

SHRIMATHI DEVKUNVAR NANALAL BHATT VAISHNAV COLLEGE FOR WOMEN
(AUTONOMOUS)

(Affiliated to the University of Madras and Re-accredited with 'A+' Grade by NAAC)

Chromepet, Chennai - 600 044.

B.Com. Honours - END SEMESTER EXAMINATIONS - NOV'2024

SEMESTER - I

23UBHCT1003 - Business Statistics

Total Duration : 2 Hrs. 30 Mins.

Total Marks : 60

Section B

Answer any **SIX** questions ($6 \times 5 = 30$ Marks)

1. Explain the term sampling and describe its features and types.
2. A filling machine is expected to fill 5 kg of powder into bags. A sample of 10 bags gave the weights 4.7, 4.9, 5.0, 5.1, 5.4, 5.2, 4.6, 5.1, 4.6 and 4.7. Test whether the machine is working properly. (table value of t test at 5% level = 2.262)
3. The following table shows the distribution of digits in numbers chosen at random from a telephone directory.

Digit	0	1	2	3	4	5	6	7	8	9
Frequency	1026	1107	997	966	1075	933	1107	972	964	853

Compute whether the digits may be taken to occur equally frequently in the directory. (table value of chi square at 5% level = 16.919)

4. Compute the trend values by the method of 4 yearly moving averages:

Year	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Production ('000 units)	464	515	518	467	502	540	557	571	586	612

5. Prepare Karl Person's coefficient of correlation between age & playing habits from the data given below. Also calculate probable error and comment on the value:

Age	20	21	22	23	24	25
No. of students	500	400	300	240	200	160
Regular players	400	300	180	96	60	24

6. Time taken by workers in performing a job are given below:

Method I	20	16	26	27	23	22	
Method II	27	33	42	35	32	34	38

Prepare whether there is any significant difference between the variances of time distribution. (Table value of F at 5% = 4.28)

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7. In a survey of 200 boys, of which 75 intelligent, 40 had skilled fathers while 85 of the unintelligent boys has unskilled fathers. Do these figures support the hypothesis that skilled fathers have intelligent boys. Show using chi square test.
8. Ascertain the trend values by the method of least squares. Also calculate the monthly increase in sales and trend vales for 2012.

Year	2001	2002	2003	2004	2005	2006	2007
Sales (Rs. Lakh)	125	128	133	135	140	141	143

Section C

I - Answer any **TWO** questions ($2 \times 10 = 20$ Marks)

9. Sketch the procedure of testing hypothesis. Also explain the test of significance for attributes.
10. Prepare two regression lines from the following data and estimate the blood pressure where age is 50 years. Can we also estimate the blood pressure of a person aged 20 years on the basis of this regression equation? Discuss.

Age (in years)	56	42	72	39	63	47	52	49	40	42	68	60
Blood Pressure	127	112	140	118	129	116	130	125	115	120	135	133

11. The following table gives the yields of 15 samples of plot under three varieties of seed.

A	B	C
20	18	25
21	20	28
23	17	22
16	15	28
20	25	32

Prepare using analysis of variance whether there is a significant difference in the average yield of seeds. (table value at 5% level = 3.89)

12. A random sample of employees of a large company was selected & the employees were asked to complete a questionnaire. One question asked was whether the employees were in favour of the introduction of flexible working hours. The following table classifies the employees by their response and gender ie. Male or female.

Response	Gender	
	Male	Female
In favour	57	83
Not in favour	33	27

Ascertain whether there is evidence of a significant association between the response and gender. (table value at 5% level) = 3.94.

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II - Compulsory question ($1 \times 10 = 10$ Marks)

13. Ascertain a straight line trend by the method of least squares to the following data. Assuming that the same rate of change continues, what would be the predicted earning for the year 2015?

Year	2001	2002	2003	2004	2005	2006	2007	2008
Earnings (Rs. Lakh)	38	40	65	72	69	60	87	95
