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Reg.No.:										

VIVEKANANDHA COLLEGE OF ENGINEERING FOR WOMEN
[AUTONOMOUS INSTITUTION AFFILIATED TO ANNA UNIVERSITY, CHENNAI]
Elayampalayam – 637 205, Tiruchengode, Namakkal Dt., Tamil Nadu.

Question Paper Code: 6004

B.E. / B.Tech. DEGREE END-SEMESTER EXAMINATIONS – NOV. / DEC. 2023
Seventh Semester
Information Technology
U19IT725 – BUILDING OF INTERNET OF THINGS
(Regulation 2019)

Time: Three Hours   Maximum: 100 Marks

Answer ALL the questions

Knowledge Levels (KL)	K1 – Remembering	K3 – Applying	K5 - Evaluating
	K2 – Understanding	K4 – Analyzing	K6 - Creating

PART – A

(10 x 2 = 20 Marks)

Q.No.	Questions	Marks	KL	CO
1.	Define IoT.	2	K1	CO1
2.	List three functional characteristics of IoT systems.	2	K1	CO1
3.	What is the main difference between IoT and M2M?	2	K2	CO2
4.	How does NFV contribute to the scalability of network services in IoT?	2	K2	CO2
5.	What is the primary purpose of interfaces in Arduino and Raspberry Pi?	2	K2	CO3
6.	Identify the features of Rasberry Pi.	2	K2	CO3
7.	Tell the significance of IEEE 802.11ah in IoT.	2	K1	CO4
8.	What are the security features of IEEE 802.15.4?	2	K2	CO4
9.	What do you mean by Smart Roads in Smart City initiatives?	2	K1	CO5
10.	Define Health Fitness Monitoring.	2	K1	CO5

PART – B

(5 x 13 = 65 Marks)

Q.No.	Questions	Marks	KL	CO
11. a)	Explain Logical and Physical design of IoT.	13	K2	CO1

OR

	b)		Elaborate on the functional blocks that constitute an IoT system, providing a detailed explanation of each block's role and interaction within the system.	13	K2	CO1
12.	a)	i.	Explain the use of software defined network in IoT configuration.	7	K1	CO2
		ii.	Define Network Function Virtualization. List out the key elements of NFV architecture.	6	K1	CO2

OR

	b)		Explain a practical scenario where YANG data modeling language is utilized in an IoT deployment for efficient system management.	13	K2	CO2
13.	a)		Justify how Raspberry Pi is different from a desktop computer. Illustrate how to interface a LED to raspberry pi and write a program to blink.	13	K3	CO3

(OR)

	b)		Design an automatic refrigerator light system with LED, switch & raspberry pi and write a python program to support the working of that design.	13	K3	CO3
14.	a)		Explain the physical and MAC layers in IoT access technologies, focusing on their significance in facilitating communication between devices.	13	K2	CO4

(OR)

	b)		Describe a real-world application where CoAP is employed for IoT devices. Highlight its benefits.	13	K3	CO4
15.	a)		What effect will the internet of things (IoT) have in healthcare? Explain with any one example of smart device.	13	K3	CO5

(OR)

	b)		Elaborate on techniques of writing Embedded code for IoT applications.	13	K2	CO5

PART – C

(1 x 15 = 15 Marks)

Q.No.			Questions	Marks	KL	CO
16.	a)		Explain how IoT technology can used in the following application areas:			
		i.	Smart roads.	8	K3	CO5
		ii.	Weather monitoring.	7		

(OR)

	b)	i.	Explain the challenges in designing an Embedded Systems.	8	K3	CO1
		ii.	Outline the real time uses of Raspberry pi and Arduino.	7	K3	CO3

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Question Paper Code: 5021

B.E. / B.Tech. DEGREE END-SEMESTER EXAMINATIONS – NOV. / DEC. 2023
Fifth Semester
Information Technology
U19CSV26 - SEMANTIC WEB
(Regulation 2019)

Time : Three Hours   Maximum : 100 Marks

Answer ALL the questions

Knowledge Levels (KL)	K1 – Remembering	K3 – Applying	K5 - Evaluating
	K2 – Understanding	K4 – Analyzing	K6 - Creating

PART – A

(10 x 2 = 20 Marks)

Q.No.	Questions	Marks	KL	CO
1.	What are the uses of a sematic web?	2	K1	CO1
2.	What is XML element?	2	K1	CO1
3.	Write the role of RDF in semantic web.	2	K2	CO2
4.	What is reification in RDF?	2	K3	CO2
5.	What is ontology in semantic web?	2	K2	CO3
6.	What is OWL?	2	K2	CO3
7.	What is descriptive logic in semantic web?	2	K3	CO4
8.	Give an example for semantic inference.	2	K4	CO4
9.	How RDF is used to identify resources?	2	K4	CO5
10.	What are the importance of semantic web in today's world?	2	K4	CO5

(5 x 13 = 65 Marks)

Q.No.		Questions	Marks	KL	CO
11.	a)	What is a semantic web? What are the different models and technologies used in semantic web? Explain.	13	K1	CO1
		(OR)			
	b)	With examples, explain how the structure of XML document is defined.	13	K2	CO1
12.	a)	What is RDF? What are its components? Explain its working in detail with appropriate diagrams.	13	K2	CO2
		(OR)			
	b)	i. What is RDF schema? Explain with its format.	7	K2	CO2
		ii. Highlight the salient features of RDQL.	6	K3	CO2
13.	a)	i. With an example, explain the steps involved in the construction of an ontology.	7	K3	CO3
		ii. What is ontology engineering? Explain.	6	K3	CO3
		(OR)			
	b)	What are the basic constructs of OWL? Explain. Discuss the methods used to improve the quality of an ontology.	13	K4	CO3
14.	a)	i. Briefly outline the importance of logic for sematic web.	7	K2	CO4
		ii. Differentiate between monotonic and non monotonic rules with examples.	6	K3	CO4
		(OR)			
	b)	i. Discuss syntax and semantics.	7	K2	CO4
		ii. What are the rules to be followed when creating an XML document? Explain with examples.	6	K2	CO4
15.	a)	How sematic web can be used in e- learning applications. Explain.	13	K4	CO5
		(OR)			
	b)	How sematic web can be used in web mining applications? Explain.	13	K4	CO5

PART – C

(1 x 15 = 15 Marks)

Q.No.		Questions	Marks	KL	CO
16.	a)	With an examples, discuss in detail about the specialized RDF relationships.	15	K4	CO2
		(OR)			
	b)	With an example, discuss in detail about the concept of OWL in semantic web.	13	K2	CO4

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Question Paper Code: 6015

B.E. / B.Tech. DEGREE END-SEMESTER EXAMINATIONS – NOV. / DEC. 2023
Fifth Semester
Information Technology
U19ITV31 – DATA SCIENCE
(Regulation 2019)

Time: Three Hours   Maximum: 100 Marks

Answer ALL the questions

Knowledge Levels	K1 – Remembering	K3 – Applying	K5 - Evaluating
(KL)	K2 – Understanding	K4 – Analyzing	K6 - Creating

PART – A

(10 x 2 = 20 Marks)

Q.No.	Questions	Marks	KL	CO
1.	List out the benefits and uses of data science.	2	K1	CO1
2.	List an overview of common errors in retrieving data and which cleaning solutions to be employed.	2	K2	CO1
3.	List the problems in handling large data.	2	K1	CO2
4.	List out the applications for machine learning in data science process.	2	K2	CO2
5.	How does the spark solve the problems of mapreduce?	2	K2	CO3
6.	How are bigdata and hadoop related to each other?	2	K2	CO3
7.	What is CAP theorem?	2	K1	CO4
8.	What are the differences between graph databases and relational databases?	2	K2	CO4
9.	List out the significance of text mining in real world problems.	2	K2	CO5
10.	What is inverse document frequency (IDF)?	2	K1	CO5

PART – B

(5 x 13 = 65 Marks)

Q.No.	Questions	Marks	KL	CO
11. a)	Examine the different facets of data with the challenges in data processing.	13	K2	CO1

			Marks	KL	CO
	b)	Explore the various steps associated with data science process and explain any three steps of it with suitable diagrams and examples.	13	K2	CO1
12.	a)	Explain in detail about the general techniques for handling large volumes of data.	13	K2	CO2
		(OR)			
	b)	Explain in detail about data modeling process.	13	K1	CO2
13.	a)	i. Describe the components of HDFS.	6	K1	CO3
		ii. What are the different configuration files in Hadoop?	7	K2	CO3
		(OR)			
	b)	Explain in detail about the different components of the spark ecosystem.	13	K1	CO3
14.	a)	Explain in detail about various types of NoSQL databases.	13	K1	CO4
		(OR)			
	b)	Explain in detail about steps involved in developing a recipe recommendation engine using graph databases.	13	K3	CO4
15.	a)	Explain in detail about various text mining techniques.	13	K1	CO5
		(OR)			
	b)	Explain in detail about how Reddit post classification can be done using text mining techniques.	13	K2	CO5

PART – C

(1 x 15 = 15 Marks)

Q.No.		Questions	Marks	KL	CO
16.	a)	Perform an exploratory data analysis for the following data with different types of plots. The dataset contains cases from a study that was conducted between 1958 and 1970 at the university of chicago's billings hospital on the survival of patients who had undergone surgery for breast cancer. Data Attributes: Age of patient at the time of operation (numerical), patients year of operation (Year-1990, numerical), number of positive auxillary nodes detected (numerical) survival status (class attribute) 1=the patient survived 5 years (or), 2=the patient died within 5 year.	15	K3	CO1
		(OR)			
	b)	Design a real-time spam detection framework using decision tree classifier and explain the various steps of preprocessing techniques applied to it.	15	K6	CO5

