



Academic year 2023-2024 (EVEN Sem)

COMMON TO DEPARTMENTS OF
BT, CSE, CV, ECE, EEE, ETE, ISE, ME

Date	22/7/24	Maximum Marks	50
Course Code	22IM21T	Duration	90 Min
Sem	II Semester MTech	CIE – I	

RESEARCH METHODOLOGY

Note: Answer all the Questions.

Sl. No.	Questions	M	BT	CO																														
1	Illustrate the thinking processes in creative approach of Problem solving. Elucidate the four stages of creative process. Demonstrate creative problem solving with an example	10	2	1																														
2	Explain the characteristics of good hypothesis, and its process of generation with a flowchart. Provide examples of research hypotheses in different fields	10	2	1																														
3	Discuss the significance of literature review in problem identification by throwing light on its broad aspects.	10	1	1																														
4	Bring out the design and study phenomenon in Quasi-Experimental designs with examples.	10	2	2																														
5	The following data represents the number of units of tablets production (in thousands) per day by five different technicians, by using four different types of machines. Construct the ANOVA table by shifting the origin to 50 and obtain the F ratio.	10	3	2																														
	<table border="1"> <thead> <tr> <th>Machines/ Technicians</th> <th>A</th> <th>B</th> <th>C</th> <th>D</th> </tr> </thead> <tbody> <tr> <td>P</td> <td>54</td> <td>48</td> <td>57</td> <td>46</td> </tr> <tr> <td>Q</td> <td>56</td> <td>50</td> <td>62</td> <td>53</td> </tr> <tr> <td>R</td> <td>44</td> <td>46</td> <td>54</td> <td>42</td> </tr> <tr> <td>S</td> <td>53</td> <td>48</td> <td>56</td> <td>44</td> </tr> <tr> <td>T</td> <td>48</td> <td>52</td> <td>59</td> <td>48</td> </tr> </tbody> </table>	Machines/ Technicians	A	B	C	D	P	54	48	57	46	Q	56	50	62	53	R	44	46	54	42	S	53	48	56	44	T	48	52	59	48			
Machines/ Technicians	A	B	C	D																														
P	54	48	57	46																														
Q	56	50	62	53																														
R	44	46	54	42																														
S	53	48	56	44																														
T	48	52	59	48																														

BT-Blooms Taxonomy, CO-Course Outcomes, M-Marks

Marks Distribution	Particulars		CO1	CO2	CO3	CO4	L1	L2	L3	L4	L5	L6
	Test	Max Marks	30	20	-	-	10	30	10	-	-	-

Academic year 2023-2024 (EVEN Sem)

COMMON TO DEPARTMENTS OF
BT, CSE, CV, ECE, EEE, ETE, ISE, ME

Date	19/08/2024	Maximum Marks	50
Course Code	IM331	Duration	90 Min
Sem	II Semester MTech	CIE – II	

RESEARCH METHODOLOGY

Note: Answer all the Questions.

Sl. No.	Questions	M	BT	CO
1(a)	Compare and contrast the four primary types of measurement scales. Provide examples of each and discuss how the choice of scale affects data analysis.	05	3	3
1(b)	Explain the differences between probability and non-probability sampling methods and how each method impacts the representativeness of the sample.	05	3	3
2(a)	Compare and contrast at least two primary data collection methods (take surveys and interviews).	05	2	2
2(b)	Define measurement error and discuss the different types of measurement errors that can occur in research.	05	03	02
3	The manager of a local bookstore wants to estimate the average number of books purchased per customer visit. The bookstore has records of all transactions, but reviewing every transaction is not feasible. The manager decides to take a random sample of customer receipts. Twelve receipts from different transactions are randomly selected, yielding the following data. The manager uses these data to construct a 95% confidence interval to estimate the average number of books purchased per customer visit and assumes that the number of books purchased per transaction is normally distributed. The data: 5, 3, 6, 4, 2, 3, 7, 4, 6, 5, 3, 2 ($t_{0.025,11} \approx 2.201$)	10	5	4
4	A researcher is studying the cholesterol levels (in mg/dL) of a sample of patients to determine if their average cholesterol level significantly differs from the average cholesterol level of the general population, which is known to be 200 mg/dL. The researcher has collected cholesterol data from 8 patients, and the values are as follows: 170, 185, 195, 210, 220, 190, 175, 205 The researcher wants to determine if the mean cholesterol level of the patients is significantly different from the general population mean of 200 mg/dL. Perform a hypothesis test to evaluate this. $t_{0.025,7} \approx \pm 2.364$	10	2	2
5	A civil engineer is evaluating the compressive strength of a new type of construction material used for load-bearing walls. To ensure that the median compressive strength of these materials is at least 1500 psi, the engineer tests a sample of 15 blocks. The engineer needs to confirm this with a significance level of 5%. The compressive strengths of the 15 randomly selected blocks are as follows: 1470, 1520, 1550, 1490, 1580, 1400, 1530, 1600, 1450, 1480, 1570, 1620, 1430, 1510, 1590 The engineer wants to test if the median compressive strength is at least 1500 psi.	10	3	2

BT-Blooms Taxonomy, CO-Course Outcomes, M-Marks

Marks Distribution	Particulars		CO1	CO2	CO3	CO4	L1	L2	L3	L4	L5	L6
	Test	Max Marks	30	20	-	-	10	30	10	-	-	-



Academic year 2023-2024 (EVEN Sem)

COMMON TO DEPARTMENTS OF
BT, CSE, CV, ECE, EEE, ETE, ISE, ME

Date	04/09/2024	Maximum Marks	50
Course Code	IM331	Duration	90 Min
Sem	II Semester MTech	CIE – III	

RESEARCH METHODOLOGY

Note: Answer all the Questions.

