**POORNIMA UNIVERSITY, JAIPUR**

**END SEMESTER EXAMINATION, November 2022**

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|  | **2BT3140** | Roll No. | Total Printed Pages: 2 |
| **2BT3140** |  |
| B. Tech. II Year III Semester (Main/Back) End Semester Examination, November 2022  **(CC, CE, CS, AIDS)** | |
| **BCECSA3101 : Advanced Engineering Mathematics** | | | |

# Time: **3** Hours. Total Marks: **60**

Min. Passing Marks: **21**

Attempt **five** questions selecting one question from each Unit. There is internal choice from Unit I to Unit V. Marks of each question or its parts are indicated against each question / parts. Draw neat sketches wherever necessary to illustrate the answer. Assume missing data suitably (if any) and clearly indicate the same in the answer.

Use of following supporting material is permitted during examination for this subject.

# **1.--------------------------Nil--------------------** **2.------------------Nil-----------------------**

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|  |  | **UNIT-I (CO1)** | **Marks** | **Bloom Level** |
| **Q.1** |  | One card is drawn from a pack of 52 cards find the probability of drawing (a) A black card (b) A jack (c) not a jack | **(12)** | **Evaluate** |
|  |  |  |  |  |
|  |  | **OR** |  |  |
|  |  |  |  |  |
| **Q.2** |  | Three bags A, B, C contains 7 red and 9 black balls, 3 red and 2 black balls and 1 red and 5 black ball respectively. A bag is chosen and a ball is drawn from the bags. If the drawn ball is red, find the probability that the ball was drawn from bag A. | **(12)** | **Evaluate** |
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|  |  | **UNIT-II (CO2)** |  |  |
|  |  |  |  |  |
| **Q.3** |  | The joint probability density function of a bivariate random variable (X, Y) is given by    Where is a constant.   1. Find the value of . 2. Find the marginal probability density function of X and Y. | **(6+6)** | **Evaluate** |
|  |  |  |  |  |
|  |  | **OR** |  |  |
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| **Q.4** |  | On an average one telephone out of 15 is busy. Find the probability that 4 out of 8 telephones called, would be found busy. | **(12)** | **Evaluate** |
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|  |  | **UNIT-III (CO3)** |  |  |
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| **Q.5** |  |  | **(12)** | **Evaluate** |
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|  |  | **OR** |  |  |
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| **Q.6** |  |  | **(12)** | **Evaluate** |
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|  |  | **UNIT-IV (CO4)** |  |  |
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| **Q.7** |  | Solve the following linear programming problems graphically:  Maximum | **(12)** | **Evaluate** |
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|  |  | **OR** |  |  |
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| **Q.8** |  | Solve the following linear programming problems graphically:  Minimize | **(12)** | **Evaluate** |
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|  |  | **UNIT V (CO5)** |  |  |
|  |  |  |  |  |
| **Q.9** | **(a)** | Write down the following L.P.P in standard matrix form  Minimize  , | **(6)** | **Evaluate** |
|  |  |  |  |  |
|  | **(b)** | Define key element. | **(6)** |  |
|  |  |  |  |  |
|  |  | **OR** |  |  |
| **Q.10** |  | Solve the following l.P.P using simplex method.  Max. | **(12)** | **Evaluate** |