Surrounding

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MOTIHARI COLLEGE OF ENGINEERING, MOTIHARI

Odd Semester Session 2022-23 Mid Semester Exam

B. Tech. 7th Semester, Computer Science Engineering

SSIC

Time: 2 Hrs. Maximum Marks 20

Section A

Q1. Attempt all questions: **(1X5 = 5 Marks)**

a Write the full form of SWOT analysis?

b What is self Esteem?

c What do you mean by Blue Print?

d What is Etiquette?

e What is creativity?

Section B

Q2-Q4 Attempt all questions: **(5X3 = 15 Marks)**

Q2 i) Why self analysis is important for professionals?

OR

ii) What is the importance of self confidence? How it is associated to self analysis.

Q3 i) Discuss the different types of creativity? How it helps in problem solving?

OR

ii) What is the role of attitude in professional life? Discuss the factors that influence attitude?

Q4 i) What is motivation? Discuss intrinsic and extrinsic motivation with example?

OR

ii) How to define Short term, Long Term and Life time Goals?

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MOTIHARI COLLEGE OF ENGINEERING, MOTIHARI

Odd Semester Session 2022-23 Mid Semester Exam

B. Tech. 7th Semester, Computer Science and Engineering

Cyber Security

Time: 2 Hrs. Maximum Marks 20

Section A

Q1. Attempt all questions: **(1X5 = 5 Marks)**

a	What are the Security Goals in Computer Security ?	CO 1
b	What is "CONFUSION" and "DIFFUSION" in symmetric ciphers ?	CO 2
c	Explain the importance of random number generation in Cryptography. When are random numbers truly random ?	CO 3
d	What is the difference between Feistel and Non-Feistel ciphers ?	CO 2
e	Differentiate between Block Cipher and Stream Cipher.	CO 2

Section B

Q2-Q4 Attempt all questions: **(5X3 = 15 Marks)**

Q2 i) A Feistel cipher is used in the DES. Describe the operations of a Feistel cipher. **CO 2**

OR

ii) Explain with diagram, the Round Key generation process of DES. **CO 2**

Q3 i) In an encryption technique the key is a 5 × 5 matrix of characters. The plaintext is the character in the matrix, the ciphertext is the two integers (each between 1 and 5) representing row and column numbers. Encipher the message "Securities" using the cipher with the following key: **CO 1**

	1	2	3	4	5
1	z	q	p	f	e
2	y	r	o	g	d
3	x	s	n	h	c
4	w	t	m	i / j	b
5	v	u	l	k	a

OR

	ii)	Discuss the structure of Asymmetric Key Cryptography. What is Trapdoor One-way Function ?	**CO 3**
Q4	i)	What do you mean by malicious software ? Differentiate between Virus, Worms, Trojans and Crypto-malware.	**CO 4**

OR

	ii)	What is the role of Intrusion Detection System (IDS) ? Discuss the challenges and benefits of intrusion detection systems.	**CO 4**

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MOTIHARI COLLEGE OF ENGINEERING, MOTIHARI

Odd Semester Session 2022-23 Mid Semester Exam

B. Tech. 7th Semester, C. S. E

Data Science

Time: 2 Hrs. Maximum Marks 20

Section A

Q1. Attempt all questions: **(1X5 = 5 Marks)**

a	K-NN is known as Lazy Learning/ Instance-Based Learning. Justify its reason.	**CO4**
b	Discuss the time series with suitable examples and its applications.	**CO4**
c	Compare the terminology reporting and analysis.	**CO1**
d	What do we call web scraping? There are several types of Python web scraping libraries from which you must discuss the following libraries with proper syntax I. Requests II. Beautiful Soup	**CO5**
e.	Explain Normal Distribution.	**CO2**

Section B

Q2-Q4 Attempt all questions: **(5X3 = 15 Marks)**

Q2 i) What Is a Confusion Matrix, Why Do We Need a Confusion Matrix. Try to consider a test dataset which has the following set of Expected and Predicted class as given below: **CO4**

Expected = [1, 0, 0, 1, 0, 0, 1, 0, 1, 0]

Predicted = [1, 1, 0, 0, 0, 0, 1, 1, 0, 0]

Here 0 represents 'class 0' and 1 represents 'class 1'.

