



PRESIDENCY UNIVERSITY

BENGALURU

Roll No.											
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End - Term Examinations – May / June 2026

Date: 22-05-2026

Time: 09:30am – 12:30pm

School: SOIS	Program: BCA, BCAD, BCAAIML	
Course Code: MAT1202	Course Name: Statistical Methods and Techniques	
Semester: II	Max Marks: 100	Weightage: 50%

CO - Levels	CO1	CO2	CO3	CO4	CO5	CO6
Marks	24	14	14	24	12	12

Instructions:

- (i) Read all questions carefully and answer accordingly.
- (ii) Do not write anything on the question paper other than roll number.
- (iii) Permitted to use normal distribution table.

Part A

Answer ALL the Questions. Each question carries 2marks.

10Q x 2M = 20M

1	List any two methods of collecting primary data.	2 Marks	L1	CO1
2	Calculate arithmetic mean of first 20 natural numbers.	2 Marks	L2	CO1
3	Two coins are tossed simultaneously. What is the probability that exactly one head occurs.	2 Marks	L2	CO2
4	State the addition law of probability.	2 Marks	L1	CO2
5	Define binomial distribution.	2 Marks	L1	CO3
6	Define mean and variance of the Poisson distribution.	2 Marks	L1	CO3
7	Write the names of measures of correlation.	2 Marks	L1	CO4
8	Consider the equation $7y + 2x - 9 = 0$. Find the two regression coefficients and the correlation coefficient.	2 Marks	L2	CO4
9	Define null hypothesis.	2 Marks	L1	CO5
10	Define type 1 and type 2 errors.	2 Marks	L1	CO6

Part B
Answer the Questions.

Total Marks 80M

11	The following table shows the food grain production (in tons) during different years. Draw a multiple bar diagram to represent the given data.				10 Marks	L3	CO1
	Food grain	2008	2009	2010			
	Rice	150	90	100			
	Ragi	120	150	140			
	Wheat	200	250	280			

Or

12	Consider the following distribution data table. Illustrate the given data with the help of more-than cumulative frequency curve and less than cumulative frequency curve. Also locate the median using your Ogive.							10 Marks	L3	CO1
	C.I	0-10	10-20	20-30	30-40	40-50	50-60			
	Frequency	3	8	17	29	15	6			

13	a	The mean of 40 observations was 160. It was later found out that a value 125 was mistakenly copied as 165. Find the correct mean.	5 Marks	L3	CO1
	b	Calculate all three quartiles for the following data set: 1, 5, 10, 3, 8, 12, 4, 1, 2, 8.	5 Marks	L3	CO1

Or

14	Consider the marks scored in English by 10 students, each from two different sections, out of a total mark of 50 in Midterm examinations.											10 Marks	L3	CO1																						
	<table><tr><td>Section A</td><td>44</td><td>30</td><td>28</td><td>10</td><td>2</td><td>48</td><td>21</td><td>15</td><td>50</td><td>20</td></tr><tr><td>Section B</td><td>28</td><td>32</td><td>25</td><td>49</td><td>20</td><td>24</td><td>30</td><td>26</td><td>22</td><td>25</td></tr></table>														Section A	44	30	28	10	2	48	21	15	50	20	Section B	28	32	25	49	20	24	30	26	22	25
	Section A	44	30	28	10	2	48	21	15	50	20																									
	Section B	28	32	25	49	20	24	30	26	22	25																									
Determine:																																				
(i) Which section students are better scorers? (ii) Which section students are more consistent performers?																																				

15	The probability that an automobile needs to be filled with gasoline is 0.25; the probability that it needs a new oil filter is 0.40; and the probability that both the oil filter need changing and gasoline has to be filled is 0.14. (i) If the oil filter has to be changed, calculate the probability that a gasoline fill is needed? (ii) If a gasoline fill is needed, calculate the probability that the oil filter has to be changed?	10 Marks	L3	CO2
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Or

16	In a certain factory, three machines M1, M2 and M3 make 30%, 45% and 25% of the products respectively. It is known that 2%, 3% and 2% of the products made by each machine, respectively, are defective. Suppose that a finished product is randomly selected. If the randomly selected product is found to be defective, Find the probability that it is made by machine M3?							10 Marks	L3	CO2
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17	It has been observed that during the rainy season, a person reaches his office on time only 4 out of 10 days. (i) Determine a suitable mathematical model, which represents the number of days out of n days, the person reaches his office on time during rainy days. (ii) If it rains consecutively for 5 days, calculate the probability that the person reaches his office on time exactly for 4 days? (iii) If it rains consecutively for 5 days, calculate the probability that the person reaches his office on time at most for 2 days? (iv) If it rains consecutively for 15 days, calculate the expected mean number of days on which he reaches office exactly on time?	10 Marks	L3	CO3
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Or

18	The average monthly sales of 'Reliable Computers' are 2500 units with a standard deviation of 100 units. The sales are found to be normally distributed over months. What are the chances that the sales during a particular month will be (i) at most 2400 units (ii) at least 2400 units (iii) between 2450 to 2550 units	10 Marks	L3	CO3
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19	Consider the following data set:											10 Marks	L3	CO4
	Marks in Philosophy	18	17	23	22	21	20	19	19	20	21			
	Marks in History	16	12	20	15	22	15	11	14	19	16			
	Construct suitable mathematical models to estimate:													
	(i) Marks in philosophy when marks in history is known													
	(ii) Marks in history when marks in philosophy is known													

Or

20	Calculate the Karl-Pearson's correlation co-efficient for the following data:												10 Marks	L3	CO4	
	X	60	34	40	50	45	41	22	43	42	66	64				46
	Y	75	32	35	40	45	33	12	30	36	72	41				57

21	By method of least squares fit a straight line to the following data						10 Marks	L3	CO4
	X	1	2	3	4	5			
	Y	14	27	40	55	68			

Or

22	Fit a second degree polynomial to the following data by method of least squares					10 Marks	L3	CO4	
	x	0	1	2	3				4
	y	1	5	10	22				38

23	A population consists of the five numbers 2, 3, 6, 8 and 11. Consider all possible samples of size 2 that can be drawn without replacement from this population. Find: (i) the mean of the population (ii) the standard deviation of the population (iii) the mean of the sampling distribution of means (iv) the standard deviation of the sampling distribution of means (which is the standard error of means).	10 Marks	L3	C05
Or				
24	The mean life time sample of the sample of 100 fluorescent bulbs produced by a company is calculated by 1635 hours with a standard deviation of 120 hours. If μ is the lifetime of all bulbs produced by the company, then test the hypothesis that $\mu=1600$ hours at 1% level of significance.	10 Marks	L3	C05

25	Producer of 'Gutkha', claims that the nicotine in his 'Gutkha' on the average is 1.83 mg. Can this claim be accepted if a random sample of 8 'Gutkhas' of this type have the nicotine contents of 2.0, 1.7, 2.1, 1.9, 2.2, 2.1, 2.0, 1.6 mg against that the average is more?	10 Marks	L3	C06
Or				
26	An ambulance service company claims that on an average it takes 20 minutes between a call for an ambulance and the patient's arrival at the hospital. If in 6 calls the time taken (between a call and arrival at hospital) are 27, 18, 26, 15, 20, and 32. Can the company's claim be accepted at 0.10 LOS?	10 Marks	L3	C06