

## Fall 2021: Online Final Examination General Instructions

Please read the following instructions carefully:

### During the Exam:

1. This is an *open* online examination that allows you to use any materials handed out in the class, your notes from the lectures, and any other resource that have been already shared with you on Google Classroom;
2. You must write down your answers on Blank A4 papers;
3. You must write the following on the *Cover Page* of your script:  
Final Examination: Fall 2021  
Name:  
Student ID:  
Course Code: CSE 410  
Course Title: Artificial Intelligence  
Section: 01
4. Make sure that your *handwriting is legible*;
5. Questions you are answering must have their numbers written correctly;
6. The duration of the examination is 2 hours including answer script submission time;
7. Plagiarism policy mentioned in the course outline will be followed;
8. You will be monitored using Google Meet during the examination. Therefore, you must keep a camera on during the entire examination period;
9. A backup internet connectivity is highly recommended, just in case if you need to use in the event of emergency.
10. Please inform the course instructor immediately (via phone calls or SMS) on an event of electricity or internet disruption;

### Script Submission:

1. After completing writing answer, take photos or scan your answer script. You may use any scanning app for this purpose;
2. Your **student ID should be the name of the file** to be submitted;
3. Make sure that your answer scripts are correctly sequenced;
4. Failure to submit the answers on time without any valid ground will be considered as late submission. Marks will be deducted in such cases.





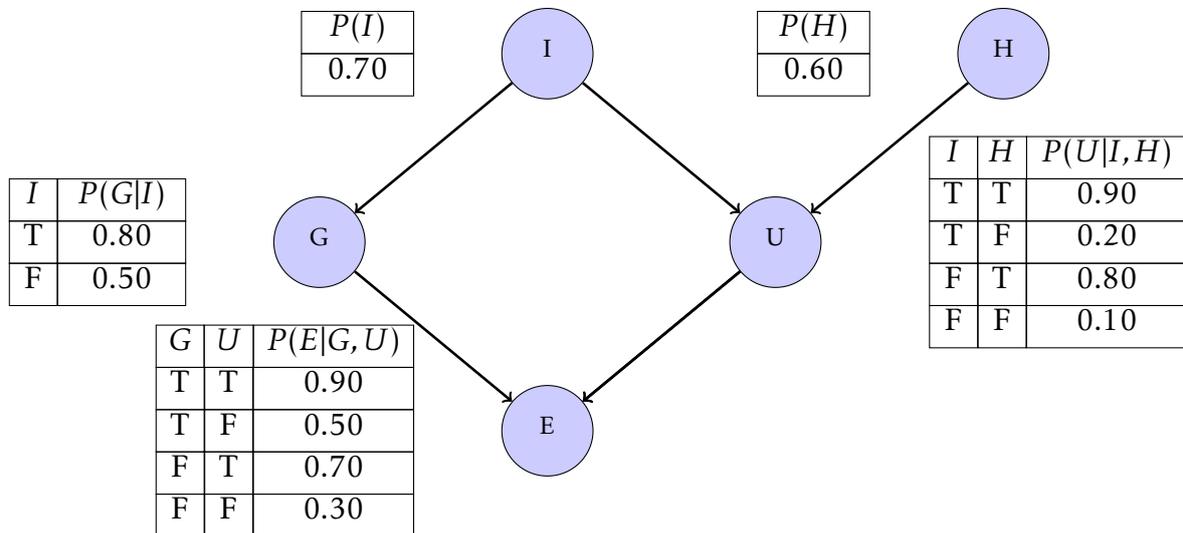
iii. Yesterday was a sunny day while you decided to locked yourself in a room for taking exam preparation. Your friend has joined you this morning with an umbrella for study together. Based on the given information above, what is the most likely weather today?

**QUESTION 3:**

(5 marks)

Given the following Bayesian Network and corresponding Conditional Probability Tables (CPTs).

- I: Intelligent
- H: Hardworking
- G: Good performer
- U: Understand course materials
- E: High Exam Score



- What is the probability that a student got high score in the exam because he is not a good performer but good at understanding course materials and he is intelligent but not a hardworking student?
- How do you interpret the calculated result?

**QUESTION 4:**

(5 marks)

- Explain the Difference Between Classification and Regression?
- Naive Bayes Classifier can be represented as follows:

$$\hat{y} = \operatorname{argmax}_{k \in \{1, \dots, K\}} p(C_k) \prod_{i=1}^n p(x_i | C_k).$$

Explain, how does the Naive Bayes classifier work?

\*\* END OF QUESTION \*\*