $P(x=5) = 2P(x=4)$. Find the value of P. [05]

Q.4
    (a)   Give the difference between the Charts for Variable and Chart for Attributes. [05]
    (b)   From a pharmaceutical company samples of 400 bottles were taken [05] daily for 15 days. The number of defective seals in these bottles is given below.

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

Draw P-chart and state your conclusion.
    (c)   The number of defects noticed in 20 cloth pieces are given below: [05]
1, 4, 3, 2, 5, 4, 6, 7, 2, 3, 2, 5, 7, 6, 4, 5, 2, 1, 3, 8. Decide whether the process is in a State of Statistical Control.

OR

Q.4
    (a)   The following table gives the information regarding life hours of 5 lamps of [07] 10 different samples.

Sample	1	2	3	4	5	6	7	8	9	10
$\overline{X}$	3290	3180	3350	3370	3280	3240	3260	3410	3310	3510
R	360	210	50	100	50	400	500	200	300	600

[For n=5, A_2=0.58, D_3=0, D_4=2.11]
Draw $\overline{X}$ and R charts and state your conclusions. Also give the revised limits for the control of future production.
    (b)   Write the uses of Statistical Quality Control. [03]
    (c)   Samples each of 250 radios are inspected for 12 days. The number of [05] defective radios found in different samples is given below.

Sample	1	2	3	4	5	6	7	8	9	10	11	12
No. of Defective Radios	25	47	23	30	24	34	39	32	35	22	45	40

Prepare   np-chart and state your conclusion.

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