

WINTER SEMESTER 2022-2023  
SCHOOL OF ADVANCED SCIENCES  
DEPARTMENT OF MATHEMATICS

CONTINUOUS ASSESSMENT TEST – II

Course Code : BMAT202L  
Course Name : Probability and Statistics  
Slot : B2-TB2  
Duration : 90 Minutes  
Date : 13.03.2023

0879

Max. Marks: 50

Answer ALL the following questions.

General instructions: Students are allowed with one hand written notebook and statistical tables

Q. No.	Question	Marks																						
1.	<p>From the following data, find</p> <p>(i). the two regression equations</p> <p>(ii). the most likely marks in statistics when marks in Economics are 30.</p> <table border="1" style="margin-left: 20px;"> <tr> <td>Marks in Economics</td> <td>25</td> <td>28</td> <td>35</td> <td>32</td> <td>31</td> <td>36</td> <td>29</td> <td>38</td> <td>34</td> <td>32</td> </tr> <tr> <td>Marks in Statistics</td> <td>43</td> <td>46</td> <td>49</td> <td>41</td> <td>36</td> <td>32</td> <td>31</td> <td>30</td> <td>33</td> <td>39</td> </tr> </table>	Marks in Economics	25	28	35	32	31	36	29	38	34	32	Marks in Statistics	43	46	49	41	36	32	31	30	33	39	10
Marks in Economics	25	28	35	32	31	36	29	38	34	32														
Marks in Statistics	43	46	49	41	36	32	31	30	33	39														
2.	<p>(i). Six dice are thrown 729 times. How many times do you expect at least three dice to show a five or six?</p> <p>(ii). If a random variable X follows Poisson distribution such that <math>P(X = 1) = P(X = 2)</math>, find (a) The mean and variance of the distribution. (b) <math>P(X = 0)</math>.</p>	6+4																						
3.	<p>The hourly wages of 1,000 workmen are normally distributed around a mean of Rs. 70 and with a standard deviation of Rs. 5. Estimate the number of workers whose hourly wages will be:</p> <p>(i) Between Rs. 69 and Rs. 72. (ii) More than Rs. 75; (iii) Less than Rs. 63.</p>	10																						
4.	<p>A machine puts out 16 imperfect articles in sample of 500. After the machine is overhauled, it puts out 3 imperfect articles in a batch of 100. Has the machine improved?</p>	10																						
5.	<p>The heights of college students in a city are normally distributed with S.D. 6cms. A sample of 100 students has mean height 158cms. Test the hypothesis that the mean height of college students in the college is 160cms.</p>	10																						