



**WEST BENGAL STATE UNIVERSITY**  
B.A./B.Sc. Honours 5th Semester Examination, 2021-22

**CMAACOR11T-COMPUTER APPLICATION (CC11)**

Time Allotted: 2 Hours

Full Marks: 40

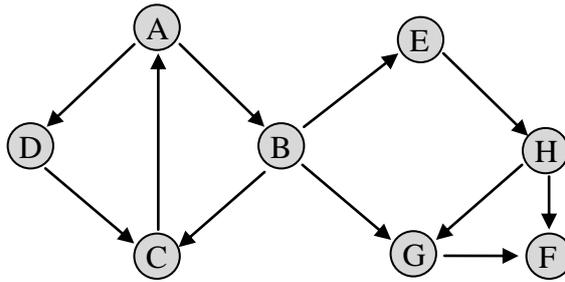
*The figures in the margin indicate full marks.  
Candidates should answer in their own words and adhere to the word limit as practicable.  
All symbols are of usual significance.*

**Answer Question No. 1 and any *four* questions from the rest**

1. Answer any *four* questions from the following: 2×4 = 8
  - (a) Define the term “Artificial Intelligence”.
  - (b) What are the time and space requirements of depth first search algorithm?
  - (c) What is adversarial search?
  - (d) What are the differences between proposition logic and first order predicate calculus?
  - (e) What is Bayesian networks?
  - (f) What is alpha beta pruning?
  - (g) How is machine learning related to AI?
  
2. (a) What is expert system? 2  
(b) What are the five applications of artificial intelligence? 6
  
3. (a) Define mini-max algorithm with proper example. 5  
(b) Define A\* algorithm. 3
  
4. (a) What are frames, define. 3  
(b) State the advantages and disadvantages of semantic net. 5
  
5. (a) What is the difference between uninformed and informed search? Explain with examples. 4

- (b) Consider the following graph. Consider that we always choose the vertices in alphabetical order. Show the BFS search trees starting from node A to reach node F.

4



6. (a) What do you mean by knowledge acquisition? What is the Turing test? 1+1  
 (b) What is a rational agent? 2  
 (c) Differentiate between automatic agents and autonomous agents. 2  
 (d) What do you understand by a task environment? 2
7. (a) What is unification in resolution? Give an example. 2  
 (b) Convert the following wff into clausal form showing all the steps. 6

$$(\forall x)\{P(x) \Rightarrow [\neg(\forall y)\{Q(x, y) \Rightarrow P(f(x))\}] \wedge (\forall y)\{Q(x, y) \Rightarrow R(x)\}\}$$

**N.B. :** Students have to complete submission of their Answer Scripts through E-mail / Whatsapp to their own respective colleges on the same day / date of examination within 1 hour after end of exam. University / College authorities will not be held responsible for wrong submission (at in proper address). Students are strongly advised not to submit multiple copies of the same answer script.

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