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Question Paper Code: 6005

B.E. / B.Tech. DEGREE END-SEMESTER EXAMINATIONS – NOV. / DEC. 2023

Seventh Semester

Information Technology

U19ITE13 - MOBILE AD HOC NETWORKS

(Regulation 2019)

Time: Three Hours   Maximum: 100 Marks

Answer ALL the questions

Knowledge Levels (KL)	K1 – Remembering	K3 – Applying	K5 - Evaluating
	K2 – Understanding	K4 – Analyzing	K6 - Creating

PART – A

(10 x 2 = 20 Marks)

Q.No.	Questions	Marks	KL	CO
1.	Identify the issues in designing ad hoc networks.	2	K2	CO1
2.	Why do we need routing in Adhoc networks?	2	K1	CO1
3.	Define MAC management sublayer.	2	K1	CO2
4.	List out the goals of routing protocols in MANET?	2	K1	CO2
5.	Differentiate proactive and reactive protocol.	2	K2	CO3
6.	List out few active attacks in MANET.	2	K1	CO3
7.	List out few secure routing protocols in MANET.	2	K1	CO4
8.	What are the objectives of transport layer protocol?	2	K1	CO4
9.	What is the use of parameter optimization?	2	K1	CO5
10.	What is cross layer optimization?	2	K1	CO5

PART – B

(5 x 13 = 65 Marks)

Q.No.		Questions	Marks	KL	CO
11.	a)	List out the applications of ad hoc wireless networks and explain them in detail.	13	K2	CO1
		(OR)			
	b)	Outline the function of transport layer protocols in Adhoc networks.	13	K2	CO1

1

12.	a)	Explain in detail about IEEE 802.11n and 802.11g standard with their functionalities.	13	K2	CO2
		(OR)			
	b)	Organize the various contortion based protocols with reservation with their pros and cons.	13	K2	CO2
13.	a)	Explain Destination Sequenced Distance Vector Routing Protocol with an illustrative example.	13	K3	CO3
		(OR)			
	b)	Explain the function of Ad-Hoc On Demand Vector Routing protocol. Give an example.	13	K3	CO3
14.	a)	Summarize the secure routing protocols and its issues and challenges.	13	K1	CO4
		(OR)			
	b)	Describe the issues of transport layer protocol design for Adhoc wireless networks.	13	K2	CO4
15.	a)	Explain the need for cross layer design and cross layer optimization.	13	K1	CO5
		(OR)			
	b)	What is the need to integrate ad hoc networks with mobile IP networks? Explain.	13	K2	CO5

PART – C

(1 x 15 = 15 Marks)

Q.No.		Questions	Marks	KL	CO
16.	a)	What is the need for hybrid routing protocol? Explain in detail about Zone Routing Protocol with an example.	15	K3	CO3
		(OR)			
	b)	i. Differentiate between cellular Network and Adhoc Network.	8	K2	CO1
		ii. Outline the various network security attacks in Adhoc environment.	7	K3	CO4

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Question Paper Code: 6016

B.E. / B.Tech. DEGREE END-SEMESTER EXAMINATIONS – NOV. / DEC. 2023
Fourth Semester
Information Technology
U19IT410 - DATABASE MANAGEMENT SYSTEM
(Regulation 2019)

Time: Three Hours   Maximum: 100 Marks

Answer ALL the questions

Knowledge Levels (KL)	K1 – Remembering	K3 – Applying	K5 - Evaluating
	K2 – Understanding	K4 – Analyzing	K6 - Creating

PART – A

(10 x 2 = 20 Marks)

Q.No.	Questions	Marks	KL	CO
1.	What is a DBMS? Give example.	2	K1	CO1
2.	author (author_id, first_name, last_name) author_pub(author_id, pub_id, author_position) book(book_id, book_title, month, year, editor) pub(pub_id, title, book_id) Give the relational algebra expression that returns names of all the authors that are book editors.	2	K3	CO1
3.	What is an Entity? List the different types of Entities.	2	K1	CO2
4.	Define Schema and Instance in DBMS.	2	K2	CO2
5.	Write any two DDL and DML statements in SQL.	2	K2	CO3
6.	List the different types of aggregate functions with examples in SQL.	2	K2	CO3
7.	What is Serializability of a schedule?	2	K2	CO4
8.	State the ACID properties.	2	K1	CO4
9.	What is meant by RAID?	2	K1	CO5
10.	Compare static and dynamic hashing.	2	K2	CO5

PART – B

(5 x 13 = 65 Marks)

Q.No.	Questions	Marks	KL	CO
11. a)	With the help of a neat block diagram, explain basic architecture of a database management system.	13	K2	CO1

(OR)

	b)	Explain E-R model with suitable example.	13	K2	CO1
12.	a)	Write the DDL, DML, DCL for the students database, which contains student details: name, id, DOB, branch, DOJ. Course details : Course name, Course id, Stud.id, Faculty name, id, marks.	13	K3	CO2

(OR)

	b)	What do you mean by Normalization? Explain BCNF, 3NF and 2NF with a suitable example.	13	K2	CO2
13.	a)	Define Join. Explain different types of joins.	13	K2	CO3

(OR)

	b)	Write briefly on Heuristic optimization with example.	13	K2	CO3
14.	a)	i. Illustrate Concurrent execution of transaction with examples.	7	K3	CO4
		ii. Describe Timestamp based locking protocols.	6		

(OR)

	b)	Write in detail about Remote Backup systems with suitable example.	13	K3	CO4
15.	a)	Demonstrate searching a given element in B+ trees. Explain with example.	13	K2	CO5

(OR)

	b)	Explain briefly about authentication and authorization in Database security.	13	K2	CO5

PART – C

(1 x 15 = 15 Marks)

Q.No.	Questions	Marks	KL	CO
16. a)	Consider the following relational database schema consisting of the four relation schemas:	15	K3	CO2

passenger (pid, pname, pgender, pcity)

agency (aid, aname, acity)

flight (fid, fdate, time, src, dest)

booking (pid, aid, fid, fdate)

Answer the following questions using relational algebra queries;

    a. Get the complete details of all flights to New Delhi.

    b. Get the details about all flights from Chennai to New Delhi.

    c. Find only the flight numbers for passenger with pid 123 for flights to Chennai before 06/11/2023.

d. Find the passenger names for passengers who have bookings on at least one flight.

e. Find the passenger names for those who do not have any bookings in any flights.

f. Find the agency names for agencies that located in the same city as passenger with passenger id 123.

g. Get the details of flights that are scheduled on both dates 01/12/2020 and 02/12/2023 at 16:00 hours.

h. Get the details of flights that are scheduled on either of the dates 01/12/2023 or 02/12/2023 or both at 16:00 hours.

(OR)

b) Apply Aries algorithm for the following figure, that provides an example of log record for three transactions (T1, T2 and T3):   15   K3   CO3

LSN   Transaction ID   Type   Page ID

LSN	Transaction ID	Type	Page ID
1	T1	UPDATE	P3
2	T2	UPDATE	P2
3	T1	COMMIT	
4	CHECKPOINT		
5	T3	UPDATE	P1
6	T2	UPDATE	P3
7	T2	COMMIT	

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Question Paper Code: 6019

B.E. / B.Tech. DEGREE END-SEMESTER EXAMINATIONS – NOV. / DEC. 2023
Sixth Semester
Information Technology
U19IT620 – SOFTWARE ENGINEERING
(Common to CSE & CST)
(Regulation 2019)

Time : Three Hours   Maximum : 100 Marks

Answer ALL the questions

Knowledge Levels (KL)	K1 – Remembering	K3 – Applying	K5 - Evaluating
	K2 – Understanding	K4 – Analyzing	K6 - Creating

PART – A

(10 x 2 = 20 Marks)

Q.No.	Questions	Marks	KL	CO
1.	Define software process.	2	K1	CO1
2.	Building a working prototype before developing the actual software is suggested. Comment on the statement.	2	K2	CO1
3.	Recall use case.	2	K1	CO2
4.	Define Requirements monitoring.	2	K1	CO2
5.	List out the notations used in use case diagram.	2	K1	CO3
6.	What is the need of UML diagrams?	2	K2	CO3
7.	What is the purpose of an architectural context diagram?	2	K2	CO4
8.	Why is "chunking" important during the component level design review process?	2	K2	CO4
9.	Mention some Software testing strategies.	2	K2	CO5
10.	Write short notes on SCM process.	2	K1	CO5

PART – B

(5 x 13 = 65 Marks)

Q.No.			Questions	Marks	KL	CO
11.	a)	i.	What is process model? Describe the process model you recommend to manufacture a car. Provide suitable justification.	7	K3	CO1
		ii.	Describe various phases of waterfall model with a neat diagram.	6	K1	CO1

