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|  | **ENGINEERING MATHEMATICS IV**  **(AAS0402)**  **UNIT-III** | | **SESSION: 2022-23** |
| **CLASS/SEM: (IT)- IV(EVEN)** |
| Assignment Given Date: 02/04/23  Assignment Submission Date: 15/04/23 | | Maximum Points: 100 | |
| Weightage in University Exam: 34 Marks | |
| Faculty Name: Dr. Aakansha Vyas | | Faculty Mail Id: aakanshavyas.m@niet.co.in | |

**Note: Write solution of each question in clear handwriting.**

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| Q. N. | Question Statement | Pts | CO | BLOOM’S KNOWLEDGE LEVEL |
| 1 | A random variable has the following probability mass function:   |  |  |  |  | | --- | --- | --- | --- | |  | 0 | 1 | 2 | |  |  |  |  |        1. Find 2. Evaluate and 3. If find the maximum value of 4. Determine the distribution function of 5. Find the smallest such that | 10 | 3 | K5 |
| 2 | Supose the p.d.f of a continuous random variable has defined as-    Find the c.d.f | 5 | 3 | K5 |
| 3 | If a random variable has density function-    Obtain- and | 5 | 3 | K5 |
| 4 | Suppose that has pdf:    Find the pdf of | 5 | 3 | K5 |
| 5 | If and are two random variables having the joint pmf  Find the conditional distribution for for | 10 | 3 | K3, K5 |
| 6 | Joint distribution of and is given by-  .  Test Whether and are independent. For the above joint distribution, find the conditional density of given | 10 | 3 | K5 |
| 7 | Given .  Find-   1. **)** | 10 | 3 | K2, K5 |
| 8 | The joint probability density function of two-dimensional random variable is given by-   1. Find marginal density function of and 2. Find the conditional density function of given and conditional distribution of given . | 10 | 3 | K5 |
| 9 | Let and be jointly distributed with pdf-  Show that and are not independent but and are independent. | 10 | 3 | K5 |
| 10 | The joint probability density function of two-dimensional random variable is given by-  Find marginal density function of and Hence examine if and are independent. | 10 | 3 | K5 |

**Answer:**

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| **;** | **0** | **1** | **2** |
| **0** | **0** | **1/3** | **2/3** |
| **1** | **2/9** | **3/9** | **4/9** |
| **2** | **4/15** | **5/15** | **6/15** |

1. **Independent,**
2. **Prove**
3. **, , Not independent**