

AU – 2854

Seventh Semester B. E. (Mechanical Engineering) (CGS) Examination

ARTIFICIAL INTELLIGENCE AND EXPERT SYSTEM

Paper – 7 ME 05

(USC – 10876)

P. Pages : 3

Time : Three Hours]

[Max. Marks : 80

Note : (1) Separate answer book must be used for each section in the subject Geology, Engineering material of civil branch and Separate answer book must be used for Section A and B in Pharmacy and Cosmetic Tech.

(2) Answer **Three** questions from Section A and **Three** questions from Section B.

(3) Due credit will be given to neatness and adequate dimensions.

(4) Illustrate your answer wherever necessary with the help of neat sketches.

SECTION A

1. (a) What is AI ? What is it's need ? What is its scope in engineering ? Discuss. 6

(b) What is knowledge engineering ? Explain procedure of development of an expert system. 7

OR

2. (a) What are the areas suitable for implementation of expert system ? 6

(b) Explain the 'acquisition of knowledge. What are sources of knowledge acquisition ? 7

3. (a) Differentiate between human experts and artificial expert system. 6

(b) Explain the architecture of an expert system in detail. 7

OR

4. (a) Define expert system. What are its characteristics ? State general features of expert system. 6

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- (b) Discuss role of algorithmic and heuristic methods in AI. 7
5. (a) What is meta-knowledge and how is it useful ? Discuss concept of conflict resolution. 6
- (b) Explain with suitable example forward chaining and backward chaining. Compare. 8

OR

6. (a) Explain the followings :
- (i) Simple relational knowledge.
- (ii) Inheritable knowledge.
- (iii) Inferential knowledge.
- (iv) Procedural knowledge. 8
- (b) Enlist the methods of frame representation ? Explain any one method in detail. 6

SECTION B

7. (a) What features the developer should consider when evaluating building tools for expert system development ? What are the tools required ? 6
- (b) Explain the following and compare with suitable examples :
- (i) Accessoriented method.
- (ii) Procedure oriented method. 7

OR

8. (a) Explain the procedure oriented method by taking suitable example. Also state its advantages over the other methods. 7
- (b) Describe the stages in the development of expert system tools. 6
9. (a) Discuss the major errors in development of expert system and causes for it. 6

(b) Explain the following with suitable examples :

(i) Deductive logic.

(ii) Rules in inferencing.

7

OR

10. (a) List any three commercially available expert systems and their respective applications. State features of any one.

7

(b) Why is it necessary to identify all relevant objects that play important role in the inferences. What do you mean by satisfiable and unsatisfiable clauses?

6

11. (a) Explain the fuzzy rules for approximate reasoning. Explain any one method in detail.

7

(b) Describe with suitable example how the combination of events affects the uncertainties in inference chains. How inference networks with probabilities?

7

OR

12. (a) State and explain fuzzy logic with suitable example.

7

(b) Explain propagation of probabilities with suitable examples. Discuss uncertainty is essential factor in AI.

7



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