Sl. No.	Questions	M	BT	CO
1a	What are non-parametric tests? Discuss any two non-parametric tests commonly used to test hypothesis.	5	L3	CO2
1b	The total marks of 10 students are 756, 802, 824, 721, 833, 816, 789, 768, 806, 795. At 5% significance test that the student's median total marks are 800, against that the median is less than 800, using sign test.	5	L4	CO2
2a	What is cluster analysis? How is it different from factor analysis? Give the steps involved in the k-mean clustering.	5	L3	CO2
2b	Why do we use t-test in linear regression analysis	5	L2	CO2
3a	Explain the significance of a report and the steps involved in writing a report.	7	L3	CO3
3b	Write a brief report of the results of any work carried out by you in your area of work.	3	L4	CO3
4a	Discuss why research ethics is important and four ways in which ethics can be violated in research.	6	L3	CO3
4b	In the early 1960's, Stanley Milgram used deception to recruit subjects for a psychology experiment. The experiment involved two groups, teacher and learner, wherein the learner was punished for a wrong answer, by subjecting to a mild electric shock. The intensity of the shock increased as the number of wrong answers increased. Subjects were told that their research concerned the effect of punishment on learning, when in fact it studied obedience to authority. Is it CORRECT? What ethical conduct does it violate?	4	L5	CO3
5a	Write short notes on "Plagiarism in research".	5	L2	CO3
5b	What is Principal Component Analysis? Explain with the help of an example.	5	L3	CO3

BT-Blooms Taxonomy, CO-Course Outcomes, M-Marks

Marks Distribution	Particulars		CO1	CO2	CO3	CO4	L1	L2	L3	L4	L5	L6
	Test	Max Marks		20	30	-	-	10	28	8	4	-



Department of Computer Science and Engineering

M.Tech Computer Science and Engineering
Academic year 2023-2024 (Even Semester)

CIE I: QUESTION PAPER

Course	Advances in Operating System		
Date	22 July 2024	Maximum Marks	60
Course Code	MCE331I	Duration	120 Mins
Sem	II	CIE – I	

SL No.	Part –A (Quiz)	M	BT	CO
1.	In the context of MQMS(Multi Queue Multiprocessor Scheduling) define work stealing approach	2	L1	CO1
2.	Identify the limitations of SQMS and MQMS approaches	2	L2	CO2
3.	The _____ family of system calls allows a child to break free from its similarity to its parent and execute an entirely new program	1	L1	CO1
4.	Give the scenarios when the state of a process transit from: i. Running to ready ii. Blocked to ready	2	L2	CO1
5.	Write the output of the following code if exec is successful: <pre>#include int main() { if(fork()==0) { char *args[3] = {"ls", "-al", NULL}; execvp(args[0], args); } else { printf("Parent!\n"); } printf("Only parent!\n"); return 0; }</pre>	2	L2	CO3
6.	Give any two examples for proportional share scheduling approach	1	L1	CO1

SL No.	Part-B (Test)	M	BT	CO
1.a	Illustrate the various Linux Multiprocessor schedulers	04	L2	CO1
b	Write a multithreaded program using thread related APIs from pthread library to create minimum of three threads to execute different functions.	06	L3	CO3
2.a	Examine the design goals that help focus in the design and implementation of an operating system and makes trade-offs as necessary	07	L2	CO1

*Go, change the world**

b	Using multi queue multiprocessor scheduling inherently addresses the limitations posed by single queue multiprocessor scheduling. Justify	03	L3	CO2
3.a	Write a program that performs I/O operations using file APIs.	05	L3	CO3
b	Write a program that demonstrate the use of process control APIs and calls fork(), wait(), and exec() system calls	05	L3	CO3
4.a	Analyze the process creation steps that the operating system takes to get a program up and running.	06	L2	CO1
b	Give the xv6 Proc Structure, that contains various types of information an OS needs to track about each process in the xv6 kernel	04	L4	CO4
5.a	Analyse the issues of multiprocessor systems with separate caches and the solution that are provided to address these issues.	06	L3	CO2
b	Examine how cache affinity affects the performance of multiprocessor systems	04	L2	CO1

Course Outcomes: After completing the course, the students will be able to:-

CO 1	Explore the recent development of Operating Systems and understanding the new techniques that advance the start-of-the-art of Operating Systems
CO 2	Analyze critical components of OS with hands-on experience with the scientific methods to develop specific system on an operating system.
CO 3	Design multi-processes and multithreading schemes for concurrent systems
CO 4	Demonstrate process concurrency, file systems, protection and data integrity mechanisms for applications running on different operating systems.

