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Seat No.

B.Com. (Part – II) (Semester – IV) Examination, 2012
BUSINESS STATISTICS (Paper – II)
Sub. Code : 49824

Day and Date : Monday, 9-4-2012 Total Marks : 40

Time : 3.00 p.m. to 5.00 p.m.

*Instructions : i) Attempt **any five**.*

*ii) Use of calculator is **allowed**.*

*iii) Use of statistical table is **allowed**.*

*iv) Graph papers will be supplied on **request**.*

*v) Figures to the **right** indicate **full** marks.*

1. a) What is relation between Laspeyre's Paasche's and Fisher's price index number ? Use it to find Laspeyre's price index number if Paasche's and Fisher's price indices are 124.75 and 125 resp. (4+4)

   b) Explain control chart for no. of defects. 8

2. Define Fisher's quantity index number. Find the same from following :

Item	Base year		Current Year	
	Price (Rs.)	Value (Rs.)	Price (Rs.)	Value (Rs.)
A	2.50	50	4	60
B	3.50	105	4	120
C	10.0	200	12	240

3. State probability mass function of Binomial. What are its mean and variance ? If a die is rolled six times, find probability of getting prime number thrice. 8

P.T.O.

4. What is time series ? What are the components of time series ? Use least square method and find the trend values for following time series 8

Year	1988	1989	1990	1991	1992	1994
Value	15	20	22	30	32	40

5. Explain 1) Chance causes ii) Assignable causes. Draw suitable control chart and comment on state of the process. [Given sample sample = 100] 8

Sample number	1	2	3	4	5	6	7	8
No. of defectives	12	14	20	12	15	10	10	4

6. Define normal distribution. 8

Sketch the normal curve and state its properties if X is a normal variate with mean 80 and S.D. 5

Find :

i) Limits of middle 50% data i.e. Q_1 and Q_3

ii) $P(X < 85)$

ii) $P(X > 70)$

Given–Area under std.normal from

$Z = -1$ to $Z = +1$ is 0.6827

$Z = -2$ to $Z = +2$ is 0.9545

7. a) Explain seasonal variations in time series (4+4)

b) State addition law of probaility. Use it to find $P(A \cup B)$ if $P(A) = \frac{1}{4}$, $P(B) = \frac{2}{5}$ and $P(A \cap B) = \frac{1}{5}$.

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Total No. of Pages : 2

B.Com. (Part - II) (Semester - IV) (New) Examination, December - 2015

BUSINESS STATISTICS (Paper - II)

Sub. Code : 63124

Day and Date : Tuesday, 15 - 12 - 2015 **Total Marks : 50**

Time : 12.00 noon to 2.00 p.m.

Instructions : 1) Attempt any five questions.
2) Figures to the right indicate full marks.
3) Use of non programmable calculator is allowed.
4) Graph paper will be supplied on request.

Q1) a) Define Fisher's quantity index number. State the relation between Laspeyre's, Paasche's and Fisher's price index number. Use it to find Laspeyre's price index number when Paasche's and Fisher's price indices are 124 and 124.8 respectively.

b) Explain Statistical quality control. Give its advantages in industry.

[10]

Q2) State the additive law of probability for two events. A bag contains 25 tickets with numbers 1 to 25. One ticket is drawn at random, find the probability that the number on ticket drawn is (a) divisible by 5 (b) Multiple of 4 or 6 (c) Perfect square. **[10]**

Q3) Define Index number. State the formula for Paasche's price index number. Find Fisher's price index number from the following data and comment. **[10]**

Commodity	Base Year		Current Year	
	Quantity (kg)	Expenses (Rs.)	Quantity (kg)	Expenses (Rs.)
A	2	240	3	390
B	5	75	6	120
C	4	52	5	65

P.T.O.

Q4) State any four properties of normal distribution. A sample of 1000 dry battery cells tested to find the length of life gave the mean = 12 hours and S.D. = 3 hours. Using normality **[10]**

Find

a) number of battery cells having life less than 6 hours

b) percentage of battery cells having life more than 15 hours.

Given area between $z = 0$ to $z = 2$ is 0.4772 and that of between $z = 0$ to $z = 1$ is 0.3413.

Q5) Define Time series and state its components. The following data gives the sales of a firm. Fit a straight line trend by the method of least squares and obtain the trend values. **[10]**

Year	2008	2009	2010	2011	2012
Sales (in thousands)	270	285	295	315	330

Q6) Explain in short the construction of control chart. Draw a mean chart for the following data and state whether the process is under statistical control or not. **[10]**

Sample Number	1	2	3	4	5	6	7	8	9	10
Mean	45	49	37	44	43	47	51	46	43	37
Range	5	4	7	6	5	7	6	4	6	8

Given for $n = 5$, $A_2 = 0.58$

Q7) a) Define Binomial distribution. If x is a Binomial variate such that $n = 8$ and $p = 0.5$, find $p(x = 0)$ and $p(x = 2)$.

b) Calculate the progressive averages for the following data :

Week	1	2	3	4	5	6	7	8	9	10
Sales	112	114	116	118	125	126	128	130	134	131

[10]

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Total No. of Pages : 2

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B.Com. (Part - II) (Semester - IV) Examination, November - 2016
BUSINESS STATISTICS (Paper - II)
Sub. Code : 63124

Day and Date : Monday, 21 - 11 - 2016 **Total Marks : 50**

Time : 12.00 noon to 02.00 p.m.

