2017/ODD/08/24/MCS–703 (C)/
MS–103 (C)/130

PG Odd Semester (CBCS) Exam., December—2017

COMPUTER SCIENCE

(7th Semester/1st Semester)

Course No. : MCS–703 (C)/MS–103 (C)

(Artificial Intelligence)

Full Marks : 75
Pass Marks : 30

Time : 3 hours

The figures in the margin indicate full marks for the questions

Answer **five** questions, selecting **one** from each Unit

UNIT—I

1. *(a)* Define artificial intelligence. Briefly describe the application areas of artificial intelligence. 2+7=9

(b) Briefly describe the following : 2+4=6

(i) State space

(ii) Control strategies

2. *(a)* State the water jug problem. Define the water jug problem as a state space search. 2+4=6

(b) State the production rules for the water jug problem. 9

UNIT—II

3. *(a)* Define heuristic function. State the significance of using heuristic functions. 2+3=5

(b) Explain the constraint satisfaction procedure to solve the crypt arithmetic problem : 10

S E N D
+ M O R E
M O N E Y

4. *(a)* With suitable example, explain the best first search algorithm. 9

(b) Differentiate between forward reasoning and backward reasoning. Support your answer with examples. 6

UNIT—III

5. *(a)* Explain the following briefly : 3+3=6

(i) Proposition logic

(ii) Predicate logic

(b) Write short notes on the following knowledge representation methods : 5+4=9

(i) Semantic networks

(ii) Frames

6. Convert the following wff to a set of clauses :

x: [Roman (x) know (x, Marcus)]
[hate (x, Ceaser) (y: z: hate
(y, z) think crazy (x, y))]

Explain in detail the steps involved in convertion of the wff to clause form. 15

UNIT—IV

7. *(a)* Write brief notes on the following : 4+4=8

(i) Knowledge engineering process

(ii) Expert system

(b) Explain how a knowledge engineer can acquire knowledge for building an Expert system. 7

8. *(a)* Describe the architecture of an Expert system. 6

(b) Describe the problems that may arise in choosing the domain expert and interacting with the expert. 5

(c) Suggest the ways to avoid common pitfalls that may occur during the planning of an Expert system. 4

UNIT—V

9. Explain the use of the following with respect to Prolog :

(a) Backtracking

(b) Recursion

(c) Cut

Give examples. 5×3=15

10. *(a)* Describe in brief the important characteristics of Prolog programming language. 9

(b) Write a Prolog program to concatenate two lists. 6

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