BT-Blooms Taxonomy, CO-Course Outcomes, M-Marks

Marks Distribution	Particulars		CO1	CO2	CO3	CO4	L1	L2	L3	L4
	Test	Max Marks	27	11	18	04	4	27	25	04

M.Tech Computer Science and Engineering
Academic year 2023-2024 (Even Semester)

CIE II: QUESTION PAPER

Course	Advances in Operating System		
Date	20 Aug 2024	Maximum Marks	60
Course Code	MCE331I	Duration	120 Mins
Sem	II	CIE – II	

SL No.	Part -A (Quiz)	M	BT	CO
1.	Write the syntax of the two primary routines used by the programs to interact with each other using condition variables.	02	L2	CO3
2.	Identify the basic criteria used for evaluating the efficacy of lock implementation	02	L2	CO2
3.	Define Perfect Scaling	02	L1	CO1
4.	Identify the callers that can use Linux based Futex to sleep and wake the threads	02	L3	CO3
5.	Identify the scenarios when the process in Linux operating system is in TASK_INTERRUPTIBLE state.	02	L2	CO2

SL No.	Part-B (Test)	M	BT	CO
1.a	Write the code to illustrate the usage of condition variables for signalling between threads.	06	L3	CO3
b	Enumerate the Thread API guidelines for using the POSIX thread library to build a multi-threaded program.	04	L2	CO2
2.a	Controlling interrupts to provide mutual exclusion is not a feasible solution. Justify	04	L3	CO1
b	Briefly explain Linux process descriptor	06	L1	CO1
3.a	Write the code for Compare-And-Swap and Load-Linked & Store-Conditional for building a lock.	07	L3	CO4
b	Enumerate the possible process states in Linux operating system	03	L2	CO1
4.	Write the code for implementing an approximate counter with locks. Analyze the operation of scalable counting performed by the approximate counter.	10	L4	CO4
5.	Analyse the steps performed by the __switch_to () function in Linux to switch between processes.	10	L4	CO2



Department of Computer Science and Engineering

M.Tech Computer Science and Engineering
Academic year 2023-2024 (Even Semester)
CIE III: QUESTION PAPER

Course	Advances in Operating System		
Date	4 th Sep 2024	Maximum Marks	50 +10
Course Code	MCE331I	Duration	90 +10 mins
Sem	II	Improvement Test	

SL No.	Part -A (Quiz)	M	BT	CO
1.	Identify the issues that has to be addressed when the average quantum duration is set too short by the scheduler.	2	L2	CO1
2.	A user can change the static priority of the processes that he owns by passing some values to the system call	1	L1	CO1
3.	Write the significance of memory barrier primitives	2	L2	CO2
4.	Examine the use of Seqlocks in Linux operating system	2	L3	CO2
5.	How does Read-Copy-Update (RCU) primitive achieve synchronization without using any shared data structure	2	L3	CO2
6.	List the two kinds of semaphores used by Linux operating system	1	L1	CO1

SL No.	Part-B (Test)	M	BT	CO
1.a	Discuss Pre-emptive and Non- Pre-emptive kernels	06	L2	CO2
B	Briefly discuss the Big Kernel Lock or the global kernel lock of Linux operating system	04	L2	CO1
2.	Examine how kernel control paths can be interleaved while avoiding race conditions among shared data? Identify the synchronization techniques used by the Linux kernel and explain any three of them in detail.	10	L3	CO2
3.a	Summarize the different scheduling classes of Linux processes.	05	L1	CO4
B	Examine the needs for Protecting a data structure accessed by exceptions and protecting a data structure accessed by interrupts	05	L3	CO2
4.	Explain about the kernel wrapper routines.	10	L4	CO3
5.	Identify the three classes of processes for assigning dynamic priorities while scheduling. Write and explain any five system calls related to scheduling.	10	L2	CO3

Course Outcomes:

CO 1	Explore the recent development of Operating Systems and understanding the new techniques that advance the start-of-the-art of Operating Systems
CO 2	Analyze critical components of OS with hands-on experience with the scientific methods to develop specific system on an operating system.
CO 3	Design multi-processes and multithreading schemes for concurrent systems
CO 4	Demonstrate process concurrency, file systems, protection and data integrity mechanisms for applications running on different operating systems.

BT-Blooms Taxonomy, CO-Course Outcomes, M-Marks

Marks Distribution	Particulars		CO1	CO2	CO3	CO4	L1	L2	L3	L4
	Test	Max Marks	08	27	20	05	07	24	19	10



RV COLLEGE OF ENGINEERING®
Department of Computer Science and Engineering
CIE-I: Question Paper

Course : (Code)	DEEP LEARNING (MCE332T)	Semester: II
Date: July 2024	Duration: 120 minutes	Staff: Prof MSS
Name :	USN :	Section : 2 nd M.Tech CSE

Answer All Questions

Sl.no	Questions	Marks	L1-L6	CO
Part - A				
1.1	When should we choose deep learning over conventional computer vision algorithms?	02	L3	CO2
1.2	In a simple MLP model with 8 neurons in the input layer, 5 neurons in the hidden layer and 1 neuron in the output layer. What is the size of the weight matrices between hidden output layer and input hidden layer?	02	L1	CO1
1.3	Pooling prevents the model from _____ during training.	01	L1	CO1
1.4	The input image has been converted into a matrix of size 28 X 28 and a kernel/filter of size 7 X 7 with a stride of 1. What will be the size of the output matrix?	01	L1	CO2
1.5	What is data annotation and data augmentation, why they are used?	02	L2	CO1
1.6	What is the vanishing gradient problem in deep learning?	02	L3	CO2
Part - B				
2	What are activation functions, and why are they critical in designing deep learning models?	4x2 +2	L3	CO2
3	a. Name and explain few hyperparameters used for training a neural network? b. A single-layer perceptron has a significant limitation: it can only model linearly separable functions. Discuss this problem with respect to XOR function.	03 05	L4	CO3
4	a. Algorithmically describe the forward and backward propagation which has supervised loss $L(y^{\wedge}, y)$ associated with input x and the output of neural network y^{\wedge} . b. For the graph $z=f(f(f(w)))$. Illustrate the computational graph with symbolic representation of derivates during back propagation.	05 05	L2	CO2
5	a. Discuss the various augmentation techniques used for text, image and audio data sets.	05 05	L2	CO1

	b. Kernels do not focus on boundary pixels and convolution process shrinks the output. How can we overcome these issues, elaborate?			
6	Convolution leverages three important ideas Sparse interactions, Parameter sharing and Equivariant representations. Explain	10	L3	CO2

