International Islamic University Chittagong

Department of Computer Science and Engineering

B. Sc. in CSE Midterm Examination, Autumn 2022

Course Code: CSE 4805

Course Title: Social, Professional, Ethical Issues in Computing

*Total marks: **30***

*Time: **1** hour **30** minutes*

[Answer all the questions. Figures in the right-hand margin indicate full marks.]

Course Outcomes (COs) of the Questions	
CO1	**Understand and identify** different ethical philosophies, frameworks, and methodologies.
CO2	**Analyze** real world scenario to address ethical dilemmas with reasoned arguments, grounded in a combination of these ethical theories.
CO3	**Identify and interpret** the codes of professional conduct relating to the disciplines of computer science and software engineering such as ACM Code of Ethics.
CO4	**Analyze** the local and global impact of computing on individuals, organizations, and society.
CO5	Understand and interprete various legal framework realted to computing.
CO6	Understand and apply the concepts and principles of moral thinking to problems relating to computing and digital technologies.

Bloom's Levels of the Questions						
Letter Symbols	R	U	Ap	An	E	C
Meaning	Remember	Understand	Apply	Analysis	Evaluate	Create

			CO	DL
1.	With the advent of technology, students now have access to a wide range of tools that make education more interactive, engaging, and effective. Students can now learn at their own pace, access information and resources from anywhere in the world, and connect with other students and teachers globally. Now answer the following questions:			
a)	List down five such tools/software along with the purposes you are using to ease your day-to-day academic life.	**2**	**CO1**	**R**
b)	How each of these tools has been transformed/eased your academic life?	**4**	**CO2**	**Ap**
c)	Do you think relying on those tools could potentially have a negative impact on your academic skills in the future? Explain your opinion.	**4**	**CO4**	**An**

2.

In recent times, Instagram has changed its privacy policy, which creates a lot of buzz among people all over the world. Instagram's new cyber surveillance policies allow Mark Zuckerberg to spy on you and your family, steal your most intimate secrets, monitor your compliance with government mandates through all your devices - including your television - and sell your data to the government and industry. Now answer the following questions:

a)	What does privacy mean? How is Instagram violating privacy? Discuss them according to the key aspects of privacy and analyze the potential consequences of such privacy breach.	**5**	**CO6**	**An**
b)	What principles should need to be followed while collecting user data? Discuss how Instagram's new privacy policy lacks those principles.	**5**	**CO5**	**An**

Or (b)

Describe any two methods that a business or agency can use to reduce the risk of unauthorized release of personal information by employees.

3.

A prominent public figure begins posting offensive and inflammatory messages aimed at a particular racial or ethnic group. Some users on the platform flag the posts as hate speech, and the platform administrators are faced with a dilemma: should they censor the posts and potentially violate the user's freedom of speech, or allow the offensive messages to remain up and risk causing harm to members of the targeted group? Now answer the following questions:

a)	Define freedom of speech and offensive speech with a real-life example for each.	**5**	**CO2**	**U**
b)	What steps should be taken to balance between the right of users to express themselves freely and the necessity of protecting users from offensive and hate speech? What ethical and legal considerations need to keep in mind to make this decision?	**5**	**CO5**	**An**

Or (b)

Briefly discuss the key points of the ICT act of Bangladesh. Do you have any social responsibility to spread ICT act among general people? How do you perform those responsibilities?

International Islamic University Chittagong

Center for General Education (CGED)

Midterm Examination: Autumn 2022
Course Code: URBS-4802

Program: Undergraduate
Course Title: Bangladesh Studies and History of Independence
Full Marks: 30

Time: 1 hours and 30 minutes.

Instructions:

i. All Questions are Compulsory.
ii. Figures in the right margin indicate full marks.
iii. Course Learning Outcome (CLO) and Bloom's levels are mentioned in additional columns.

Bloom's Levels of the Questions.						
Letter of Symbol	R	U	App	An	E	C
Meaning	Remember	Understand	Apply	Analyze	Evaluate	Create

		Text of the Questions	Marks	Bloom's Level	CLO
1		Sketch out the Physiographic features of Bangladesh and explain the geographical impacts on the life and society of the country. Or Investigate the ethnological identity of the people of Bangladesh. How will you explain 'Demographic Dividend' in the challenge of overwhelming population?	10	An	CLO1
2		Evaluate the phases of advent of Islam in Bengal. What are the impacts of Muslim rule on the society of Bengal? Or Appreciate the concepts regarding the origin and composition of the Muslim society of Bengal.	10	An	CLO
3		Evaluate the role of Sufism in the spread of Islam and its contribution to the socio-cultural and economic developments of Bangladesh.	10	E	CLO2

International Islamic University Chittagong

Department of Computer Science and Engineering

B. Sc. Engineering in CSE

Midterm Examination, Autumn 2022

Course Code: **MGT-3601** Course Title: **Industrial Management**

Time: 1 hour 30 minutes Full Marks: 30

(i) Answer all the questions. The figures in the right-hand margin indicate full marks.

(ii) Course Outcomes (COs) and Bloom's Levels are mentioned in additional Columns.

