PURBANCHAL UNIVERSITY
Time-bound Home Exam 2020

B.E. (Computer)/Seventh Semester/*Final*

Time: 03:00 hrs. (+2 Hrs. for Submission)   Full Marks: 80 /Pass Marks: 32

BEG471CO: Artificial Intelligence *(New Course)*

Instructions:

Dear Students!

- *This model of examination is for you as the end of your current semester. This examination allows you to write answer from your own place of residence. Follow the following instructions without fail.*
- *Do not write your name in the answer-sheet(s).*
- *All the answer-sheets should be sent to college through your approved email in which you have received your question paper.*
- *Do not write questions in the answer-sheet but mention clearly the question number.*
- *All the scan/photos of answer-sheets should be clearly visible. Any blur scan/photo will not be considered for evaluation. Responsibility lies with the students to make sure that scan/photos of the answer-sheet are of readable quality.*
- *Leave 1 inch margin on each side of the answer-sheet.*
- *Clearly mention your Roll no, subject, program, semester, page number at the right-top of each page as instructed by the Office of the Examination Management.*
- *Make sure that you send your answer-sheets within the given time. Any email received after the given time will not be acceptable.*
- *You are strictly advised to write with your own handwriting and that you are not using any unfair means to answer the questions.*
- *Do not consult during the examination period to any other person in answering the questions.*
- *Do not post any pictures of taking examination or your answer-sheets in any social-media. Found that may be taken action from University.*

  All questions carry equal marks. The marks allotted for each sub-question is specified along its side. Assume suitable data if necessary.

Answer EIGHT questions.   **8×10=80**

1. What is knowledge and what are the several knowledge representation techniques? Explain the inference rules with examples.   3+7

2. What is an expert system and what are its characteristics? Explain the components of expert system.
                                                                                      4+6

3. Define searching. Differentiate between Depth limited search and uniform cost search with their algorithms.   2+8

4(a) Explain genetic algorithm and its flow-diagram.   5

  (b) Solve the following cryptarithmetic puzzle, stating all necessary assumptions that you make: 5

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   H I S
+  H E R
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 M I N E
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5. What do you mean by adversarial search? Explain minimax search procedure and write the significance of alpha-beta pruning.   2+5+3

6(a) Define reasoning and explain Bayesian network.   5

  (b) Show that $(P \rightarrow Q) \vee (Q \rightarrow P)$ is a tautology.   5

7(a) Define Neural Network. Explain multi-layered feed forward network in brief.   2+4

  (b) Compare forward chaining and backward chaining.   4

8(a) Briefly describe the steps of NLP.   5

  (b) Define learning. What do you mean by reinforcement   learning?   2+3

9. What is an agent and what are the types of agents? Write PEAS for a robotic agent.   6+4

10. Write short notes on any TWO: 5+5
    (a) Challenges of AI
    (b) Semantic nets
    (c) Propositional logic vs predicate logic

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