COURSE OUTCOMES:

CO1.	Exploring the concepts of neural network, its applications and various learning models
CO2.	Apply the knowledge of neural networks in various deep learning architecture (Convnet, Recurrent and Nets and Auto-encoder models)
CO3.	Analyse different deep Network Architectures, learning tasks for various applications
CO4.	Evaluate and compare the solutions by various deep learning approaches for a given problem

	L1	L2	L3	L4	L5	L6	CO1	CO2	CO3	CO4
Marks	4	16	16	10	-	-	14	36		



RV COLLEGE OF ENGINEERING®
Department of Computer Science and Engineering
CIE-II: Question Paper

Course : (Code)	DEEP LEARNING (22MCE23T)	Semester: II
Date: August 2024	Duration: 120 minutes	Staff: Prof MSS
Name :	USN :	Section : 2 nd M.Tech CSE

Answer All Questions

Sl.no	Questions	Mar ks	L1- L6	CO
PART-A				
1.1	Discuss difference between undercomplete and overcomplete autoencoder.	02	L3	CO2
1.2	What is Semantic Hashing?	02	L4	CO3
1.3	Why RNN is useful?	02	L2	CO2
1.4	How LSTM differ from RNN?	02	L3	CO3
1.5	What is the primary purpose of an autoencoder?	02	L2	CO4
PART-B				
2.a	With a computational graph describe the computation of the training loss of a recurrent network that maps an input sequence of x values to a corresponding sequence of output o values.	05	L2	CO2
2.b	What is teacher forcing in a recurrent network. Discuss its drawback.	05	L2	CO2
3.a	Consider an encoder-decoder model for machine translation. Using a neural network, draw a simple, depth 1 recurrent network for language translation. Show sample input (x_1, x_2, \dots, x_n) and output (y_1, y_2, \dots, y_m) words.	05	L4	CO3
3.b	With computational graph describe a typical bidirectional recurrent neural network. Combine an RNN that moves forward through time beginning from the start of the sequence with another RNN that moves backward through time beginning from the end of the sequence.	05	L3	CO4
4.a	In the LSTM model, explain how the cell state is updated from C_{i-1} to C_i using the previous state h_{i-1} and current input x_i .	05	L3	CO3
4.b	With a diagram explain what is LSTM-forget gate and LSTM-input gate.	05	L2	CO3
5.a	Discuss Autoencoders and their applications.	05	L3	CO4
5.b	What impact does the depth and layer size do for Autoencoders, discuss.	05	L4	CO3

6	Regularized autoencoders provide the ability to train any architecture of autoencoder successfully, discuss the three different types of Regularized autoencoders.	10	L4	CO3
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COURSE OUTCOMES:

CO1	Exploring the concepts of neural network, its applications and various learning models
CO2	Apply the knowledge of neural networks in various deep learning architecture (Convnet, Recurrent and Nets and Auto-encoder models)
CO3	Analyse different deep Network Architectures, learning tasks for various applications
CO4	Evaluate and compare the solutions by various deep learning approaches for a given problem

	L1	L2	L3	L4	L5	L6	CO1	CO2	CO3	CO4
Mark s		19	19	22	-	-	-	14	34	12



RV COLLEGE OF ENGINEERING®
Department of Computer Science and Engineering
CIE-III: Question Paper

Course : (Code)	DEEP LEARNING (22MCE23T)	Semester: II
Date: Sept 2024	Duration: 120 minutes	Staff: Prof MSS
Name : <i>[Signature]</i>	USN : <i>[USN]</i>	Section : 2 nd M.Tech CSE

Answer All Questions
PART-A

Sl. no	Questions	Mar ks	L1- L6	CO
1	What is the primary advantage of using transfer learning in deep learning?	2	L4	CO4
2	In deep learning, what does the term “epoch” refer to?	2	L3	CO3
3	What is the purpose of the learning rate in the context of deep learning?	2	L3	CO3
4	Which type of deep learning model is used for dimensionality reduction and visualization of high-dimensional data?	2	L4	CO4
5	How many layers are there in Autoencoder and what are they?	2	L4	CO4

PART-B

2	Identify model to train an attention-based neural machine translation model (NMT) to translate words from English to Latin. Write the architecture of the NMT model and explain the operations involved and also comment on teacher forcing.	10	L4	CO4
3	Discuss the <ol style="list-style-type: none"> Application of autoencoders Advantage of deep autoencoders Symmetric architecture of autoencoders 	10	L3	CO3
4	Highlighting the key features and explain the model architecture of DenseNet with diagram	10	L3	CO3
5	a. Discuss how skip connection in ResNet model overcomes the vanishing gradient descent problem in deep neural network with diagram. b. What is Reinforcement Learning. With real life examples discuss the applications of Reinforcement Learning	5	L4	CO4
6	Discuss the key features of AlexNet and compare it with VGGNet with relevant diagram.	10	L4	CO4

COURSE OUTCOMES:

