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Question Paper Code	12761
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M.E. / M.Tech. - DEGREE EXAMINATIONS, APRIL / MAY 2024

Second Semester

M.E - CAD / CAM

**20PCDEL206 - ARTIFICIAL INTELLIGENCE AND ITS INDUSTRIAL APPLICATIONS**

Regulations - 2020

Duration: 3 Hours

Max. Marks: 100

**PART - A (10 × 2 = 20 Marks)**

Answer ALL Questions

- |  | Marks | K-<br>Level | CO  |
|--|-------|-------------|-----|
| 1. Define AI and write its importance.                         | 2     | K1          | CO1 |
| 2. Classify the programming languages for AI development.      | 2     | K2          | CO1 |
| 3. What is fuzzy logic system?                                 | 2     | K1          | CO2 |
| 4. Summarize the advantages and disadvantages of semantic net. | 2     | K2          | CO2 |
| 5. List the steps involved in programming in PROLOG.           | 2     | K1          | CO3 |
| 6. Write a note about compiler in LISP.                        | 2     | K2          | CO3 |
| 7. Explain briefly about inference mechanism in AI.            | 2     | K2          | CO4 |
| 8. Briefly explain rule-based system in AI.                    | 2     | K2          | CO4 |
| 9. Summarize the applications of image processing.             | 2     | K2          | CO5 |
| 10. What do you mean by intelligent robots?                    | 2     | K1          | CO5 |

**PART - B (5 × 13 = 65 Marks)**

Answer ALL Questions

- |  |    |    |     |
|--|----|----|-----|
| 11. a) Illustrate about the steps involved in developing AI systems.   | 13 | K2 | CO1 |
| <b>OR</b>  |    |    |     |
| b) Describe the types of artificial neural networks currently being used in machine learning.                                    | 13 | K2 | CO1 |
| 12. a) Discuss the difference between forward and backward chaining and discuss the advantages and disadvantages of each method. | 13 | K2 | CO2 |
| <b>OR</b>  |    |    |     |
| b) Enumerate the semantic network representations in rule-based inference systems.   | 13 | K2 | CO2 |
| 13. a) Explain the types of development tools in expert system.  | 13 | K2 | CO3 |
| <b>OR</b>  |    |    |     |
| b) Discuss about the LISP and its program structure.   | 13 | K2 | CO3 |

K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze; K5 – Evaluate; K6 – Create

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14. a) Explain in detail about expert system architecture and its characteristic features. 13 K2 CO4

**OR**

b) Discuss object recognition and inspection in difficult industrial environments. 13 K2 CO4

15. a) Explain the following in image Processing (i) Noise Reduction (ii) Gray Scale Modification. 13 K2 CO5

**OR**

b) Explain the application to object recognition and inspection. 13 K2 CO5

**PART - C (1 × 15 = 15 Marks)**

16. a) Explain any one case study of expert system development in design and manufacturing. 15 K5 CO3

**OR**

b) Discuss about robotic vision systems in difficult industrial environments. 15 K5 CO5