MGM UNIVERSITY

Summer Exam A.Y. 2023-24

Program Name: TY B.Tech. (IT) VI Sem Exam

Course Code: BTTT3201 Name of the Course: Web Enabled Software Engineering

Max Marks-60 Duration: 3 Hr

Instructions to the candidates:
1) All Questions are compulsory.
2) Figures to right indicate full marks.
3) Assume suitable data, if necessary and neat diagrams must be drawn whenever necessary.

Q.1. Attempt any Two of the following questions

a) Explain software engineering. Software products are not manufactured but developed justify — 5 Marks
b) Describe a process framework in your own words. — 5 Marks
c) Compare waterfall model and agile methodology of software development — 5 Marks

Q.2. Attempt any Two of the following questions

a) Explain different methods for requirement gathering — 5 Marks
b) Distinguish between functional and non-functional requirements. — 5 Marks
c) What are the tasks of negotiating and validating requirement — 5 Marks

Q.3. Attempt any Two of the following questions

a) Explain deployment diagram with suitable example — 5 Marks
b) Explain the different patterns of software architecture — 5 Marks
c) List and Explain Components of a UML State Machine diagram. — 5 Marks

Q.4. Attempt any Two of the following questions

a) Distinguish between code testing and system testing — 5 Marks
b) Explain the debugging process in details — 5 Marks
c) Write a short note on any bug UML tool — 5 Marks

Q.5. Attempt any Two of the following questions

a) What is the impact of correct process selection in Web app engineering? — 5 Marks
b) Distinguish between traditional software project management and small e-project. — 5 Marks
c) Explain user interface in web app engineering — 5 Marks

Q.6. Attempt any Two of the following questions

a) Explain people capability maturity model (PCMM) for Quality assurance. — 5 Marks
b) Explain the metrics for process. — 5 Marks
c) Explain Change management process in software engineering project — 5 Marks

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Summer Exam A.Y.2024

Program : B.Tech IT/AIML
Course: Information Theory and Coding
Course Code : BTIT3203

Sem –VI
Marks : 60
Time : 3 Hr

Instructions to the students
1. Each question carries 10 marks.
2 All questions are compulsory
3. Illustrate your answers with neat sketches , diagram etc wherever necessary.
4. If some part or parameter is noticed to be missing ,you may appropriately assume it and should mention it clearly.

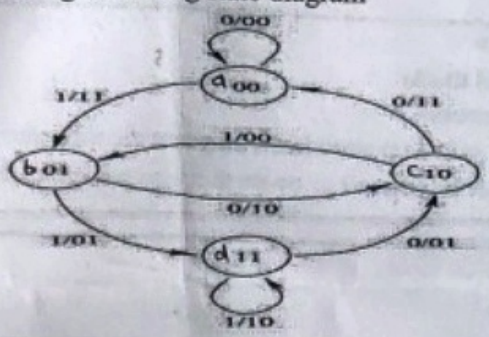
		Marks
Q.1	Solve any two:	
	a) What is discrete memory less channel? Explain its 4 types.	5
	b) Define information, Explain its properties detail.	5
	c) If the messages S1,S2,S3with probabilities{1/2,1/4,1/4} .Find a)information of each message .b) Find Entropy	5
Q.2	Solve any two:	
	a) Find additive and multiplicative inverse of Galois field GF(7).	5
	b) Define group .Explain its properties	5
	c) If 5 bits data 01101 is given ,represent given data in hamming code	5
Q.3	Solve any two:	
	a) Explain Cyclic codes with properties	5
	b) If m=1011 and generator polynomial g(x)=x^3+x+1,for(7,4) find Code word by using systematic cyclic encoding	5
	c) If m=1110 and generator polynomial g(x)=x^3+x+1 find codeword by using non systematic encoding.	5

Q.4 Solve any two:

a) Differentiate linear block code and Convolutional code.. 5

b) Draw the convolutional encoder with code dimensions(n,k,L)=(2,1,3) with generator polynomial g1(1,1,1) ,g2(1,0,1) draw the trellis diagram, State diagram, State table. 5

c)Draw the code tree using following state diagram 5

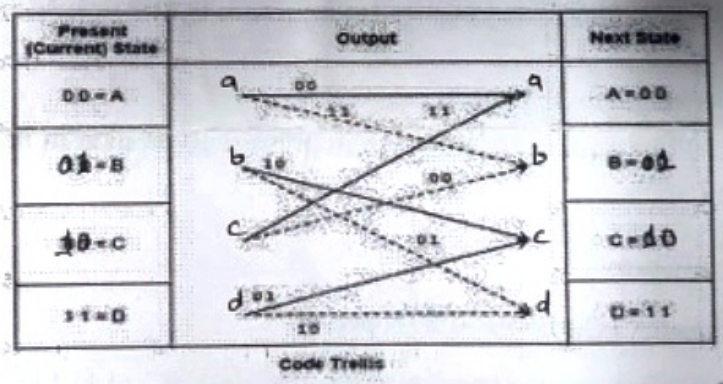


Q.5 Solve any two:

a) Find the CRC for 1010101010 with devisor 1101. 5

b) Explain Viterbi algorithm, enlist its application. 5

c) Decode the sequence 110101 using Viterbi algorithm refer the following diagram for decoding 5



Q.6 Solve any two:

a) Explain Stop and wait ARQ with diagram. 5

b) Write short note on selective repeat ARQ. 5

c) Explain Go Back N ARQ with diagram. 5

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AURANGABAD-431003

End Sem Exam A.Y. 2023-24

Program: B.Tech IT — Sem-VI

Course: IoT Communications — Marks: 60

Course Code: BTIT3205 — Time-3 Hr.

