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| Roll No. | | | | | | | | | | | | | | |
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PRESIDENCY UNIVERSITY

BENGALURU

Mid - Term Examinations - March 2026

Date: 12- 03- 2026

Time: 11.45am to 01.15pm

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|-----------------------------|--|-----------------------|
| School: SOIS | Program: BCA | |
| Course Code: MAT1202 | Course Name: Statistical Methods and Techniques | |
| Semester: II | Max Marks: 50 | Weightage: 25% |

| CO - Levels | C01 | C02 | C03 |
|-------------|-----|-----|-----|
| Marks | 26 | 12 | 12 |

Instructions:

- (i) Read all questions carefully and answer accordingly.
- (ii) Do not write anything on the question paper other than roll number.

Part A

Answer ALL the Questions. Each question carries 2marks.

5Q x 2M=10M

| | | | | |
|---|---|---------|----|-----|
| 1 | Define primary data. | 2 Marks | L1 | C01 |
| 2 | Compute mode for the data set: 1,2,3,4,5,6,7,8,9. | 2 Marks | L2 | C01 |
| 3 | Write the formula for locating the r^{th} quartile. | 2 Marks | L1 | C01 |
| 4 | A coin is thrown 3 times. Compute the probability that at least one head is obtained? | 2 Marks | L2 | C02 |
| 5 | Write the expressions for mean and variance of a binomial distribution. | 2 Marks | L1 | C03 |

Part B
Answer the Questions.

Total Marks 40M

| | | | | |
|---|---|----------|----|-----|
| 6 | <p>120 postgraduate students who study a STEM course were asked about their specialism. The results are shown in the pie chart below. Determine</p> <p>(i) How many students specialized in Engineering? (ii) How many students specialized in Math's? (iii) How many students specialized in Technology?</p> | 10 Marks | L3 | CO1 |
| | | | | |

Or

| | | | | | | | | | | |
|---------------|---|----------|-------|-------|--------------|------|-------|-------|-------|---------------|
| 7 | <p>Using the following frequency distribution of weekly wages of workers, construct both the less-than and more-than cumulative frequency distributions and draw the corresponding ogives (cumulative frequency curves). Interpret the point of intersection of the two ogives.</p> | 10 Marks | L3 | CO1 | | | | | | |
| | <table border="1"> <tr> <td>Weekly wages</td> <td>0-20</td> <td>20-40</td> <td>40-60</td> <td>60-80</td> </tr> <tr> <td>No of workers</td> <td>4</td> <td>5</td> <td>6</td> <td>3</td> </tr> </table> | | | | Weekly wages | 0-20 | 20-40 | 40-60 | 60-80 | No of workers |
| Weekly wages | 0-20 | 20-40 | 40-60 | 60-80 | | | | | | |
| No of workers | 4 | 5 | 6 | 3 | | | | | | |

| | | | | |
|---|--|----------|----|-----|
| 8 | <p>Consider the following data set: 10,12,5,9,8,4,8,6,7,2. Determine:</p> <p>(i) The lower quartile (ii) The median (iii) The upper quartile</p> | 10 Marks | L3 | CO1 |
| | Or | | | |

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----------|--|-----------|----|----|----|----|----|----|----|----|----|----|-----------|----|----|----|----|----|----|----|----|----|----|----------|----|-----|
| 9 | <p>Consider the marks scored in MAT1202 by 10 students, each from two different sections, out of a total mark of 50 in Midterm examinations.</p> <table border="1"> <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> <p>Determine:</p> <p>(i) Which section students are better scorers? (ii) Which section students are more consistent performers?</p> | Section A | 44 | 30 | 28 | 10 | 2 | 48 | 21 | 15 | 50 | 20 | Section B | 28 | 32 | 25 | 49 | 20 | 24 | 30 | 26 | 22 | 25 | 10 Marks | L3 | CO1 |
| | Section A | 44 | 30 | 28 | 10 | 2 | 48 | 21 | 15 | 50 | 20 | | | | | | | | | | | | | | | |
| Section B | 28 | 32 | 25 | 49 | 20 | 24 | 30 | 26 | 22 | 25 | | | | | | | | | | | | | | | | |
| Or | | | | | | | | | | | | | | | | | | | | | | | | | | |

| | | | | |
|----|--|----------|----|-----|
| 10 | <p>Three coins are tossed. Predict the probability of getting</p> <p>(i) all tails (ii) two tails (iii) at least two heads (iv) exactly one head or two heads</p> | 10 Marks | L3 | CO2 |
| | Or | | | |

| | | | | |
|----|--|----------|----|-----|
| 11 | 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, Predict the probability that it is made by machine M3? | 10 Marks | L3 | CO2 |
|----|--|----------|----|-----|

| | | | | |
|----|---|----------|----|-----|
| 12 | Assuming that it is true that 3 in 10 industrial accidents are due to fatigue, Determine the probability that: (i) Exactly 3 of 7 industrial accidents will be due to fatigue. (ii) At least 3 of the 7 industrial accidents will be due to fatigue. (iii) At most 3 out of 7 industrial accidents will be due to fatigue (iv) none of the 7 accidents are due to fatigue (v) all the 7 accidents are due to fatigue | 10 Marks | L3 | CO3 |
|----|---|----------|----|-----|

Or

| | | | | |
|----|--|----------|----|-----|
| 13 | A company manufactures bulbs, and it is observed that 2 out of every 10 bulbs are defective. (i) Formulate an appropriate probability distribution model to represent the number of defective bulbs in a batch of n bulbs. (ii) Using the model, compute the probability that in a randomly selected box of 10 bulbs, at most 3 bulbs are defective. (iii) Further, determine the probability that in a box of 10 bulbs, more than 7 bulbs are defective. (iv) If a sample of 50 bulbs is chosen, calculate the expected (mean) number of defective bulbs in the sample. | 10 Marks | L3 | CO3 |
|----|--|----------|----|-----|