Plot a clearly labelled confusion matrix for the data provided.

OR

ii) Predict the value using KNN algorithm, **CO4**

ID	Height	Age	Weight
1	5	45	77
2	5.11	26	47
3	5.6	30	55
4	5.9	34	59
5	4.8	40	72
6	5.8	36	60
7	5.3	19	40
8	5.8	28	60
9	5.5	23	45
10	5.6	32	58
11	5.5	38	?

Q3 i) Distinguish between train, test and validation datasets in supervised learning. Discuss about overfitting and underfitting. **CO1**

OR

ii) Discuss Ensemble learning, Compare its different techniques as **Bagging** and **Boosting with Example.** **CO1**

Q4 i) Write code for given question a) and b) using following data. **CO5**

month_number=[1,2,3,4,5,6,7,8,9,10,11,12]
facecream = [2500,2630,2140,3400,3600,2760,2980,3700,3540,1990,2340,2900]
facewash = [1500,1200,1340,1130,1740,1555,1120,1400,1780,1890,2100,1760]
toothpaste=[5200,5100,4550,5870,4560,4890,4780,5860,6100,8300,7300,7400]
bathingshop=[9200,6100,9550,8870,7760,7490,8980,9960,8100,10300,13300,14400]
shampoo=[1200,2100,3550,1870,1560,1890,1780,2860,2100,2300,2400,1800]
moisturizer=[1500,1200,1340,1130,1740,1555,1120,1400,1780,1890,2100,1760]
total_units=[21100,18330,22470,22270,20960,20140,29550,36140,23400,26670,41280,30020]

a)Read toothpaste sales data of each month using a scatter plot. Also, add a grid in the plot. Gridline style should "–".

b)Plot face cream and facewash product sales data using the bar chart.

OR

ii) In the real world, most machine learning problems require us to work with more than one feature. We will now consider the home loan approval dataset, where we will calculate an individual's home loan eligibility, depending not only on the age of the person but also on the credit rating and other features. Therefore, in order to determine whether a person should be eligible for a home loan, you'll have to collect multiple features, such as age, income, credit rating, number of dependents, etc. Write code for it steps. **CO5**

Step 1: Import necessary libraries
Step 2: Reading the dataset name loan.csv

age	credit-rating	children	loan-approval
19	27.9	0	16884.924
18	42.13	1	1725.5523
28	33	3	4449.462
33	22.705	0	21984.47061
32	28.88	0	38668552
31	25.74	0	3756.6216
46	33.44	1	8240 5896

Step 3: Understanding the dataset, finding the shape of the dataset, info on the dataset
Step 4: Defining the feature and the target variable, X and y, where
Step 5: Create Train and Test set
Step 6: Train your model

$\frac{TP - FP}{TN}$

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MOTIHARI COLLEGE OF ENGINEERING, MOTIHARI

Odd Semester Session 2022-23 Mid Semester Exam

B. Tech. 7th Semester, Computer Science and Engineering

Biology for Engineers

Time: 2 Hrs. Maximum Marks 20

Section A

Q1. Attempt all questions: **(1X5 = 5 Marks)**

a	Name the first organ to be transplanted successfully.	CO1
b	The main excretory product in human being is _____.	CO1
c	What is an enzyme also known as.	CO4
d	The highest level of ecological hierarchy is _____.	CO1
e	Name the hormone which is injected to a diabetic patient.	CO2

Section B

Q2-Q4 Attempt all questions: **(5X3 = 15 Marks)**

Q2	i)	Explore Differences between Autotrophs and Heterotrophs.	CO1
		OR	
	ii)	Explain Three Modes of Excretion with example on the basis of Excretory Product.	CO4
Q3	i)	Briefly describe the four types of Organ Transplantation.	CO4
		OR	
	ii)	Describe classification of Enzyme according to IUB.	CO4
Q4	i)	Explain Mechanism of Enzyme Action.	CO4
		OR	
	ii)	Explain Shapes of Bacteria	CO4