CO1.	Exploring the concepts of neural network, its applications and various learning models
CO2.	Apply the knowledge of neural networks in various deep learning architecture (Convnet, Recurrent and Nets and Auto-encoder models)
CO3.	Analyse different deep Network Architectures, learning tasks for various applications
CO4.	Evaluate and compare the solutions by various deep learning approaches for a given problem



Course & Code	Internet of Things and Edge Computing (22MCN2C4T)		Semester: II
Date :July 2024	Duration:90 minutes Max. Marks: 50 Marks		Staff : ARA
USN :	Name :		

NOTE: Answer all the questions

QUIZ					
1	What is meant by 'smart devices' in the context of IoT?	1	L1	CO1	
2	What does 'hyper-connected' mean in the context of IoT?	1	L1	CO1	
3	What role do actuators play in smart home automation?	1	L1	CO2	
4	Equivalent to the "stream" phase of the conceptual framework of IoT, which layer(s) in the OSI model correspond?	1	L2	CO2	
5	Name any two protocols used in IoT local area networks.	1	L1	CO1	
6	Explain in simple term how Machine to Machine (M2M) communication is different from IoT.	1	L1	CO1	
7	Match the following 1) Conceptual Frame work 2) Architectural View 3) Reference Model a) CISCO b) IBM c) Oracle	3	L2	CO2	
8	To which of the following category - Routing Over a network of Low power and (data) Loss (ROLL) – falls in i) Constrained ii) Un constrained	1	L2	CO2	
Sl.no.	Questions	Marks	* BT	* CO	
1.a	Give proper definitions of Internet of Things (IOT), the definitions should be inline with • Turning things into computers • Things get greater value because of IOT	5	L2	CO1	
1.b	General framework of IoT frame work entitles – Smart, and Hyper connected devices. Referring to the scenario provided, justify its belonging to the IoT framework.	5	L2	CO1	

2.a	IBM envisioned IOT framework as “Connect + Collect + Assemble + Manage (Levels 3 and 4) and Cloud Services (Levcl 5)”. Giving IoT frame work for this definition, map it against the example scenario provided.	10	L4	CO1
3.a	Referring to the example scenario provided, illustrate proposed IETF six layer modified OSI model for Internet of smart reading solution. Clearly outline how IETF layer are mapped to OSI layers and actions carried out each layer.	10	L4	CO2
4.a	Referring to stated objectives in the scenario, it is essential to gather, process and route the data from IOT Local area network to Internet where the services and application hosted. What challenges the IoT system faces to do so and how is the solutions provided for these challenges. Illustrate the possible solution (s) using relevant components.	10	L4	CO3
5.a	Give proper definition for the following i) Gateway ii) Proxy iii) Communication Protocol	5	L2	CO1
5.b	Illustrate the general characteristics of Routing Over a network of Low power and (data) Loss (ROLL) and explain how the web connectivity in IoT handles this.	5	L2	CO1

COURSE OUTCOMES:

CO1:	Apply and Explore Internet of Things (IoT) with New Computing Paradigms like 5G, Fog, Edge, and Clouds
CO2:	Analyze Prototyping and demonstrate resource management concepts in New Computing Paradigms
CO3:	Implement optimal technology of Internet of Things and edge computing for different applications
CO4:	Design Web Connectivity in IoT and Orchestration of Network Slices in 5G, Fog, Edge, and Cloud

	L1	L2	L3	L4	L5	L6	CO1	CO2	CO3	CO4
Marks	-	20	-	30	-	-	30	10	10	-

Scenario I



RV College of Engineering®
M Tech (CSE &CNE)
Department of Computer Science and Engineering
CIE - II: Test Paper

Course & Code	Internet of Things and Edge Computing (22MCN2C4T)		Semester: II
Date:21-08-2024	Duration:90 minutes Max. Marks: 50 Marks		Staff : ARA
USN :	Name :		

NOTE: Answer all the questions

	QUIZ	Marks	* BT	*CO
1.	What are tokens in CapBAC? Explain	1	L1	CO2
2	In the MQTT protocol, what are the two main entities involved in communication?	2	L1	CO2
3	What is the primary purpose of access control mechanisms in a research project like FP7 I-Core?	1	L1	CO3
4	Explain the significance of anonymized data discovery in the GAMBAS project and how it balances the need for data-driven smart city services with privacy concerns.	2	L1	CO3
5	Explain three challenges faced by SMARTIE1 (Secure and sMARter ciTIES data management)	2	L2	CO2
6	For the following Capability list, obtain the Capability Based Access Control (CapBAC)			
	<pre> graph LR Alice((Alice)) -- "R, W" --> passwd[etc/passwd] Bob((Bob)) -- "R, R" --> foo[etc/motd] Carol((Carol)) -- "R, W, R" --> motd[etc/motd] Carol -- "R, W, R" --> passwd Carol -- "R, W, R" --> foo Carol -.-> motd </pre> <p><i>Capability List</i></p>	2	L3	CO3

Sl.no.	Questions	Marks	* BT	*CO
1.a	Illustrate Constrained Application Protocol (CoAP) which is for CoRE using ROLL (Routing Over a network of Low power and (data) Loss) data network with a neat diagram and Also explain how it different from HTTP over the TCP.	6	L3	CO1
1.b	Briefly explain the following i) Java Script Object Notion (JSON) ii) Tag Length Value (TLV) Encoding	4	L2	CO1