			Marks	KL	CO
		(OR)			
	b)	List out the different agile methodologies used in software engineering. Explain in detail about scrum methodology with a neat diagram.	13	K2	CO1
12.	a)	Discuss about the different activities carried out in requirement engineering with suitable examples.	13	K2	CO2
		(OR)			
	b)	How does the analysis modeling help to capture unambiguous & consistent requirements? Discuss several methods for requirements validation.	13	K2	CO2
13.	a)	Differentiate static model and dynamic model. List and elaborate the static and dynamic UML diagrams.	13	K2	CO3
		(OR)			
	b)	Draw the use case diagram, class diagram, sequence diagram, activity diagram and interaction diagram for library management system.	13	K3	CO3
14.	a)	Select a small coded component and represent it using the following: a)Activity diagram b)Flowchart c)Decision table d)PDL	13	K3	CO4
		(OR)			
	b)	Develop a set of screen layouts by including major and minor menu items for the safe Home system.	13	K3	CO4
15.	a)	Summarize the test strategies of conventional and Object Oriented software.	13	K2	CO5
		(OR)			
	b)	Why we need software configuration management? Explain about the different tasks performed in SCM process.	13	K2	CO5

PART – C

(1 x 15 = 15 Marks)

Q.No.		Questions	Marks	KL	CO
16.	a)	Identify and elaborate two examples of architectural patterns used in the design of software systems in WWW. Outline the working nature.	15	K3	CO4
		(OR)			
	b)	Distinguish between black box and white box testing. Design the black box test suite for a function that accepts four pairs of floating point numbers representing four coordinate points. These four coordinate points represent the centers of two circles and a point on the circumference of each of the two circles. The function prints whether the two circles are intersecting one is contained within other or, disjoint.	15	K6	CO5

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Question Paper Code: 6017

B.E. / B.Tech. DEGREE END-SEMESTER EXAMINATIONS – NOV. / DEC. 2023
Fourth Semester
Information Technology
U19IT407 – LINEAR INTEGRATED CIRCUITS
(Regulation 2019)

Time : Three Hours   Maximum : 100 Marks

Answer ALL the questions

Knowledge Levels (KL)	K1 – Remembering	K3 – Applying	K5 - Evaluating
	K2 – Understanding	K4 – Analyzing	K6 - Creating

PART – A

(10 x 2 = 20 Marks)

Q.No.	Questions	Marks	KL	CO
1.	How do you make a current mirror with magnification?	2	K1	CO1
2.	Define CMMR.	2	K2	CO1
3.	Give the application of inverting amplifier.	2	K1	CO2
4.	Sketch the op-amp integrator circuit with necessary equation?	2	K3	CO2
5.	Which parameter decides the pull-in time?	2	K1	CO3
6.	Write the purpose of having a low pass filter in PLL.	2	K3	CO3
7.	Calculate the number of comparators required for realizing an 8 bit ADC.	2	K3	CO4
8.	What is sample and hold circuit? Point out where it is used? Why?	2	K4	CO4
9.	Sketch a fixed voltage regulator.	2	K1	CO5
10.	Classify the three different wave forms generated by ICL 8038.	2	K2	CO5

PART – B

(5 x 13 = 65 Marks)

Q.No.	Questions	Marks	KL	CO
11. a)	What is a current mirror? Give the current mirror circuit analysis.	13	K1	CO1
	(OR)			
b)	Compare ideal and practical characteristics of IC 741.	13	K4	CO1

12.	a)	Construct the circuit diagram of	13	K2	CO2
		i. Adder,			
		ii. Sign changer,			
		iii. Scale changer and			
		iv. Voltage follower.			

(OR)

| | b) | Explain the working of clipper and clamper circuits using op-amp. | 13 | K1 | CO2 |

| 13. | a) | Illustrate the closed loop analysis of PLL with necessary diagrams. | 13 | K2 | CO3 |

(OR)

| | b) | Discuss any three applications of PLL in detail. | 13 | K1 | CO3 |

| 14. | a) | With neat sketch explain the working principle of weighted resistor DAC using op-amp. | 13 | K2 | CO4 |

(OR)

| | b) | Explain the operation of flash type A/D converter with neat sketch. | 13 | K2 | CO4 |

| 15. | a) | Develop the basic principle of function generator? Draw the schematic of ICL 8038 function generator and discuss its features. | 13 | K3 | CO5 |

(OR)

| | b) | Define voltage regulator and explain the working of linear voltage regulator with neat circuit diagram using op-amps. | 13 | K1 | CO5 |

PART – C

(1 x 15 = 15 Marks)

Q.No.		Questions	Marks	KL	CO
16.	a)	Which is the fastest ADC? Why? And Illustrate the working of successive approximation type A/D converter with a neat diagram.	15	K2	CO4

(OR)

| | b) | Analyze the Gilbert's four quadrant multiplier cell with a neat diagram. | 15 | K4 | CO3 |

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VIVEKANANDHA COLLEGE OF ENGINEERING FOR WOMEN
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Question Paper Code: 6018

B.E. / B.Tech. DEGREE END-SEMESTER EXAMINATIONS – NOV. / DEC. 2023
Sixth Semester
Information Technology
U19IT621- COMPUTER COMMUNICATION NETWORKS
(Regulation 2019)

Time : Three Hours   Maximum : 100 Marks

Answer ALL the questions

Knowledge Levels (KL)	K1 – Remembering	K3 – Applying	K5 - Evaluating
	K2 – Understanding	K4 – Analyzing	K6 - Creating

PART – A

(10 x 2 = 20 Marks)

Q.No.	Questions	Mark	KL	CO
1.	Define Computer Networks.	2	K1	CO1
2.	List out the functionalities of data link layer.	2	K2	CO1
3.	Mention the advantage and disadvantage of error correction by receiver, as compared to error detection.	2	K2	CO2
4.	Sate the term Automatic Repeat Request (ARQ).	2	K1	CO2
5.	What are the two mechanisms that defined to help in transition from IPv4 to IPv6?	2	K2	CO3
6.	Discuss congestion control in network layer?	2	K2	CO3
7.	What is meant by connection less operation and connection oriented operation?	2	K1	CO4
8.	What is the advantage of Go-Back-N protocol?	2	K1	CO4
9.	Compare SMTP and SNMP.	2	K2	CO5
10.	Write the usage of TELNET.	2	K1	CO5

PART – B

(5 x 13 = 65 Marks)

Q.No.	Questions	Mark	KL	CO
11. a)	Elaborate the various characteristics of layers present in OSI model with suitable diagram.	13	K2	CO1

(OR)

	b)	i.	What is Multiplexing?	1	K2	CO1
		ii.	Write a short notes on the following:			
			a. FDM	4		
			b. WDM	4		
			c. STDM	4		
12.	a)	Explain the following:			K2	CO2
		i. Stop and wait ARQ		7		
		ii. Go Back N ARQ		6		
		(OR)				
	b)	Define Channelization Protocol. Also explain FDMA and TDMA.		13	K2	CO2
13.	a)	With neat diagram, explain the general format of ICMPv4 message.		13	K2	CO3
		(OR)				
	b)	Explain IPV4 addressing in detail with neat diagram.		13	K2	CO3
14.	a) i.	Explain TCP segment format in detail.		7	K2	CO4
	i.	Outline send window and receive window structure for selective-repeat protocol.		6		
		(OR)				
	b)	Explain UDP with neat diagram.		13	K2	CO4
15.	a)	Elaborate the backend process helps in sending an E-mail from one person to another.		13	K2	CO5
		(OR)				
	b)	Explain Domain Name Service.		13	K2	CO5

PART – C

(1 x 15 = 15 Marks)

Q.No.		Questions	Mark	KL	CO
16.	a)	To control the occurrence of congestion in a network, what are the possible methods used to control TCP congestion?	15	K3	CO4
		(OR)			
	b)	"Ethernet in different types offers a simple user interface that helps to connect various devices easily, such as switches, routers, and computers." Justify each types of Ethernet.	15	K3	CO1

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Question Paper Code: 6021

B.E. / B.Tech. DEGREE END-SEMESTER EXAMINATIONS – NOV. / DEC. 2023
Fourth Semester
Information Technology
U19IT408 – OPERATING SYSTEMS
(Common to Computer Science and Technology)
(Regulation 2019)

Time: Three Hours   Maximum: 100 Marks

Answer ALL the questions

Knowledge Levels (KL)	K1 – Remembering	K3 – Applying	K5 - Evaluating
	K2 – Understanding	K4 – Analyzing	K6 - Creating

PART – A

(10 x 2 = 20 Marks)

Q. No.	Questions	Marks	KL	CO
1.	Why the Operating System is called as a resource allocator and Control program?	2	K1	CO1
2.	Categorize the types of system calls.	2	K2	CO1
3.	Why Shortest Job First (SJF) Algorithm should is called as an Optimal algorithm?	2	K1	CO2
4.	Give two hardware instructions and their definitions which can be used for implementing mutual exclusion.	2	K2	CO2
5.	Mention four conditions which arises during a deadlock in a system?	2	K1	CO3
6.	Whether compaction is different from contiguous memory allocation? Justify	2	K2	CO3
7.	What are the common strategies to select a free hole from a set of available holes?	2	K1	CO4
8.	Differentiate between external fragmentation and internal fragmentation.	2	K2	CO4
9.	Provide example for Seeking Time and Rotational Latency.	2	K2	CO5
10.	How free-space can be managed with bit vector implementation?	2	K1	CO5

(5 x 13 = 65 Marks)

Q. No.			Questions	Marks	KL	CO
11.	a)	i.	Explain different operating system structures with neat sketch.	7	K1	CO1
		ii.	Explicate concept of multiprocessor and Multicore organization.	6		

(OR)

| | b) | i. | In a multiprogramming and time-sharing environment, several users share the system simultaneously. This situation can result in various security problems. | 7 | K2 | CO1 |

        a. What are two such problems?

        b. Can we ensure the same degree of security in a time-shared machine as we have in a dedicated machine? Justify your answer.

| | | ii. | Compare the performance, functioning of short-term, medium-term, and long-term scheduling. With an example. | 6 | | |

| 12. | a) | | Consider the following set of processes, with the length of the CPU-burst time given in milliseconds: | 13 | K3 | CO2 |

Process	Burst Time	Priority
P1	10	3
P2	1	1
P3	2	3
P4	1	4
P5	5	2

The processes are assumed to have arrived in the order P1, P2, P3, P4, P5, all at time 0.

    i.   Draw four Gantt charts illustrating the execution of these processes using FCFS, SJF, a non-preemptive priority (a smaller priority number implies a higher priority), and RR (quantum = 1) scheduling.

    ii.   Calculate is the turnaround time of each process for each of the scheduling algorithms in part a?

    iii.   Compute the waiting time of each process for each of the scheduling algorithms in part a?

    iv.   Which of the schedules in part a results in the minimal average waiting time (over all processes)?

