

QUESTION PAPER SET A

Name of course: CBCS B.A. (Prog.) SEC, Semester VI

Scheme/Mode of Examinations: CBCS Mode

Name of the Paper: Basic Computational Techniques for Data Analysis

UPC/Subject Code: 62273601

Maximum Marks: 50 marks

Time Limit: 3 hours

INSTRUCTIONS FOR CANDIDATES

1. You are expected to answer any four (4) out of the six (6) questions given below.
2. Each question is of twelve and a half marks (12.5). Each question has sub parts but there is no division of marks according to the sub parts.
3. Answers have to be handwritten and a single file (PDF preferably) is to be uploaded

All the questions carry equal marks. Answer any four

1. a). Explain kurtosis relative to a normal distribution with the help of diagrams. Write the M S Excel method or syntax for i) Kurtosis , ii) Skewness and iii) Number of entries according to the following excel table:

	A	B	C	D	E	F
1	Skewness and Kurtosis					
2						
3				SKEW	-0.42705	
4		2		KURT	-0.93979	
5		5				
6		-1	n		8	
7		3				
8		4		SKEWP	-0.3424	
9		5			-0.3424	
10		0			-0.3424	
11		2				
12				KURTP	-1.11419	

- b). Interpret Correlation if Correlation Coefficient is i) -0.50 and -0.1 and ii) +0.50 and +0.1.

- c) Explain the importance of capital budgeting techniques according to the statement “ in order to maximize the return to the shareholders of a company, it is important that the best and the most profitable investment projects are selected”

2. a). Explain the statement related to IRR (Internal Rate of Return) “ the procedures for computing the internal rate of return vary with the pattern of net cash flow”. If initial investment is Rs. 100000 (one lakh) and the cash flow at the end of year ‘t’ is Rs. 100945 when discount rate is 15% . When discount rate is increased to 16% the cash flow at the end of year ‘t’ is Rs. 98730. How will you interpret IRR and what would your suggestion be for choosing one of the two projects?
- b) For which criterion is COUNTIF put to use? Explain the process or syntax in MS Excel for COUNTIF command with respect to the following M S Excel table for i) year 2000 and ii) for years above 2000 including 2000 also.

	A	B	C
1	Year	Value	
2	1999	10.5	
3	2000	7.2	
4	2001	200	
5	2002	5.4	
6	2003	8.1	
7	2004	9	
8			

Sheet1

- c) What is the difference between correlation and regression and how is it useful in statistical analysis? Interpret the regression results with respect to independent and dependent variables.
3. a) What do you understand by “Skewness is a departure from symmetry”. The table below represents the value of skewness as – (minus) 0.1098, interpret it.

Heights of boys in sports academies in India		
Height (inches)	Class Mark, x	Frequency, f
59.5–62.5	61	5
62.5–65.5	64	18
65.5–68.5	67	42
68.5–71.5	70	27
71.5–74.5	73	8

- b) Make a diagrammatic representation of dispersion showing greater dispersion and less dispersion about a central value. Mention any three simple methodologies for measuring dispersion.

c) Net Present Value (NPV) represents the net benefit over and above the compensation for time and risk. A small Indian company is planning an investment in manufacturing of coolers. The company uses Net Present Value to evaluate projects.

Investment	Rs. 100,000	Rs. 100,000
Saving in Year	Cash flow of A in Rs.	Cash flow of B in Rs.
1	50,000	20,000
2	30,000	20,000
3	20,000	20,000
4	10,000	40,000
5	10,000	50,000
6	-	60,000
NPV @ 10%	-(minus) Rs. 1686.42	Rs. 41972.08
NPV @ 11%	-(minus) Rs 3460.63	Rs. 36974.55

Interpret the results and justify the selection of a project in both the cases, taking into consideration discount rates 10% and 11%?

4. a) In a Survey you have asked 10 respondents to rate a product on various attributes on a five point scale. Analyse and interpret the results of two of the attributes 'good value for money' and 'product reliability' on the basis of mean and standard deviation obtained

Respondents	Attribute 1 'good value for the money'	Attribute 2 'product reliability'
A	3	1
B	3	1
C	3	1
D	3	1
E	4	5
F	4	5
G	3	5
H	3	5
I	3	5
J	3	5
Mean	3.2	3.4
Std Dev	0.4	2.1

b) The marks of 7 students out of 20 are 12, 14, 19.5, 18, 16, 12.5 and 15. Median of the marks of seven students is 15. How has it been calculated and what the median value of 15 as mentioned above means according to statistical interpretation?

c) Do Cash Flows play an important role in Financial Management? Explain

5. a) Analyze regression of X on Y if $X = -3.4 + 1.04Y$

b) What do you understand by CAGR? A firm invested Rupees 10000 in a portfolio with the returns as follows

From January 1, 2015 to January 1, 2016, the portfolio grew by Rs. 12500 (which is 25% according to CAGR); On January 1st 2017 the portfolio was Rs. 13500 (CAGR from January 2016 is 8%); On January 1st 2018 the portfolio ended with Rs. 19000 (CAGR from January 2017 to January 2018 is 40.74%).

Calculate the CAGR from January 2015 to January 2018?

Compare and analyse the above given results with your calculated answer.

c) Explain the MS Excel steps Freezing and Unfreezing of Headers. How is it useful

6. a) Which measure/s of central tendency is standard deviation dependent on, support the answer with formula or formulas?

b) What do you understand by EMI? How is it calculated? If we assume that an investor takes a loan of Rs. 500000 (5lakh) which is the principal loan amount, at an interest rate of 9.50% for 10 years. The investor's EMI using the flat-rate method is calculated to be Rs. 8125 only and the total payments equal Rs. 975000. Now assume that the EMI reducing-balance method was used instead of the EMI fixed-rate method, using the EMI reducing-balance method EMI is Rs.6470 only and the total payments equal Rs. 776000. Interpret the two methods based on the information provided.

c) Mode and modal frequency can play an important role in statistical analysis but it has limitations. Explain the use of mode according to the above statement and support your answer with a simple example