2	With a neat diagram explain the Message Queuing Telemetry Transport (MQTT) is an open-source protocol for machine-to-machine (M2M)/IoT connectivity. Further illustrate the working of MQTT Broker (also referred simply as MQ).	10	L2	CO2
3	Referring to the figure in Fig-01, identify – Virtual Objects (VO), Composite Virtual Objects (CVO) and the Services. Also with a neat diagram explain the FP7 iCore Access Framework (iCore Contribution) identifying different Cognitive Management Levels.	10	L4	CO2
4	Explain the notion of CapBAC (Capability Based Access Control) with an example that is inline with the IoT@Work Capability Based Access Control System .	10	L4	CO3
5.a	Security, privacy and trust for IoT for smart city should be considered during the design itself – Justify your answer.	6	L2	CO4
5.b	Illustrate the possible risks with respect to Security of IoT for smart city SMARTIE.	4	L3	CO4

COURSE OUTCOMES:

CO1:	Apply and Explore Internet of Things (IoT) with New Computing Paradigms like 5G, Fog, Edge, and Clouds
CO2:	Analyze Prototyping and demonstrate resource management concepts in New Computing Paradigms
CO3:	Implement optimal technology of Internet of Things and edge computing for different applications
CO4:	Design Web Connectivity in IoT and Orchestration of Network Slices in 5G, Fog, Edge, and Cloud

	L1	L2	L3	L4	L5	L6	CO1	CO2	CO3	CO4
Marks	5	20	15	20	-	-	10	24	16	10

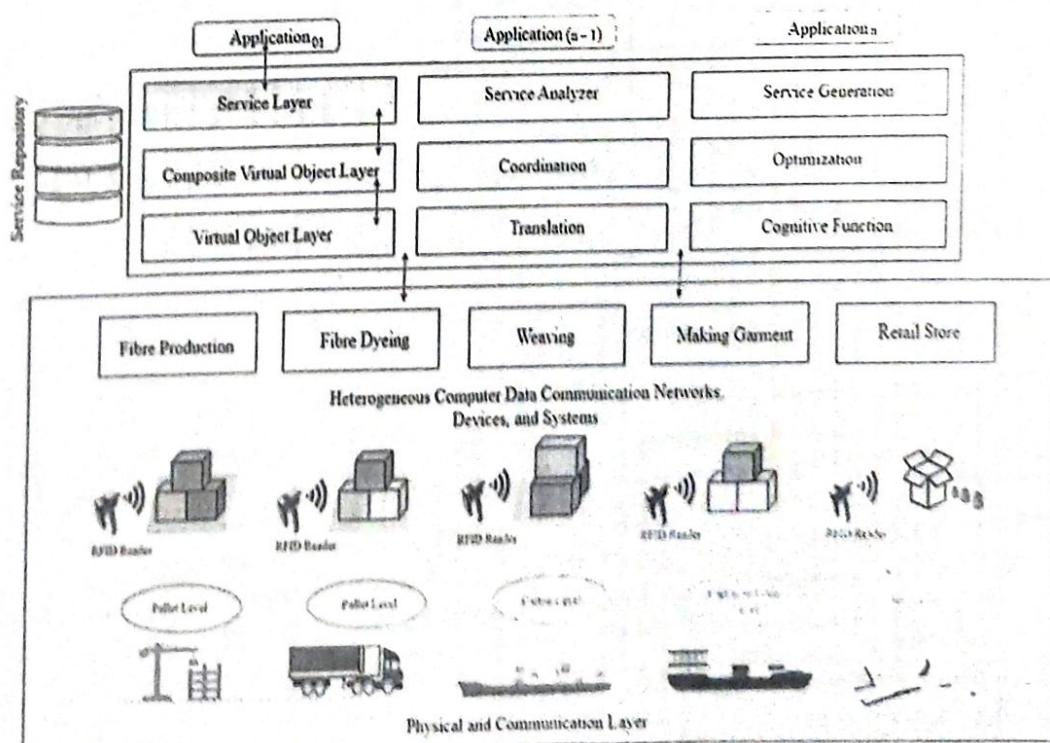


Fig 01 : IOT Setup for a Textile Industry.



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CIE - III: Test Paper

Course & Code	Internet of Things and Edge Computing (22MCN2C4T)		Semester: II
Date :July 2023	Duration:90 minutes		Staff : ARA
USN :	Name :		

NOTE: Answer all the questions

Sl.no.	Questions	Marks	* BT	*CO
1.a	Illustrate BLUR challenges faced with Cloud-centric Internet of Things (CIoT)	5	L2	CO2
1.b	Analyse how the Fog and Edge Computing (FEC) nodes support acceleration in two aspects- networking acceleration and computing acceleration.	5	L3	CO2
2.a	Explain the features the Fog and Edge Computing (FEC) that complement the Cloud in IOT	5	L2	CO3
2.b	Differentiate between the Vertical Networking and Horizontal Networking of Fog and Edge Computing (FEC)	5	L2	CO3
3.a	Illustrate how does Fog and Edge Computing (FEC) provide the advantages that helps filling the gap between cloud and things towards providing service continuum	5	L3	CO3
3.b	Explain hierarchy of Fog and Edge Computing (FEC). Briefly explain the working of inner-edge, middle-edge, and outer-edge layers	5	L2	CO4
4.a	What is Network Slicing in 5G and why is it important?	5	L2	CO4
4.b	Explain the role of orchestration in the management of network slices in 5G.	5	L3	CO4
5.a	What are the differences between Fog Computing and Edge Computing, and how do they support network slicing?	5	L3	CO4
5.b	Discuss the challenges of orchestrating resources across Cloud, Edge, and Fog in 5G networks.	5	L2	CO4

COURSE OUTCOMES:

