B.Com. DEGREE (C.B.C.S.S.) EXAMINATION, NOVEMBER 2018

First Semester

Core 1—BUSINESS STATISTICS

[Common for Model I, Model II and U.G.C. Sponsored B.Com. Degree Programmes]

(2013—2016 Admissions)

Time : Three Hours   Maximum Marks : 80

Part A (Short Answers)

Answer all questions.

Each question carries 1 mark.

1. Define Mean and discuss its merits and demerits.

2. "Statistics are Numerical statement of facts". Explain.

3. When is mode preferred over other forms of average ?

4. Distinguish between absolute and relative measures of dispersion.

5. Define Dispersion.

6. What is kurtosis ?

7. Why index numbers are called economic barometers ?

8. What is Fisher's index number ? Why is it designated ideal ?

9. What is meant by time series analysis ?

10. Define Skewness.

(10 × 1 = 10)

Part B (Brief Answers)

Answer any eight questions.

Each question carries 2 marks.

11. Discuss briefly the limitations of statistics.

12. Find Quartiles of the following distribution

    120, 130, 140, 110, 160, 150, 190, 180, 170, 200.

13. Find the Harmonic mean

    2, 3, 4, 5.

Turn over

14. Give two examples where geometric and harmonic mean would be most suitable average

15. What is mean deviation ? State the formula of mean deviation.

16. Co-efficient of variations of two series are 60% and 80%. Their standard deviations are 20 and 16. What is their arithmetic mean ?

17. Define 'Moments' and point out their usefulness in statistical analysis.

18. What are index numbers ? Mention 2 uses of index numbers.

19. What are the considerations in the selection of the base year for index number construction ?

20. What are the components of time series ?

21. Ascertain the value of median if mean is 30 and mode is 28 ?

22. If $N = 10$, and $\sum x^2 = 1000$, what is standard deviation ?

$(8 \times 2 = 16)$

Part C (Short Essays)

Answer any six questions.
Each question carries 4 marks.

23. Analyse the uses and limitations of index number.

24. What is Skewness ? What are the tests of skewness ?

25. Explain what you understand by absolute and relative dispersion ? What are the measures of relative dispersion known to you ?

26. What are the properties of an ideal average ?

27. Compute median from the following data :

Midvalue	:	115	125	135	145	155	165	175	185	195
Frequency	:	6	25	48	72	116	60	38	22	3

28. The number of telephone calls received at an exchange are shown in the following frequency distribution .Compute mean deviation :

No. of calls	:	0	1	2	3	4	5	6	7
Frequency	:	14	21	25	43	51	40	39	12

29. Compute co-efficient of Skewness from the following data :

$Q1 - Q3$ $= -8$
$Q1 + Q3$ $= 22$
Median $= 10.5.$

30. Calculate the cost of living index for the following data :

Commodity	Price-base year	Price-current year	Quantity-base year.
A	6	8	50
B	2	3	100
C	5	6	60
D	10	12	30

31. The mean salary paid to 1000 employees of a factory was found to be Rs. 180.4. Later on it was discovered that the wages of two employees were wrongly taken as 297 and 165 instead of 197 and 185. Find the correct mean.

$(6 \times 4 = 24)$

Part D (Essays)

Answer any **two** *questions.*
Each question carries 15 marks.

32. Calculate mode of the following data :

Income between	:	100–200	100–300	100–400	100–500	100–600
No. of persons	:	15	33	63	83	100

33. The number of employees, wages per employee and the variance of the wage per employee for two factories are given below :

		Factory A	Factory B
No. of Employees	..	50	100
Average wages per employee per week (rupees)	..	120	85
Variance of wages per employee per week	..	9	16

    (a) In which factory is there greater variance in the distribution of wages per employee ?

    (b) Which factory pays out larger weekly wages ?

Turn over

34. Calculate Fisher's Ideal index from the following data and prove that it satisfies both the time reversal and factor reversal tests :

	2012		2013	
Commodity	Price	Expenditure	Price	Expenditure
A	8	80	10	120
B	10	120	12	9
C	5	40	5	50
D	4	56	3	60
E	20	100	25	150

35. Calculate the long term trend with a three year period from the following data :

Year :	2005	2006	2007	2008	2009	2010	2011	2012
Output of Tea (Tonnes) :	1632	1557	1652	2100	2620	3120	3236	3562

(2 × 15 = 30)