Instructions :
1) Attempt any five form following.
2) Use of calculator is allowed.
3) Figures to the right indicates full marks.
4) Graph paper will be supplied on request.

Q1) a) Define with proper example [5]
i) Sample space
ii) Experiment

b) What is S.Q.C? How it is useful in industry? [5]

Q2) Define normal distribution. State any four properties of normal distribution. If X is normally distributed with mean 12 and S.D. is 4 find [10]

a) $P(X>20)$

b) $P(0<X<12)$

c) $P(16<X<20)$

Given area under normal curve form

i) $Z = 0$ to $Z = 1$ is 0.3413

ii) $Z = 0$ to $Z = 2$ is 0.4772

iii) $Z = 0$ to $Z = 3$ is 0.4986

Q3) If x is a binomial variate with mean 5 and variance 2.5 find [10]

a) All parameters of Binomial

b) $P(x=0)$

c) $P(x=2)$

d) $P(x<2)$

e) $P(x\geq 8)$

Q4) Distinguish between seasonal and cyclical variations in time series. [10]
Calculate progressive averages for following time series. Plot there trend values on graph along with original values.

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
Values	17	24	31	44	53	60	71	88

Q5) Explain term "control chart" [10]
What are the steps to construct control chart for number of defects in the product? Draw suitable control chart for following and comment.

Sample number	1	2	3	4	5	6	7	8
No. of defectives	20	12	15	08	10	12	17	14

Sample size of each sample is 50.

Q6) Define [10]

a) Index number
b) Fisher's price index number
c) Lospeyre's qty index number

Find index number for prices by using

i) Simple aggregative method
ii) Arith mean of relative indices method

Commodity	A	B	C	D	E
Base year Price (Rs.)	2	8	13	20	10
Currentyear Price (Rs.)	4	12	17	25	20

Q7) a) Explain various problems in construction of an index number? Why fisher's method is called as an ideal method? [5]

b) Define time series. What are the uses of time series?
Explain Irregular variations in time series. [5]

Seat No.

B.Com. (Part-II) (Semester-IV) Examination, 2013
"BUSINESS STATISTICS" (Paper - II)
Sub. Code : 49824

Day and Date : Saturday, 13-4-2013 **Total Marks : 40**

Time : 3.00 p.m. to 5.00 p.m.

Instructions : 1) Attempt any FIVE.
2) Each question is for 8 marks.
3) Figures to the right indicate full marks.
4) Use of calculator is allowed.
5) Graph paper will be supplied on request.

Q1) a) Explain the terms.
i) Chance causes ii) Assignable causes

b) Define the term probability.
If an unbiased die is rolled. Find the chance of getting
i) Perfect square number
ii) The number which is greater than 4.

[4+4]

Q2) Define normal distribution. State any three properties of normal curve. [8]
If X is a normal variate with mean 46 and S.D. 4
Find
a) P(X<50),
b) P(50<X<54)
[Given the area under normal curve from Z = -1 to Z = +1 is 0.6827 and from -2 to +2 is 0.9545]

Q3) Define Binomial distribution. State its mean and S.D. [8]
If X is a Binomial variate such that n=7 and $p=^1/_2$
Find
a) Mean and variance of Binomial.
b) P(X = 0)
c) P(X≥6)

P.T.O.

Q4) Compute price index number by [8]

a) Simple aggregative method.

b) A Mean of relative price indices method,

c) Fisher's ideal method for the year 2010 by taking year 2008 as a base year.

Commodity →	A		B		C	
	Price	Qty	Price	Qty	Price	Qty
Year 2008	2	10	5	15	7.5	20
Year 2010	2.5	4	7	20	10	22

Prices are in Rs. and quantities are in kgs.

Q5) What is control chart ? What are the types of control charts ? [8]

Following are number of defectives observed in 10 samples of size 100 each. Draw control chart for number of defectives and comment on state of the process.

Sample number	1	2	3	4	5	6	7	8	9	10
No. of Defectives	4	8	11	3	11	7	7	16	12	6

Q6) Define Time Series. What are its uses ? [8]

Compute 4 yearly centered moving averages for the following time series. (Without graph)

Year	2001	2002	2003	2004	2005	2006	2007	2008
Values	110	115	122	130	132	140	145	150

Q7) a) What are the problems in construction of an index number.

b) Distinguish between seasonal and cyclic variations in time series. [4+4]

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