CO1:	Apply and Explore Internet of Things (IoT) with New Computing Paradigms like 5G, Fog, Edge, and Clouds
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CO3:	Implement optimal technology of Internet of Things and edge computing for different applications
CO4:	Design Web Connectivity in IoT and Orchestration of Network Slices in 5G, Fog, Edge, and Cloud

	L1	L2	L3	L4	L5	L6	CO1	CO2	CO3	CO4
Marks	-	20	-	30	-	-	-	10	15	25



**DEPARTMENT OF
BIOTECHNOLOGY**
Academic year 2024 (Even Sem)

DEPARTMENT OF BIOTECHNOLOGY

Date	JULY 2024	Maximum Marks	50
Course Code	MBT332G	Duration	90Mins
Sem	II Semester	Test-1	
HEALTH INFORMATICS			

Instructions to Candidates: Answer all questions.

Write an example program wherever applicable.

Sl. No.	Questions	M	BT	CO
1	Discuss the evolution of Health Informatics and its significance in modern healthcare. Include the impact of technology on data management and patient care	10	3	2
2	Explain the process of converting data to information and then to knowledge in the context of Health Informatics. Provide examples of how this process is applied in clinical settings.	10	2	1
3	Identify and describe the different types of data found in healthcare, and discuss their significance.	10	2	3
4	Discuss the role of Clinical Data Warehouses (CDWs) in healthcare. How do they support quality monitoring, clinical research, and public health surveillance	10	3	4
5	Examine the challenges and future trends in healthcare data analytics. How can Health Informatics address these challenges	10	4	4

BT-Blooms Taxonomy, CO-Course Outcomes, M-Marks

Marks Distribution	Particulars		CO1	CO2	CO3	CO4	L1	L2	L3	L4	L5	L6
	Test	Max Marks	10	10	10	20		20	20	10		



**DEPARTMENT OF
BIOTECHNOLOGY**
Academic year 2024 (Even Sem)

DEPARTMENT OF BIOTECHNOLOGY

Date	AUG 2024	Maximum Marks	50
Course Code	MBT332G	Duration	90Mins
Sem	II Semester	Test-2	

HEALTH INFORMATICS

Instructions to Candidates: Answer all questions.

Sl. No.	Questions	M	BT	CO
1	Mention the challenges in electronic health records adoption and management.	10	2	1
2	Compare and contrast electronic health records with electronic medical records.	10	2	2
3	Outline the logical steps involved in selecting and implementing an EHR system. What factors should be considered to ensure successful implementation?	10	4	4
4	Discuss the different types of medical coding systems used in healthcare. What are their purposes, and how do they impact billing and reimbursement processes?	10	3	4
5	Analyze the role of terminological standards in Health Informatics. How do they improve data accuracy and interoperability	10	3	3

BT-Blooms Taxonomy, CO-Course Outcomes, M-Marks

Marks Distribution	Particulars		CO1	CO2	CO3	CO4	L1	L2	L3	L4	L5	L6
	Test	Max Marks	10	10	10	20		20	20	10		



Academic year 2023-2024 (EVENSem)

Board of Humanities and Social Sciences

Date	22.08.2024	Maximum Marks	10 + 50
Course Code	22HSS25T	Duration	30 + 90 Min
Sem	II Sem /M.Tech - Common to all the programs	CIE – I	

PROFESSIONAL SKILL DEVELOPMENT – I - CIE - I**Note:**

- Answer all the Questions.

Part – A – Quiz

Max. Marks – 10 Marks

Sl. No.	Questions	M	BT	CO
1	Fill in the blanks with suitable word If you _____ practice, you will not learn.	1	3	2
2	Fill in the blanks with suitable word He looks as if he _____ something.	1	3	2
3	Fill in the blanks with suitable words _____ you are caught, what will happen to your parents?	1	3	2
4	Statements: All the actors are girls. All the girls are beautiful. Conclusions: 1.All the actors are beautiful. 2.Some girls are actors. Which conclusion follows?	1	3	2
5	Find the sum of even numbers from 20 till 50? -	1	3	2
6	How many 3 digit numbers are there divisible by 5?	1	3	2
7	Find the sum of natural numbers from 30 till 60?	1	3	2
8	Find the sum of natural numbers from 40 till 80?	1	3	2
9	Statement: "You are hereby appointed as a programmer with a probation period of one year and your performance will be reviewed at the end of the period for confirmation." - A line in an appointment letter. Assumptions: 1.The performance of an individual generally is not known at the time of appointment offer. 2. Generally an individual tries to prove his worth in the probation period. Which assumption implicit?	1	3	2
10	How many 7 digit numbers are there divisible by 5? a. 1800000 b. 180000 c. 1480000 d. None	1	3	2

Part – B

Max.Marks – 50

Sl. No.	Questions	M	BT	CO
Q.1a.	How to sit in a chair while giving interview? Explain it with at least two points	2	1	4
1b.	The teacher is testing a student's proficiency in arithmetic and poses the following question. $\frac{1}{3}$ of a number is 3 more than $\frac{1}{6}$	4	3	2