(OR)

| | b) | i. | In a dining-philosopher critical section problem how the solution can be given using monitor. | 9 | K2 | CO2 |
| | | ii. | Write the algorithm using test-and-set() instruction that satisfy all the critical section requirements. | 4 | K2 | CO2 |

13. a) Consider the following snapshot of a system: 13 K4 CO3

	Allocation				Max				Available			
	A	B	C	D	A	B	C	D	A	B	C	D
P0	0	0	1	2	0	0	1	2	0	5	2	0
P1	1	0	0	0	1	7	5	0				
P2	1	3	5	4	2	3	5	6				
P3	0	6	3	2	0	6	5	2				
P4	0	0	1	4	0	6	5	6				

Answer the following questions using the banker's algorithm:
   a. What is the content of the matrix Need?
   b. Determine whether the given system in a safe state?
   c. If a request from process P1 arrives for (0, 4, 2, 0),
      Can the request be granted immediately?

(OR)

b) Consider the following segment table: 13 K3 CO3

SEGMENT	BASE	LENGTH
0	219	600
1	2300	14
2	90	100
3	1327	580
4	1952	96

What are the physical addresses for the following logical addresses? Calculate.
   i.   0, 430
   ii. 1, 10
   iii. 2, 500
   iv. 3, 400
   v.   4, 112

14. a) Consider the Pages referenced by the CPU in the order are 6, 7, 8, 9, 6, 7, 1, 6, 7, 8, 9, 1. Find out whether page fault there is any possibility of occurrence of in each of the algorithms given.
   i.   FIFO replacement   4   K4 CO4
   ii. Optimal replacement   4
   iii. LRU replacement   5

(OR)

b) In a system where free space is kept in a free-space list. 13 K4 CO4
   i.   Suppose that the pointer to the free-space list is lost. Can the system reconstruct the Free-space list? Explain your answer.

ii. Suggest a scheme to ensure that the pointer is never lost as a result of memory failure. Fragmentation on a storage device could be eliminated by recompaction of the information. Typical disk devices do not have relocation or base registers (such as are used when memory is to be compacted), so how can we relocate files? Give three reasons why recomposing and relocation of files often are avoided.

15. a) Suppose that a disk drive has 5000 cylinders, numbered 0 to 4999. The drive is currently serving a request at cylinder 143, and the previous request was at cylinder 125. The queue of pending requests, in FIFO order, is 86, 1470, 913, 1774, 948, 1509, 1022, 1750, 130   13   K4   CO5
Starting from the current head position, calculate is the total distance (in Cylinders) that the disk arm moves to satisfy all the pending requests, for each of the following disk-scheduling algorithms? Compare the obtained values and reason out.
     i.   FCFS
     ii.   SSTF
     iii.   SCAN
     iv.   d. LOOK

(OR)

b) Explain in detail various file allocation methods with an example.
     i.   Contiguous File Allocation   5   K2   CO5
     ii.   Linked File Allocation   4
     iii.   Indexed sequential File Allocation   4

PART – C

(1 x 15 = 15 Marks)

16 a) A file is to be shared among different processes, each of which has a   15   K3   CO2
unique priority number. The file can be accessed simultaneously by several processes, subject to the following constraint:
The sum of all unique numbers associated with all the processes currently accessing the file must be less than n. Apply semaphores to coordinate access to the file.

(OR)

b) Requests are not usually uniformly distributed. For example, a cylinder   15   K6   CO5
containing the file system FAT or in nodes can be expected to be accessed more frequently than a cylinder that only contains files. Suppose you know that 50 percent of the requests are for a small, fixed number of cylinders.
i. Would any of the scheduling algorithms be particularly good for this case? Explain your answer.
ii. Propose a disk-scheduling algorithm that gives even better performance by taking advantage of this "hot spot" on the disk.

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Question Paper Code: 6020

B.E. / B.Tech. DEGREE END-SEMESTER EXAMINATIONS – NOV. / DEC. 2023
Fourth Semester
Information Technology
U19IT409 - DESIGN AND ANALYSIS OF ALGORITHMS
(Regulation 2019)

Time: Three Hours   Maximum: 100 Marks

Answer ALL the questions

Knowledge Levels (KL)	K1 – Remembering	K3 – Applying	K5 - Evaluating
	K2 – Understanding	K4 – Analyzing	K6 - Creating

PART – A

(10 x 2 = 20 Marks)

Q.No.	Questions	Marks	KL	CO
1.	How to calculate an algorithms running time?	2	K2	CO1
2.	Define recurrence relation.	2	K1	CO1
3.	State the general principle of Greedy technique.	2	K1	CO2
4.	List the advantages of Huffman's encoding	2	K1	CO2
5.	Mention the features of dynamic programming.	2	K1	CO3
6.	What are bipartite graphs? Provide an example.	2	K1	CO3
7.	List out the reason for terminating search path at the current node in branch and bound algorithm.	2	K3	CO4
8.	State hamiltonian circuit problem.	2	K2	CO4
9.	Is it possible to implement insertion sort for sorting linked list? Will it have the same O (n^2) efficiency as the array version?	2	K4	CO5
10.	When is a problem said to be NP-hard?	2	K2	CO5

PART – B

(5 x 13 = 65 Marks)

Q.No.			Questions	Marks	KL	CO
11.	a)	i.	Use the most appropriate notation to indicate the time efficiency class of sequential search algorithm in the worst case, best case and the average case.	7	K2	CO1
		ii.	State the general plan for analyzing the time efficiency of non recursive algorithms and explain with an example.	6		

1

b) Discuss various methods used for mathematical analysis of recursive algorithm. Do the same for finding the factorial of a number.　13　K3　CO1

12. a) Write the algorithm for quick sort. Provide a complete analysis of quick sort for the given set of numbers 12, 33, 23, 43, 44, 55, 64, 77 and 76. Also analyze its time and space complexities.　13　K4　CO2

b) Explain the construction method of Huffman code and and its encode, decode techniques with suitable example.　13　K2　CO2

13. a) Construct the optimal binary search tree for the following table using dynamic Programming.　13　K3　CO3

Key	A	B	C	D
probability	0.1	0.2	0.4	0.3

b) Write the stable marriage algorithm and trace it with an instance. Analyze its running time complexity.　13　K3　CO3

14. a) Find the optimal solution using branch and bound for the following assignment problem.　13　K3　CO4

	Job 1	Job 2	Job 3	Job 4
A	9	2	7	8
B	6	4	3	7
C	5	8	1	8
D	7	6	9	4

b) Elucidate the concept of backtracking in program analysis and illustrate in detail about 8-Queen problem using backtracking.　13　K2　CO4

15. a) Provide a complete analysis of Insertion sort for the given set of numbers 89, 45, 68, 90, 29, 34 and 17. Also analyze its time and space complexities. Provide pseudo code for insertion sort.　13　K2　CO5

b) What is Class NP? Discuss about any five problems for which no polynomial time algorithm has been found.　13　K2　CO5

PART – C

(1 x 15 = 15 Marks)

Q.No.	Questions	Marks	KL	CO

16. a) Solve the following instance of the 0/1 knapsack problem given the knapsack capacity in w = 5 using dynamic programming and explain it.   15   K3   CO3

Items	Weight	Value
1	4	10
2	3	20
3	3	15
4	5	25

(OR)

b) Write an algorithm to determine the sum of subsets for a given sum and a set of numbers. Draw the tree representation to solve the subset sum problem given the numbers set as {3, 5, 6, 7, 2} with the Sum = 15. Derive all the subsets.   15   K3   CO4

Reg.No.: [ ][ ][ ][ ][ ][ ][ ][ ]

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Question Paper Code: 6010

B.E. / B.Tech. DEGREE END-SEMESTER EXAMINATIONS – NOV. / DEC. 2023
Seventh Semester
Information Technology
U19ITE23 – DISTRIBUTED SYSTEMS
(Regulation 2019)

Time: Three Hours   Maximum: 100 Marks

Answer ALL the questions

Knowledge Levels (KL)	K1 – Remembering	K3 – Applying	K5 - Evaluating
	K2 – Understanding	K4 – Analyzing	K6 - Creating

PART – A

(10 x 2 = 20 Marks)

