nepal college of information technology

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| Level: Bachelor | Semester – Spring | Year : 2012 |
| Programme: BE | | Full Marks: 100 |
| Course: Artificial Intelligence | | Time : 3 hrs. |
| Candidates are required to give their answers in their own words as far as practicable. | | |
| The figures in the margin indicate full marks. | | |
| Attempt all the questions. | | |

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|  | 1. If the Turing Test is passed, does this show that computers exhibit intelligence? Justify your reasons. 2. Solve the following crypto-arithmetic problem.   P L A Y S + W E L L = B E T T E R | 7  8 |
|  | 1. The missionaries and cannibals problem is usually stated as follows. “Three missionaries and three cannibals are on one side of a river, along with a boat that can hold one or two people. Find a way to get everyone to the other side, without ever leaving a group of missionaries outnumbered by cannibals.” Formulate the problem precisely, making only those distinctions necessary to ensure a valid. Show the steps of complete state states. 2. Define state and node in search tree. Evaluate the Depth First Search (DFS)? | 8  2+5 |
|  | 1. Prove that p v (q ∧ r) and (p v q) ∧ (p v r) are logically equivalent . 2. In the figure below, how would you reach to Bucharest from Arad by using A\* search? Use heuristic function *f(n) = g(n) + h(n)*, where *g(n),* the cost to reach the node *n* and *h(n)*, the cost to get from node *n* to goal node. Use straight line distance as heuristic (hSLD) which is provided in right side of figure. | 7  8 |
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|  | 1. Assume the following facts.   Jack owns a dog. Every dog owner is an animal lover. No animal lover kills an animal. Either Jack or Curiosity killed the cat, which is named Tuna. Every cat is an animal.  Use resolution to prove *“Curiosity kill the cat.”*   1. Compare between prepositional logic and predicate logic. | 10  5 |
|  | 1. Consider the following facts:  * A bird is a kind of animal. * Flying is the moving method of birds and active at daylight. * Albatross and Kiwi are birds. * Albert and Ross are albatross. * Albatross has black and white color.   Represent the facts in semantic network.   1. “Perceptrons is a basic unit of learning.” Justify this statement. | 7  8 |
|  | 1. Describe different components of expert system with diagrams. 2. Why NLP is difficult? Describe any two with appropriate examples. | 7  8 |
|  | ***Write short notes on: (Any Two)***   1. WFF (well formed formula) 2. Production system 3. Simulated Annealing | 5×2 |