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Questions

In the question, you will find several scenario based questions, and questions where you have to provide your own examples. So when answering these or rather any question, any kind of plagiarism from peers or directly just copy pasting from the internet will be dealt harshly. You will be given a direct zero in the finals without any exceptions.

Your answers must be handwritten. After you are done, scan / take images of your script and convert it into a PDF file (You can use camscanner or simply make PDF with screenshots). Once you are done, rename the file as **YourSection_YourName_YourID**. For example If your name is Lampard, your student ID 14101061, and you are a student of section 04, then the name of the file should be **4_Lampard_14101061**

Then, submit the PDF file using follwing link. Make sure that all the information you provide in the form are correct. **You will get only once chance to submit. Therefore, double check everything before clicking the submit button.**

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A. Explain BRACU pre-advising in terms of CSP. Explain with proper domain, variables, constraints, goals. (Marks: 7)

A. Do you think alpha-beta pruning algorithms alone can make chess playable on a regular device? Why or why not? Explain. (1.5 marks)

B. Why do we assign $-\infty$ to alpha and ∞ to beta during the start of alpha beta pruning simulation? What would happen if we assigned some other value? (3 marks)

C. Mention two problems of applying alpha-beta pruning on ludo. (1.5 marks) (3 marks)

A. Suppose A, B and C are three events. Now $p(A|B,C) = p(B|A,C) = 0.5$, and $p(A \text{ and } C) = p(B \text{ and } C) = 0.25$. Here if $p(C)$ = the probability of getting a red card from a deck of 52 cards, then can you infer whether events A and B are independent or conditionally independent? (4 marks)

B. Suppose A is an event which signifies the number of heads that appear when flipping two coins. Now can A be called a discrete random variable? Explain with reasoning. (2 marks)

A. What is the problem of Bayes Theorem? How can you solve that? (1.5 marks)

B. Consider the dengue prevalence in Bangladesh as 0.01. Despite the good performance of the NS1 Antigen test, it also has 95% Specificity and 97% Sensitivity as well. A patient performed a first dengue test and he got the positive test result. He performed a second dengue test and again he got the test result as positive. What is the probability of having dengue of that patient? (4.5 marks)

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