Q.No.	Questions	Marks	KL	CO
1.	List the different factors that define an "unreliable" network.	2	K1	CO1
2.	What is meant by a "scalable distributed system"?	2	K2	CO1
3.	What is "blocking receive" in the context of UDP datagram communication?	2	K2	CO2
4.	What do you mean by "omission failure"?	2	K2	CO2
5.	State a significance of distributed hash table.	2	K2	CO3
6.	What do you mean by "churn" in the context of peer-to-peer systems?	2	K2	CO3
7.	State one problem of physical clock synchronization.	2	K2	CO4
8.	State two differences between logical time and physical time.	2	K2	CO4
9.	Define "temporal scaling" in the context of stream adaptation.	2	K1	CO5
10.	List a few characteristics of multimedia data.	2	K1	CO5

1

(5 x 13 = 65 Marks)

Q.No.			Questions	Marks	KL	CO
11.	a)	i.	What are the challenges in the construction of a distributed system?	5	K2	CO1
		ii.	Discuss how Denial of Service attack takes place in a distributed system using five real-time networking scenarios.	8		
			(OR)			
	b)	i.	Explain how a shared region could be used for a process to read data written by the kernel. Include in your explanation what would be necessary for synchronization.	8	K2	CO1
		ii.	Why might the number of messages exchanged in a protocol be more significant to performance than the total amount of data sent?	5		
12.	a)	i.	Why is thrashing an important issue in distributed shared memory (DSM) systems and what methods are available for dealing with it?	5	K2	CO2
		ii.	List out the various communication failures in handling remote objects. Why do these failures happen and give your suggestions to overcome such failures.	8		
			(OR)			
	b)	i.	A server creates a port which it uses to receive requests from clients. Discuss the design issues concerning the relationship between the name of this port and the names used by clients.	5	K2	CO2
		ii.	How are unused remote objects handled by Java garbage handling? Explain how the algorithm helps to avoid failure.	8		
13.	a)	i.	Discuss in brief the "fault-tolerant" issues for a "routing overlay" system, when a node cannot access an object during routing requests.	5	K3	CO3
		ii.	Which features of the AFS (Andrew File System) design make it scalable? What are the limits on its scalability, assuming that servers can be added as required?	8		
			(OR)			
	b)	i.	How does AFS deal with the risk that callback messages may be lost?	5	K3	CO3
		ii.	Discuss where and when a situation arises in which the name space resolution fails? Give possible suggestions to avoid name space resolution failures.	8		

14.	a)	i.	List out the pitfalls of Christian's algorithm and explain how Berkley's algorithm tries to resolve the issue.	8	K2	CO4
		ii.	What are the advantages and drawbacks of multiversion timestamp ordering in comparison with ordinary timestamp ordering?	5		
			(OR)			
	b)	i.	The execution of transactions are strict if "read" and "write" operations on an object are delayed until all transactions that previously wrote that object have either committed or aborted. Explain how the locking rules in a strict two-phase locking ensure strict execution.	8	K2	CO4
		ii.	Explain how Lamport's logical clock is beneficial in managing process entry to a critical section.	5		
15.	a)	i.	Many sensor nodes are to be scattered throughout a region. The nodes are to communicate securely. Explain the problem of key distribution and outline a probabilistic strategy for distributing keys.	8	K2	CO5
		ii.	How does the Tiger system cope with a large number of clients all requesting the same movie at random times?	5		
			(OR)			
	b)	i.	Explain the contextual factors to be taken into account when adapting multimedia content.	5	K2	CO5
		ii.	The Tiger schedule is potentially a large data structure that changes frequently, but each cub needs an up-to-date representation of the portions it is currently handling. Suggest a mechanism for the distribution of the schedule to the cubs.	8		

PART – C

(1 x 15 = 15 Marks)

Q.No.			Questions	Marks	KL	CO
16.	a)	i.	List out issues and difficulties related to design and implementation of middleware for peer-to-peer system? Suggest solutions to overcome such issues.	8	K3	CO3
		ii.	How Mattern's Vector clock differ from Lamport's logical clock. Point out the advantages of implementing Mattern's clock over that of Lamport's clock.	7		
			(OR)			
	b)	i.	Network transmission time accounts for 20% of a null RPC and 80% of an RPC that transmits 1024 user bytes (less than the size of a network packet). By what percentage will the times for these two operations improve if the network is upgraded from 10 Mbps to 100Mbps?	8	K2	CO2
		ii.	Explain group communication and group membership management.	7		

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Question Paper Code: 6006

M.E. / M.Tech. DEGREE END-SEMESTER EXAMINATIONS – NOV. / DEC. 2023
Third Semester
Information Technology
P19ITE19 – ENERGY AWARE COMPUTING
(Regulation 2019)

Time: Three Hours   Maximum: 100 Marks

Answer ALL the questions

Knowledge Levels	K1 – Remembering	K3 – Applying	K5 - Evaluating
(KL)	K2 – Understanding	K4 – Analyzing	K6 - Creating

PART – A

(10 x 2 = 20 Marks)

Q.No.	Questions	Marks	KL	CO
1.	What is Energy awareness? Describe it with an example.	2	K3	CO1
2.	What are the effects of voltage scaling?	2	K4	CO1
3.	Describe a situation that needs a burst scheduling.	2	K2	CO2
4.	Which queuing strategy is used in the DVFS-enabled cluster scheduling algorithm? Justify your answer?	2	K3	CO2
5.	Formally define an Energy Minimization Problem.	2	K3	CO3
6.	What is the primary role of the switching regulator?	2	K2	CO3
7.	What are the computational requirements of the VM scheduling algorithm?	2	K3	CO4
8.	What is Passive Voltage Scaling (PVS)?	2	K4	CO4
9.	State at least 2 differences between on-chip workload and off-chip workload.	2	K3	CO5
10.	What is energy aware memory scheduling?	2	K2	CO5

PART – B

(5 x 13 = 65 Marks)

Q.No.			Questions	Marks	KL	CO
11. a)	i.		Elaborate the concepts behind the static and dynamic power consumptions in detail.	8	K4	CO1
	ii.		State the differences of static and dynamic power consumption with a suitable example.	5	K2	

(OR)

b)	i.	Describe an approach to estimate the power consumption.	5	K4	CO1
	ii.	Describe different components of power leakage and their relative importance in various input transitions.	8	K2	

12.	a)	What is the Kinetic Battery Model (KiBaM)? Illustrate its advantages and disadvantages in detail.	13	K3	CO2
		(OR)			
	b)	Illustrate the various recovery effects of discharging models using stochastic approximation and probabilistic analysis.	13	K3	CO2
13.	a)	Describe dynamic voltage and frequency scaling (DVFS) with Steady-State Temperature Analysis (S-DVFS) in detail.	13	K4	CO3
		(OR)			
	b)	"Memetic algorithms can be used for energy efficient scheduling of integrated production and shipping". Defend the scenario with a real time application.	13	K4	CO3
14.	a)	Describe the Dynamic Regulator Scheduling (DRS) problem in detail and analyze the total power consumption in detail.	13	K3	CO4
		(OR)			
	b)	State any scheduling algorithm that minimizes power consumption. Also explain the computational aspects in terms of time and space.	13	K3	CO4
15.	a)	Describe the Bit Truncated Integer Motion Estimation approach in detail and show that it reduces the computational complexity of IME.	13	K3	CO5
		(OR)			
	b)	Describe the Single-Pass Fractional Motion Estimation approach in detail and show that it reduces the high complexity of full-search FME.	13	K3	CO5

PART – C

(1 x 15 = 15 Marks)

Q.No.		Questions	Marks	KL	CO
16.	a)	Describe the Time-Out-Based SSD Dynamic Power Management policy and device initiated power management in detail.	15	K2	CO4
		(OR)			
	b)	Describe low power devices management to minimize the total energy consumption and derive the amortized analysis of the lower bound of any two low power designs in detail.	15	K2	CO4

2

Reg.No.: | | | | | | | | | | | |

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Question Paper Code: 6003

B.E. / B.Tech. DEGREE END-SEMESTER EXAMINATIONS – NOV. / DEC. 2023
Fifth Semester
Information Technology
U19IT514 – MICROPROCESSOR AND MICROCONTROLLER
(Regulation 2019)

Time: Three Hours   Maximum: 100 Marks

Answer ALL the questions

Knowledge Levels (KL)	K1 – Remembering	K3 – Applying	K5 - Evaluating
	K2 – Understanding	K4 – Analyzing	K6 - Creating

PART – A

(10 x 2 = 20 Marks)

Q.No.	Questions	Marks	KL	CO
1.	State the function of the BIU (Bus Interface Unit) and EU (Execution Unit) in the 8086 microprocessor.	2	K2	CO1
2.	What is the purpose of the flag register in the 8086 microprocessor?	2	K1	CO1
3.	What is serial communication interface?	2	K1	CO2
4.	Differentiate between the master and slave interrupt controllers in the context of the 8259A.	2	K2	CO2
5.	What is the purpose of the MOV instruction in the 8051 instruction set?	2	K1	CO3
6.	Differentiate memory read/write and I/O read/write operation.	2	K2	CO3
7.	What is the function of the SJMP instruction in 8051 assembly language?	2	K1	CO4
8.	Describe the interrupt system of the 8051 microcontroller.	2	K1	CO4
9.	What is the role of a microcontroller in an embedded system?	2	K2	CO5
10.	List out the application of embedded systems.	2	K1	CO5