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Academic year 2023-2024 (EVENSem)

	of the same number. What is the number? Can you help the student find the answer? Explain it properly.				
1c.	Tell me about something which you did or failed to do and now feeling ashamed of that?	4	4	1	
2 a.	What are your hobbies?	2	4	3	
2 b.	A 3- digit number consists of 9,5 and one more number. When these digits are reversed and then subtracted from original number the answer yielded will be consisting of the same digits arranged yet in a different order. What is the other digit?	4	3	2	
2 c.	How to tailor your resume? Explain it nicely.	4	4	1	
3 a.	What makes you angry?	2	4	3	
3 b.	Which is more important - thinking of new ideas or remembering points already being raised in the group discussion?	4	4	3	
3 c.	How many 4 digit numbers are there divisible by 11?Explain it properly.	4	3	2	
4 a.	How you should maintain your eye contact with the interviewer in an interview?	2	4	4	
4 b.	Who is your idol person and why?	4	4	3	
4 c.	Who should we talk to - the recruitment panel or the team in the GD? Explain it thoroughly.	4	4	3	
5 a.	What mistakes should we try to avoid while writing resume?	2	4	1	
5 b.	What is the purpose of a resume? Explain it nicely.	4	4	1	
5c.	Where do you see yourself in the next 5 years?	4	4	1	

BT-Blooms Taxonomy, CO-Course Outcomes, M-Marks

Marks Distribution	Particulars		CO1	CO2	CO3	CO4	L1	L2	L3	L4	L5	L6
	Quiz	Max Marks	5	13	5	2	1		13	11		
	Test		18	22	16	4	2		22	36		



Academic year 2023-2024 (EVENSem)

Board of Humanities and Social Sciences

Date	09.09.2024	Maximum Marks	10 + 50
Course Code	22HSS25T	Duration	30 + 90 Min
Sem	II Sem /M.Tech - Common to all the programs	CIE – II	

PROFESSIONAL SKILL DEVELOPMENT – I - CIE - II

Note:

1. Answer all the Questions.

Part – A – Quiz

Max. Marks – 10 Marks

Sl. No.	Questions	M	BT	CO
1	Pointing to a photograph of a boy Suresh said, "He is the son of the only son of my mother." How is Suresh related to that boy?	1	3	2
2	If A is the brother of B; B is the sister of C; and C is the father of D, how D is related to A?	1	3	2
3	Introducing a boy, a girl said, "He is the son of the daughter of the father of my uncle." How is the boy related to the girl?	1	3	2
4	If South-East becomes North, North-East becomes West and so on. What will West become?	1	3	2
5	Rahul put his timepiece on the table in such a way that at 6 P.M. hour hand points to North. In which direction the minute hand will point at 9.15 P.M. ?	1	3	2
6	Find the value of x from a number 419×3 if the whole number is divisible by 9?	1	3	2
7	What is the sum of odd numbers from 30 to 60?	1	3	2
8	Fill in the blanks Earth rotates around sun.	1	3	2
9	Fill in the blanks He is the best all.	1	3	2
10	A man walks 5 km toward south and then turns to the right. After walking 3 km he turns to the left and walks 5 km. Now in which direction is he from the starting place?	1	3	2

Part – B

Max. Marks – 50

Sl. No.	Questions	M	BT	CO
Q.1a.	What is leadership?	2	4	3
1b.	How do you motivate a team?	4	4	3
1c.	If A + B means A is the mother of B; A - B means A is the brother B; A % B means A is the father of B and A x B means A is the sister of B, which of the following shows that P is the maternal uncle of Q? Explain thoroughly	4	3	2
2 a.	What is effective communication for an interview?	2	4	4
2 b.	Five girls are sitting on a bench to be photographed. Seema is to the left of Rani and to the right of Bindu. Mary is to the right of Rani. Reeta is between Rani and Mary.	4	3	2
2 c.	If A + B means A is the brother of B; A - B means A is the sister	4	3	2



Academic year 2023-2024 (EVENSem)

	of B and A x B means A is the father of B. Which of the following means that C is the son of M? Explain it thoroughly.			
3 a.	What is an interview?	2	4	4
3 b.	<p>There are 8 houses in a line and in each house only one boy lives with the conditions as given below:</p> <ol style="list-style-type: none"> 1. A.Jack is not the neighbour Siman. 2. B.Harry is just next to the left of Larry. 3. C.There is at least one to the left of Larry. 4. D.Paul lives in one of the two houses in the middle. 5. E. Mike lives in between Paul and Larry. <p>If at least one lives to the right of Robert and Harry is not between Taud and Larry, then which one of the following statement is not correct ?</p> <p>Who is sitting in between Paul and Jack? Explain it thoroughly.</p>	4	3	2
3 c.	If A + B means A is the brother of B; A x B means A is the son of B; and A % B means B is the daughter of A then which of the following means M is the maternal uncle of N? Explain it thoroughly.	4	3	2
4 a.	What is your short term goal?	2	4	1
4 b.	How do you set priorities as a leader?	4	4	3
4 c.	If A + B means A is the father of B; A - B means A is the brother B; A % B means A is the wife of B and A x B means A is the mother of B, which of the following shows that M is the maternal grandmother of T?	4	3	2
5 a.	How you should maintain your eye contact with the panel members in GD?	2	1	4
5 b.	Tell me about a time you had a significant impact on a team. Explain thoroughly.	4	4	1
5c.	If A + B means A is the sister of B; A x B means A is the wife of B, A % B means A is the father of B and A - B means A is the brother of B. Which of the following means T is the daughter of P? Explain it thoroughly.	4	3	2

BT-Blooms Taxonomy, CO-Course Outcomes, M-Marks

Marks Distribution	Particulars		CO1	CO2	CO3	CO4	L1	L2	L3	L4	L5	L6
	Quiz	Max Marks	2	17	3	3	1		17	16		
			6	38	10	6	2		38	20		