Course Outcomes (COs) of the Questions	
CO1	Explain the theories and principles of modern management and apply the concepts to the management of organizations in private and public sector
CO2	Understand how managers can effectively plan in today's dynamic environment,
CO3	Identify what strategies organizations might use to become more innovative and explain how the industrial company markets and price it's products and also how the company deal with it's environment.

Bloom's Levels of the Questions

Letter Symbols	R	U	Ap	An	E	C
Meaning	Remember	Understand	Apply	Analyze	Evaluate	Create

1)	a)	What are the four basic activities that comprise the management process? How are the related to one another?	R	CO1	5
1)	b)	Identify the basic managerial roles that managers play in an organization.	An	CO2	5
2)	a)	What should be the elements to build an education friendly internal culture in IIUC? Justify your view-points.	Ap	CO3	5
2)	b)	Identify the components of the internal environment and discuss their impact on organizations.	E	CO2	5
3)	a)	Describe the five alternatives to job specialization. What is the advantage of each, as compared to specialization?	U	CO1	5
3)	b)	Explain the differences between line and staff positions. What are the advantages and disadvantages of high versus low administrative intensity?	An	CO3	5
		OR			
3)	a)	Discuss the considering factors in determining an appropriate span of management.	U	CO1	5
3)	b)	Distributing authority starts with delegation. So, what is delegation? Describe the process of delegation.	An	CO3	5

International Islamic University Chittagong

Department of Computer Science and Engineering

Midterm, Autumn-2022

Course Code: CSE-4877 **Course Title**: Machine Learning and Data Mining

Total marks: 30 Time: ***1.5*** hours

[Answer the following questions. Figures in the right-hand margin indicate full marks.]

			CO
1.a)	"We are drowning in data, but starving for knowledge!" do you agree with this statement? Explain why or why not.	2	CO1
	OR		
	What is the outlier analysis? Why is it important?		CO1
b)	Describe the knowledge discovery process (KDD) with an appropriate figure.	4	CO1
c)	Compare Nominal, Ordinal, and Numeric attributes in detail.	4	CO2
2.a)	Consider the following data table containing variables of mixed type. Show the dissimilarity matrix between the variables.	5	CO3

Object Identifier	Test-1 (nominal)	Test-3 (numeric)	Test-4 (binary)
1	X	300	T. 1
2	Y	220	F. 0
3	Z	160	F

b)	You are given three documents as written below. Calculate the cosine similarities among the documents. **Document 1:** I love to study data mining related articles. **Document 2:** Data mining related topics attract me most, and I study a lot. **Document 3:** What the hell is this data mining!	5	CO3
	OR		
	Consider the following data 2, 3, 4, 8, 15, 9, 21, 21, 35, 25, 26, 28, 29, 34, 34 and three bins. Partition the data using equal-frequency bins and smooth-by-bin means.	5	CO3
3.a)	What is missing value replacement important? Explain three replacement techniques with examples of each.	5	CO1
b)	Apply Min-Max and Z-score normalization techniques to the given data below:	5	CO3

Humidity
53
53
64
50
51

International Islamic University Chittagong

Department of Computer Science & Engineering

Mid Term Exam, Autumn-2022

4th Year 1st Semester

CSE-4875, Pattern Recognition and Image Processing

Total marks: *30* Time: *1* hours *30* minutes

[The figures in the right-hand margin indicate full marks, Course Outcomes and Bloom's Levels are mentioned in additional Columns]

Course Outcomes (COs) of the Questions	
CO1	Explain basic image processing techniques for solving real problems
CO2	Apply and demonstrate image processing techniques for solving problems in computer science
CO3	Evaluate algorithms for higher level image processing
CO4	Develop an application using existing image processing algorithms with modern techniques

Bloom's Levels of the Questions						
Letter Symbols	R	U	Ap	An	E	C
Meaning	Remember	Understand	Apply	Analyze	Evaluate	Create

[Answer the questions from the followings] **CO** **B/L**

1. a) "Image processing is developed for improvement of pictorial information for human interpretation" - explain. CO1 U 02

b) Consider the two image subsets, S1 and S2 in the following figure. and assuming that V = {1}, determine whether these two subsets are: CO2 Ap 02

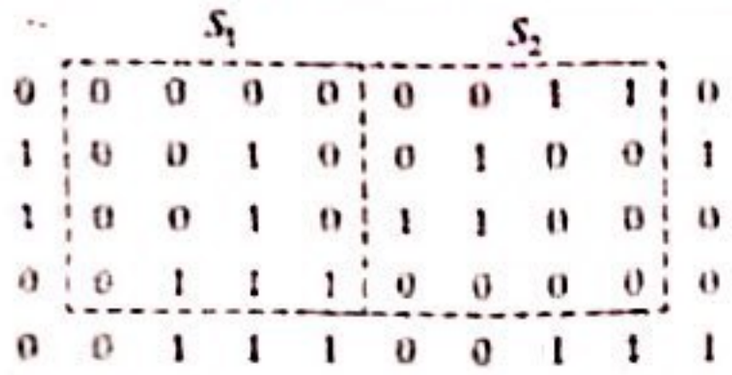


Figure 1

1. 4-adjacent.
2. 8-adjacent.