PART – B

Q.No.		Questions	Marks	KL	CO
11.	a)	Write an assembly language program for the Intel 8086 microprocessor that adds and multiplies two 16-bit numbers and stores the result in a memory location.	13	K3	CO1
		(OR)			
	b)	Explain the key features of the Intel 8086 microprocessor architecture, including its registers, data bus, address bus, and control bus.	13	K2	CO1
12.	a)	Explain the role and significance of the 8259A programmable interrupt controller in a microprocessor-based system. How does it handle interrupt prioritization?	13	K2	CO2
		(OR)			
	b)	Describe the architecture and functions of the 8253 Programmable Interval Timer with a neat sketch.	13	K2	CO2
13.	a)	Show the timing diagram for the following operations in 8051 microcontroller:			
		i. Opcode fetch	4	K2	CO3
		ii. Memory Read/Write	4		
		iii. I/O Read/Write	5		
		Include all relevant signals and show the timing relationships between them.			
		(OR)			
	b)	i. Describe the instruction set of the 8051 microcontroller, including its different categories of instructions.	6	K2	CO3
		ii. Explain the concept of addressing modes in the 8051 microcontroller.	7	K3	
14.	a)	How many interrupts have been provided in 8051? Explain the necessary conditions which cause these interrupts to be generated. Also, arrange them in the decreasing order of priority.	13	K1	CO4
		(OR)			
	b)	Explain the concepts of memory-mapped I/O and I/O-mapped I/O in microcontroller systems. Highlight the advantages and disadvantages of each approach.	13	K2	CO4
15.	a)	Compare and contrast Complex Instruction Set Computer (CISC) and Reduced Instruction Set Computer (RISC) architectures in the context of embedded systems. Discuss the advantages and disadvantages of each.	13	K2	CO5
		(OR)			

2

b)	i.	Explain the key components of an embedded system's architecture with a neat sketch.	8	K2	CO5
	ii.	Brief about the design considerations and requirements of an embedded system.	5	K2	

PART – C

(1 x 15 = 15 Marks)

Q.No.	Questions	Marks	KL	CO
16. a)	Outline the importance and impact of the Intel 8086 microprocessor in the history of computing. How did it contribute to the evolution of microprocessors and personal computers?	15	K2	CO1

(OR)

b)	Organize the challenges and considerations in designing a real-time monitoring system using the 8051 microcontroller. Explain how you would utilize counters, interrupts, and I/O mapping in such a system.	15	K3	CO5

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Question Paper Code: 6001

M.E. / M.Tech. DEGREE END-SEMESTER EXAMINATIONS – NOV. / DEC. 2023
Third Semester
Information Technology
P19ITE22 – INFORMATION SECURITY
(Regulation 2019)

Time: Three Hours   Maximum: 100 Marks

Answer ALL the questions

Knowledge Levels (KL)	K1 – Remembering	K3 – Applying	K5 - Evaluating
	K2 – Understanding	K4 – Analyzing	K6 - Creating

PART – A

(10 x 2 = 20 Marks)

Q.No.	Questions	Marks	KL	CO
1.	Define information asset classification.	2	K1	CO1
2.	What is Security Parameter Index (SPI)?	2	K1	CO1
3.	Define packet sniffing.	2	K1	CO2
4.	List the various type of identity access management.	2	K1	CO2
5.	What are the limitations of Intrusion Detection System (IDS)?	2	K1	CO3
6.	State the importance of host based Intrusion Prevention system.	2	K1	CO3
7.	What are the access control mechanisms during the system implementation process?	2	K1	CO4
8.	Define command injection.	2	K1	CO4
9.	Recall account authorization.	2	K1	CO5
10.	Recall event logging in information security.	2	K1	CO5

PART – B

(5 x 13 = 65 Marks)

Q.No.	Questions	Marks	KL	CO
11. a)	i. Compare and contrast Information Declassification with Information Reclassification.	6	K2	CO1
	ii. Explain in detail the working procedure of IPSec and illustrate the architecture of IPSec protocol.	7	K2	CO1

		(OR)			
b)	i.	Discuss in detail the working of Secure Socket Layer (SSL) and list the advantages of SSL.	8	K2	CO1
	ii.	Elaborate in detail Encapsulation Security Payload (ESP) with an illustration.	5	K2	CO1
12. a)	i.	Determine the probability of risk occurrence with a case study.	7	K5	CO2
	ii.	Describe the importance of authentication in Information Security and mention the different types of authentication based on used factor(s).	6	K2	CO2
		(OR)			
b)	i.	Model the risk analysis process. Apply the risk mitigation execution for a resource constrained environment.	6	K3	CO2
	ii.	Demonstrate port scanning by stating the advantages.	7	K2	CO2
13. a)	i.	Assess the working of Stateful firewall in recording the state of each network connection.	7	K5	CO3
	ii.	Recommend a possible strategy to secure the network of your institution.	6	K5	CO3
		(OR)			
b)	i.	Analyze and identify the essential security policies required to secure the network of your institution.	8	K4	CO3
	ii.	Categorize the different roles of Intrusion Detection System (IDS) in order to secure a network.	5	K4	CO3
14. a)	i.	Explain in detail Open Worldwide Application Security Project (OWASP).	5	K2	CO4
	ii.	Explain in detail the buffer overflow and the reasons of buffer overflow.	8	K2	CO4
		(OR)			
b)	i.	Examine the different access control mechanisms to incorporate during system implementation with a case study.	7	K4	CO4
	ii.	Analyze and select proper security policies and coding practices to mitigate XSS attack in a web application.	6	K3	CO4
15. a)	i.	Examine both access management and access control mechanisms for a company's network.	8	K4	CO5
	ii.	Illustrate account authorization with an example.	5	K2	CO5
		(OR)			
b)	i.	Relate privilege access management for a network and explain the significant role in information security.	8	K2	CO5
	ii.	Discuss the process of automating the security incident response in a network.	5	K3	CO5

PART – C

Q.No.			Questions	Marks	KL	CO
16.	a)	i.	Differentiate Stateful filtering and Stateful inspection by considering a real-world scenario.	10	K4	CO3
		ii.	Illustrate with an example and model the scenario to support your answer.	5	K2	
			(OR)			
	b)		Develop a case study for Electric Smart grid framework that prone to different security attacks. Elaborate the essential security requirements to mitigate these attacks.	15	K3	CO5

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Question Paper Code: 6002

B.E. / B.Tech. DEGREE END-SEMESTER EXAMINATIONS – NOV. / DEC. 2023
Seventh Semester
Information Technology
U19IT724 – BIG DATA ANALYTICS
(Regulation 2019)

Time: Three Hours   Maximum: 100 Marks

Answer ALL the questions

Knowledge Levels	K1 – Remembering	K3 – Applying	K5 - Evaluating
(KL)	K2 – Understanding	K4 – Analyzing	K6 - Creating

PART – A

(10 x 2 = 20 Marks)

Q.No.	Questions	Marks	KL	CO
1.	Give examples of structured and semi-structured data.	2	K1	CO1
2.	Write down the four computing resources of Big Data Storage.	2	K2	CO1
3.	Differentiate between YARN vs MapReduce.	2	K2	CO2
4.	List the barriers of NoSQL.	2	K1	CO2
5.	What is the difference between Aggregation and Sharding in MongoDB?	2	K2	CO3
6.	When an index does not fit into RAM?	2	K1	CO3
7.	What is partition and bucketing in hive?	2	K1	CO4
8.	What do you mean by windowing in HiveQL?	2	K1	CO4
9.	Why is HDFS preferred to RDBMS?	2	K1	CO5
10.	Summarize the features of Pig on Hadoop.	2	K2	CO5

PART – B

Q.No.			Questions	Marks	KL	CO
11.	a)	i.	Why should organizations invest in business intelligence solutions? Are BI tools more important than IT security solutions?	5	K2	CO1
		ii.	Discuss the functions of each of the five layers in Big Data architecture design.	8	K3	CO1
			(OR)			
	b)	i.	Discuss any five challenges of Big data.	5	K2	CO1
		ii.	What are the key elements of a data warehouse? Describe each one of them.	8	K2	CO1
12.	a)	i.	Illustrate YARN based execution model and its functions with a neat diagram.	8	K2	CO2
		ii.	How schema changes will take place in NoSQL data store? Explain with an example.	5	K3	CO2
			(OR)			
	b)	i.	Discuss the Hadoop system and ecosystem components in four layers.	8	K2	CO2
		ii.	What is CAP Theorem? How it is applicable to NoSQL systems?	5	K2	CO2
13.	a)	i.	Discuss the functions of MangoDB query language and database commands.	8	K2	CO3
		ii.	Illustrate the CQL commands and their functionalities.	5	K2	CO3
			(OR)			
	b)	i.	Briefly explain the features and application of Cassandra.	8	K3	CO3
		ii.	What is CRUD? Explain its advantages.	5		
14.	a)	i.	Describe the MapReduce execution steps with neat diagram.	8	K3	CO4
		ii.	Write the major differences between Apache spark and Apache kafka.	5	K3	CO4
			(OR)			
	b)	i.	Illustrate main features and Architecture of Hive with neat diagram.	8	K3	CO4
		ii.	Explain the role of combiner and partitioner in MapReduce application with a suitable example.	5	K2	CO4
15.	a)	i.	Explain the following operators in Pig Latin. grouping and joining, combining and splitting, filtering operators.	8	K3	CO5
		ii.	Explain in detail about Writable Collections in Hadoop.	5	K3	CO5

b)	i.	Briefly explain different data types in Apache Pig.	8	K3	CO5
	ii.	Write the difference between Pig and MapReduce.	5	K2	CO5