Instructions to the students:

1.Each question carries 10 marks

2.All questions are compulsory

3.Illustrate your answers with neat sketches, diagrams wherever necessary

Q.1 Attempt any Two (Marks: 2x5=10)

a) Draw Arduino Uno Architecture Diagram

b) Write any two Challenges and Three Applications of IoT

C) Explain in Brief IoT communication Models of IoT

Q.2 Attempt any Two (Marks:2x5=10)

a) Describe with Code, the Temperature Sensor in brief also explain DHT11 interface with Arduino

b) Define Active and Passive Sensors also write two examples of each

C) Explain any Five Sensor Characteristics

Q.3 Attempt any Two (Marks:2x5=10)

a) Differentiate between IoT and M2M

b) Draw and Explain Architecture of IoT

C) Define Sensors and Actuators. Also Differentiae the same

Q.4 Attempt any Two (Marks:2x5=10)

a) Draw GPIO Connector for Raspberry Pi, Explain function of any two Pins

b) Write a Program for LED interface with Raspberry Pi

C) Write short Note on Raspberry Pi Installation

Q.5 Attempt any Two (Marks:2x5=10)

a) Explain Interfacing of LDR With Arduino , also write code for the same

b) Write a Program to Blink LED after every 1 Sec.using Arduino

C) Describe Relay Interfacing with Arduino. Also write the code

Q.6 Attempt any Two
(Marks:2x5=10)

a) Describe For Loop & While Loop in Python with Short Code
b) Explain with short code List and Tuple in Python
C) Explain any Five Data Types of Python

Summer Examination A. Y. 2024

Program: B.Tech-IT | **Semester** : 06

Course Code: BTIT3208 | **Max.Time**: 3 Hrs.

Name of course: IoT Networking

Max Marks: 60

Instructions:

1. Each question carries equal marks.
2. All questions are compulsory
3. Illustrate your answers with neat sketches, diagram etc. wherever necessary
4. If some part or parameter is noticed to be missing, you may appropriately assume it and should mention it clearly

Q1	**Attempt any 2 from following.**		
	A	Explain the architecture of Arduino with neat diagram	5
	B	How to connect Arduino with Ethernet and write the program accordingly,	5
	C	Explain various WiFi libraires.	5
Q2	**Attempt any 2 from following.**		
	A	Write the Arduino program to post sensor data server.	5
	B	Explain block diagram of ESP8266 with Pin Diagram	5
	C	Explain in flow of steps to post sensor data in server	
Q3	**Attempt any 2 from following.**		
	A	Explain in details about MEMS technology and its components	5
	B	Explain in details about IoT Architecture with examples.	5
	C	Explain in details about actuators and its function with neat diagram	5
Q4	**Attempt any 2 from following.**		
	A	Explain IEEE 802.1.5.4 standardization	5
	B	Explain in details about MAC (Media Access Control) layer.	5
	C	Mention various IoT access technologies and its capabilities	5
Q5	**Attempt any 2 from following.**		
	A	Explain internet protocols and it advantages	5
	B	What do you mean by optimization and its need for IoT discuss in detail.	5
	C	How does the adaptation of Internet Protocol (IP) facilitate the transition from IPv4 to IPv6?	5
Q6	**Attempt any 2 from following.**		
	A	Make an IoT Strategy for smarter cities and explain.	5
	B	Explain IoT blue print for public safety	5
	C	Explain IoT Public safety information processing for bus safety.	5

The end

MGM University
Aurangabad-431003
Second Term Exam A.Y. 2023-24

Program : Information Technology / AIML — Sem –VI
Course : Computer Vision and Pattern Recognition
Marks : 60
Course Code : BTIT3202 — Time: 3 hr.

Instructions to the students
1. Each question carries 10 marks.
2 All questions are compulsory
3. Illustrate your answers with neat sketches, diagrams, etc., wherever necessary.
4. If some part or parameter is noticed to be missing, you may appropriately assume it and should mention it clearly in the answer.

	Marks
Q1. Solve any two	
a) Explain the role of vision in computer graphics.	(5)
b) Explain the physics of imaging.	(5)
c) What are some common techniques used in computer vision and pattern recognition for image classification tasks?	(5)
Q2. Solve any two	
a) Explain the concept of pin-hole model	(5)
b) Explain Bayes Decision theory and justify the problem with an example.	(5)
c) Explain Coordinate Transformations and Transformation matrices.	(5)
Q3. Solve any two	
a) Explain Coordinate Transformations and Transformation matrices.	(5)
b) Provide Examples of Recent advancements in surveillance technology enabled by image processing and computer vision techniques.	(5)
c) What is Lens Distortion? Explain how to overcome Lens Distortion in CV.	(5)
Q4. Solve any two	
a) Write short note on (Any one): i) Object Detection or ii) Image Segmentation or iii) Edge Detection	(5)
b) Explain Image Classification and Image Clustering with their types.	(5)
c) Enlist and describe various examples of recent advancements in surveillance technology enabled by image processing and computer vision techniques.	(5)
Q5. Solve any two	(5)
a) What is Maximum-Likelihood Estimation?	(5)
b) Explain Unsupervised learning and describe the working of K-Means clustering.	(5)
c) Explain Hierarchical and other clustering methods with examples.	
Q6. Solve any two	(5)
a) Explain HHM and its types.	(5)
b) Describe the K-Nearest neighbour method.	(5)
c) Write in brief about the Gaussian mixture models.	

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