c) Briefly state the working principle of camera. Write the similarity and difference between the eye and camera. CO1 R 04

d) A common measure of transmission for digital data is the baud rate, defined as symbols (bits in our case) per second. As a minimum, transmission is accomplished in packets consisting of a start bit, a byte (8 bits) of information, and a stop bit. Using these facts, answer the following: CO2 Ap 02

How many seconds would it take to transmit a sequence of 500 images of size 1024 × 1024 pixels with 256 intensity levels using a 3M-baud (106 bits/sec) baud modem? (This is a representative medium speed fbr a DSL (Digital Subscriber Line) residential line.

Or,

If a color image has 2160 x 3240 pixels with resolution 200 dpi. What will be the space taken by the image? What will be the size of the image?

2. a) Write the mathematical model of analog and digital image. CO1 R 03

b) Discuss the effects of reducing the spatial resolution of a digital image and effects of varying the number of intensity levels in a digital image. Give CO1 U 03

necessary example.

c) How gray level slicing enhance the image? Why monotonically increasing function is used in special operation? CO1 R 02

Or,

is Monochrome image more suitable for image segmentation then color image? Why?

d) "In digital image processing high color image is presented by 12 bit where 24 bit image is presented by true color"- justify the statement. CO2 U 02

Or

In industrial applications for detecting missing components in product assembly which image processing can be used ?

3. a) Find all the bit planes of the following 4-bit image CO3 Ap 04

0	1	8	6
2	2	1	1
1	15	14	12
3	6	9	10

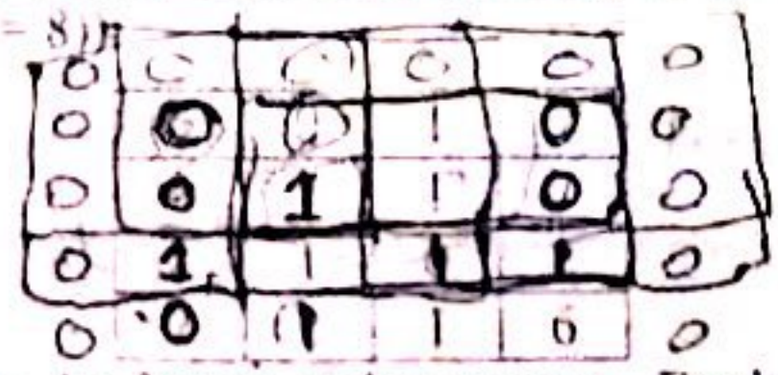
Or

Suppose that a 3-bit image (L = 8) of size 64 × 64 pixels (MN = 4096) has the intensity distribution in the figure 3, where the intensity levels are integers in the range [0,L-1] = [0, 7]. Now sketch the original histogram, transformation function and equalized histogram.

r_k	n_k
$r_0 = 0$	790
$r_1 = 1$	1023
$r_2 = 2$	850
$r_3 = 3$	656
$r_4 = 4$	329
$r_5 = 5$	245
$r_6 = 6$	122
$r_7 = 7$	81

Figure3 : intensity distribution of a 3-bit image

b) "The performance of Median filtering is better than low pass filtering for removing noise" – Why? Calculate median filtering of the following image. (Use padding, 3-bit image (L = 8))



c) Explain spatial filtering in image enhancement. Explain different types of *thresholding* operation in short. CO1 R 02

END

International Islamic University Chittagong

Dept. of Computer Science & Engineering (CSE)

B.Sc. in CSE, Semester Mid-Term Examination, Spring 2023

Course Code: CSE 4871 **Title:** Neural Network and Fuzzy System

Total Marks: 30 Time: 1.5 hours

1(a)	"Back propagation is a common method for training a neural network" – do you agree? Why?	3
1(b)	Why ReLU activation function working better with respect to the others activation functions? Answer the question with compare to the sigmoid and Tanh activation function.	4
1(c)	Explain the basic characteristics of Neural network with proper diagram. Write some application of neural network. OR Enumerate the benefits and limitations of Neural network.	3
2(a)	"A neuron can be defined with weighted average of input proceeding with activation function" – do you agree? Justify the answer with proper mathematical model.	4
2(b)	The process of XOR function provides the false results when the both input of XOR is same, otherwise, the result will be true. Is it possible to design a perceptron to perform the XOR operation with single unit? Explain the answer with proper example. *OR* Neural network viewed as a directed graph-Explain the statement with a proper example.	3
2(c)	Why activation function is non-linear? What will happen if the activation function will be linear? Answer the question with proper justification.	3
3 (a)	What is learning? Define supervised, unsupervised and reinforcement learning.	3
3(b)	How does a recurrent neural network differs from a traditional Neural network.	3
3(c)	In which purpose we may use the multilayer perceptron. Provide an example of multilayer perceptron with mathematical justification. *OR* Draw the general model of Neural Network and explain it's processing steps.	4