PART – C

(1 x 15 = 15 Marks)

Q.No.			Questions	Marks	KL	CO
16. a)	i.		How to improve Hive query performance using index-based operations on big data? Explain.	7	K3	CO4
	ii.		Consider the Departmental Stores data file (stores.txt) in the following format customer Name, dept Name, purchase Amount. a. Write a Pig script to list total sales per departmental store. b. Write a Pig script to list total sales per customer.	4+4	K4	CO5

(OR)

b)	i.	Explain the process of creating an External Hive Table to Connect to the HBase Customer Information Table.	7	K4	CO4
	ii.	How Big Data Analysis help to increase profit in business? Explain with a real-time application.	8	K4	CO1

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Question Paper Code: 6008

B.E. / B.Tech. DEGREE END-SEMESTER EXAMINATIONS – NOV. / DEC. 2023
Fifth Semester
Information Technology
U19IT515 – WEB TECHNOLOGY
(Regulation 2019)

Time : Three Hours   Maximum : 100 Marks

Answer ALL the questions

Knowledge Levels (KL)	K1 – Remembering	K3 – Applying	K5 - Evaluating
	K2 – Understanding	K4 – Analyzing	K6 - Creating

PART – A

(10 x 2 = 20 Marks)

Q.No.	Questions	Marks	KL	CO
1.	What is the meaning of 401 Unauthorized Http Response Codes?	2	K2	CO1
2.	What is the relation between XHTML and XML?	2	K1	CO1
3.	How can you integrate CSS on a web page?	2	K2	CO2
4.	Define recursive function for finding factorial of the number using Java Script.	2	K2	CO2
5.	Define Web services.	2	K1	CO3
6.	Write the syntax for the update query in MySQL.	2	K2	CO3
7.	State the significance of gradle in springboot.	2	K2	CO4
8.	What is CRUD operation?	2	K1	CO4
9.	List the components of ANGULAR JS.	2	K1	CO5
10.	What is deferred bootstrap?	2	K2	CO5

PART – B

(5 x 13 = 65 Marks)

Q.No.	Questions	Marks	KL	CO
11. a)	How can name conflicts be avoided in XML? Explain with an example.	13	K2	CO1

(OR)

			Marks	KL	CO
	b)	Define frame. Create a HTML page that displays multiple frames in a window.	13	K2	CO1
12.	a)	Write a JavaScript that scrolls a text message in the status bar of the browser window.	13	K3	CO2
		(OR)			
	b)	Explain the document and window object with example.	13	K2	CO2
13.	a)	Create a student registration form using ASP.net.	13	K3	CO3
		(OR)			
	b)	Write a program to accept the employee code from the user and display the details of employee like emp code, name, designation and salary.	13	K3	CO3
14.	a)	Discuss the architecture of modern web application. Create online book store application with appropriate front end and back end design.	13	K3	CO4
		(OR)			
	b)	Build a restful service for user registration form.	13	K3	CO4
15.	a)	Describe in detail MVC architecture.	13	K2	CO5
		(OR)			
	b)	Discuss the procedure for setting up Angular JS and adding boot strap.	13	K2	CO5

PART – C

(1 x 15 = 15 Marks)

Q. No.		Questions	Marks	KL	CO
16.	a)	Discuss the syntax of various control statements and arrays in Java Script with example.	15	K3	CO3
		(OR)			
	b)	Discuss a simple application for e-commerce shopping site using Angular JS and spring boot.	15	K3	CO4

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Question Paper Code: 6006

M.E. / M.Tech. DEGREE END-SEMESTER EXAMINATIONS – NOV. / DEC. 2023
Third Semester
Information Technology
P19ITE19 – ENERGY AWARE COMPUTING
(Regulation 2019)

Time: Three Hours   Maximum: 100 Marks

Answer ALL the questions

Knowledge Levels	K1 – Remembering	K3 – Applying	K5 - Evaluating
(KL)	K2 – Understanding	K4 – Analyzing	K6 - Creating

PART – A

(10 x 2 = 20 Marks)

Q.No.	Questions	Marks	KL	CO
1.	What is Energy awareness? Describe it with an example.	2	K3	CO1
2.	What are the effects of voltage scaling?	2	K4	CO1
3.	Describe a situation that needs a burst scheduling.	2	K2	CO2
4.	Which queuing strategy is used in the DVFS-enabled cluster scheduling algorithm? Justify your answer?	2	K3	CO2
5.	Formally define an Energy Minimization Problem.	2	K3	CO3
6.	What is the primary role of the switching regulator?	2	K2	CO3
7.	What are the computational requirements of the VM scheduling algorithm?	2	K3	CO4
8.	What is Passive Voltage Scaling (PVS)?	2	K4	CO4
9.	State at least 2 differences between on-chip workload and off-chip workload.	2	K3	CO5
10.	What is energy aware memory scheduling?	2	K2	CO5

PART – B

(5 x 13 = 65 Marks)

Q.No.			Questions	Marks	KL	CO
11.	a)	i.	Elaborate the concepts behind the static and dynamic power consumptions in detail.	8	K4	CO1
		ii.	State the differences of static and dynamic power consumption with a suitable example.	5	K2	

1

(OR)

				Marks	KL	CO
	b)	i.	Describe an approach to estimate the power consumption.	5	K4	CO1
		ii.	Describe different components of power leakage and their relative importance in various input transitions.	8	K2	
12.	a)		What is the Kinetic Battery Model (KiBaM)? Illustrate its advantages and disadvantages in detail.	13	K3	CO2
			(OR)			
	b)		Illustrate the various recovery effects of discharging models using stochastic approximation and probabilistic analysis.	13	K3	CO2
13.	a)		Describe dynamic voltage and frequency scaling (DVFS) with Steady-State Temperature Analysis (S-DVFS) in detail.	13	K4	CO3
			(OR)			
	b)		"Memetic algorithms can be used for energy efficient scheduling of integrated production and shipping". Defend the scenario with a real time application.	13	K4	CO3
14.	a)		Describe the Dynamic Regulator Scheduling (DRS) problem in detail and analyze the total power consumption in detail.	13	K3	CO4
			(OR)			
	b)		State any scheduling algorithm that minimizes power consumption. Also explain the computational aspects in terms of time and space.	13	K3	CO4
15.	a)		Describe the Bit Truncated Integer Motion Estimation approach in detail and show that it reduces the computational complexity of IME.	13	K3	CO5
			(OR)			
	b)		Describe the Single-Pass Fractional Motion Estimation approach in detail and show that it reduces the high complexity of full-search FME.	13	K3	CO5

PART – C

(1 x 15 = 15 Marks)

Q.No.		Questions	Marks	KL	CO
16.	a)	Describe the Time-Out-Based SSD Dynamic Power Management policy and device initiated power management in detail.	15	K2	CO4
		(OR)			
	b)	Describe low power devices management to minimize the total energy consumption and derive the amortized analysis of the lower bound of any two low power designs in detail.	15	K2	CO4

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Question Paper Code: 6011

B.E. / B.Tech. DEGREE END-SEMESTER EXAMINATIONS – NOV. / DEC. 2023
Fifth Semester
Information Technology
U19IT516 – PYTHON PROGRAMMING
(Regulation 2019)

Time: Three Hours   Maximum: 100 Marks
Answer ALL the questions

Knowledge Levels (KL)	K1 – Remembering	K3 – Applying	K5 - Evaluating
	K2 – Understanding	K4 – Analyzing	K6 - Creating

PART – A

(10 x 2 = 20 Marks)

Q.No.	Questions	Marks	KL	CO
1.	How do you find the id and type for an object?	2	K1	CO1
2.	Interpret the output of the following code snippet. *print(2**3 + (5 + 6)**(1 + 1))*	2	K2	CO1
3.	Find the output of the program: *my_tuple = ('p','r','o','g','r','a','m','i','z')* *print(my_tuple[1:4])* *print(my_tuple[:-7])* *print(my_tuple[7:])* *print(my_tuple[:])*	2	K2	CO2
4.	What is the output of the program? *pow2 = [2 ** x for x in range(10)]* *print(pow2)*	2	K2	CO2
5.	Describe the syntax for the following functions and explain with an example: abs() and divmod().	2	K2	CO3
6.	Identify the output of the following code snippet. *a = 3* *b = 1* *print(a, b)* *a, b = b, a* *print(a, b)*	2	K2	CO3

7.	What is the output of the program? *odd=[1,3,5]* *Print(odd+[9,7,5])* *Print(["re"]*3)*	2	K2	CO4
8.	How can be the command line argument utilized in python?	2	K1	CO4
9.	Differentiate .py and .pyc files.	2	K1	CO5
10.	Differentiate vectors and lists with example.	2	K2	CO5

PART – B

(5 x 13 = 65 Marks)

Q.No.	Questions	Marks	KL	CO
11. a)	Explain various data types in python with suitable example.	13	K1	CO1
	(OR)			
b)	Elaborate various conditional statements in python with example.	13	K2	CO1
12. a)	Write a code snippet in Python to Access Elements of a Tuple. Explain mutability of lists.	13	K1	CO2
	(OR)			
b)	Explain how to create a dictionary in python? Explain, what is range() function and how it is used in lists?	13	K1	CO2
13. a)	Python strings are immutable. Justify with an example.	13	K4	CO3
	(OR)			
b)	Explain the syntax and structure of user defined functions in python with example.	13	K2	CO3
14. a)	Write a program to compute the number of characters, words and lines in a file. What are the three types of import statement in Python? Explain.	13	K2	CO4
	(OR)			
b)	Compare and contrast Extending and Embedding Python. Why Python is called as dynamic and strongly typed language? Explain.	13	K2	CO4
15. a)	Discuss various charts in matplotlib with example.	13	K2	CO5
	(OR)			
b)	Demonstrate the use of packages in Python. Write a program to simulate the elliptical orbits using pygame.	13	K4	CO5

PART – C

Q.No.			Questions	Marks	KL	CO
16.	a)	i.	When you invoke a function with a parameter, the reference value of the argument is passed to the parameter. This is referred to as pass-by-value in programming terminology. Explain with example.	8	K2	CO3
		ii.	Write a brief note on invocation. Where is it used and how? Give example.	7	K2	CO3
			(OR)			
	b)		Explain module in Python. Write a code to access a CSV file as data frame. Write the code to read and write CSV file.	15	K1	CO5

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Question Paper Code: 6012

B.E. / B.Tech. DEGREE END-SEMESTER EXAMINATIONS – NOV. / DEC. 2023
Fifth Semester
Information Technology
U19ITV43 – CLOUD COMPUTING
(Regulation 2019)

Time: Three Hours   Maximum: 100 Marks

Answer ALL the questions

Knowledge Levels (KL)	K1 – Remembering	K3 – Applying	K5 - Evaluating
	K2 – Understanding	K4 – Analyzing	K6 - Creating

PART – A

(10 x 2 = 20 Marks)

Q.No.	Questions	Marks	KL	CO
1.	List various cloud models.	2	K1	CO1
2.	What are the main characteristics of cloud computing?	2	K1	CO1
3.	List the benefits of virtualization.	2	K1	CO2
4.	State the disadvantages of virtualization.	2	K1	CO2
5.	What is the role of inter-grid gateway in the context of inter-cloud resource management?	2	K1	CO3
6.	What do you understand by global cloud exchange?	2	K1	CO3
7.	Differentiate between security in the cloud and in the network.	2	K2	CO4
8.	What do you understand by autonomic security?	2	K1	CO4
9.	What is the most important advantage of cloud technologies for social networking applications?	2	K1	CO5
10.	List the examples of media applications that use cloud technologies.	2	K1	CO5

PART – B

Q.No.		Questions	Marks	KL	CO
11.	a)	Classify various types of clouds. For each of the type, provide an example and develop a model of your choice.	13	K2	CO1
		(OR)			
	b)	Explain the challenges still open in the cloud ecosystem. Provide your thoughts to mitigate the challenges.	13	K2	CO1
12.	a)	Discuss the classification of virtualization at different levels. Show the process of implementing levels of virtualization.	13	K2	CO2
		(OR)			
	b)	List and discuss different types of virtualization. Elaborate the procedure for setting up virtual clusters.	13	K2	CO2
13.	a)	Model the stack of six layers of cloud services and their providers and explain each layer.	13	K3	CO3
		(OR)			
	b)	Explain different resource provisioning methods with their pros and cons.	13	K2	CO3
14.	a)	Consider two cloud service systems: Google File System and Amazon S3. Explain how they achieve their design goals to secure data integrity and maintain data consistency while facing the problems of hardware failure, especially concurrent hardware failures.	13	K3	CO4
		(OR)			
	b)	Suggest two hardware mechanisms and software schemes to secure the application cloud (SaaS), the infrastructure cloud (IaaS), and the platform cloud (PaaS). Discuss their specific requirements, difficulties and limitations that may be encountered.	13	K3	CO4
15.	a)	Describe an application of using cloud technologies for online gaming.	13	K3	CO5
		(OR)			
	b)	Describe how cloud computing technology can be applied to support remote ECG monitoring.	13	K3	CO5

PART – C

Q.No.		Questions	Marks	KL	CO
16.	a)	Explain the cloud computing reference architecture with a suitable diagram. Elaborate each layer with the suitable techniques and examples.	15	K2	CO1
		(OR)			

b) Consider a scenario where ABC company wants to use a cloud   15   K5   CO3
service from a provider PQR. The service level agreement (SLA)
negotiated between the two parties before initiating business is as
follows.

    i.   Availability guarantee: 99.5% time over the service period
    ii.   Service period: 30 days
    iii. Maximum service hours per day: 20 hours
    iv. Cost: INR 100000 per day
    v.   Service credits are awarded to customers if availability
        guarantees are not satisfied. The monthly connectivity
        uptime service level is given as follows.

Monthly Uptime Percentage	Service Credit
<99.5%	15%
<99.0%	25%
<98.5%	35%
<98.0%	45%

In reality, it was found that over the service period, the cloud
service suffered four outages of duration: 1 hour 35 minutes, 2
hours 20 minutes, 3 hours 45 minutes and 4 hours 25 minutes,
each on different days, due to which regular service guarantees
were violated. If SLA negotiations are honoured, compute the
effective cost payable towards buying the cloud service.

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Question Paper Code: 6009

B.E. / B.Tech. DEGREE END-SEMESTER EXAMINATIONS – NOV. / DEC. 2023
Fifth Semester
Information Technology
U19IT513 – DATA WAREHOUSING AND DATA MINING
(Regulation 2019)

Time: Three Hours   Maximum: 100 Marks

Answer ALL the questions

Knowledge Levels (KL)	K1 – Remembering	K3 – Applying	K5 - Evaluating
	K2 – Understanding	K4 – Analyzing	K6 - Creating

PART – A

(10 x 2 = 20 Marks)

Q.No.	Questions	Marks	KL	CO
1.	What is multidimensional data model?	2	K1	CO1
2.	Summarize the uses of Metadata Repository.	2	K2	CO1
3.	List out major issues in Data Mining.	2	K1	CO2
4.	Distinguish between database vs data warehouse.	2	K2	CO2
5.	Classify the types of attributes.	2	K2	CO3
6.	What do you mean by Data Processing?	2	K1	CO3
7.	Define the terms: support and confidence.	2	K2	CO4
8.	Tell some variants of Apriori Algorithm.	2	K1	CO4
9.	Classification is supervised learning. Justify.	2	K2	CO5
10.	List the metrics for evaluating classifier performance.	2	K1	CO5

(5 x 13= 65 Marks)

Q.No.		Questions	Marks	KL	CO
11.	a)	Illustrate the various components of data warehouse architecture with a neat sketch.	13	K2	CO1
		(OR)			
	b)	Explain in detail about various types of OLAP Servers and compare their features.	13	K2	CO1
12.	a)	Organize the steps involved in KDD process with neat sketch.	13	K4	CO2
		(OR)			
	b)	i. List and explain the data mining task primitives.	7	K5	CO2
		ii. Outline the various data mining repositories on which mining can be performed.	6		
13.	a)	i. How do you measure the data similarity and dissimilarity?	7	K2	CO3
		ii. Explain the various data integration techniques.	6	K2	
		(OR)			
	b)	Explain in detail about the process of Data Transformation and Discretization.	13	K2	CO3
14.	a)	A database has following transactions. Let min_sup = 60% & min_conf = 70%.	13	K3	CO4

TID   List of item_Ids
T100   I1,I2,I5
T200   I2,I4
T300   I2,I3
T400   I1,I2,I4
T500   I1,I3
T600   I2,I3
T700   I1,I2,I3,I5
T800   I1,I2,I3

Solve all frequent Item sets using Apriori & FP growth and compare the efficiency of two Algorithms.

(OR)

	b)	Explain the constraint-based association rule mining with examples.	13	K2	CO4
15.	a)	Compare the various clustering algorithms with their pros and cons.	13	K2	CO5
		(OR)			

b) Apply the test sample X = <rain, hot, high, false> as either play Tennis   13   K3   CO5
/ don't play tennis using Naïve Baysesian Classifier for the following
data:

Outlook	Temperature	Humidity	Windy	Class
sunny	hot	high	false	N
sunny	hot	high	true	N
overcast	hot	high	false	P
rain	mild	high	false	P
rain	cool	normal	false	P
rain	cool	normal	true	N
overcast	cool	normal	true	P
sunny	mild	high	false	N
sunny	cool	normal	false	P
rain	mild	normal	false	P
sunny	mild	normal	true	P
overcast	mild	high	true	P
overcast	hot	normal	false	P
rain	mild	high	true	N

PART - C

(1 X 15 = 15 Marks)

Q.No.	Questions	Marks	KL	CO

16. a) Construct the decision tree for the following training dataset using   15   K3   CO5
decision tree algorithm.

Age	Income	Student	Credit_rating	Buys_Computer
<=30	High	No	Fair	No
<=30	High	No	excellent	No
31..40	High	No	Fair	Yes
>40	Medium	No	Fair	Yes
>40	Low	Yes	Fair	Yes
>40	Low	Yes	excellent	No
31..40	Low	Yes	excellent	Yes
<=30	Medium	No	Fair	No
<=30	Low	Yes	Fair	Yes
>40	Medium	Yes	Fair	Yes
<=30	Medium	Yes	excellent	Yes
31..40	Medium	No	excellent	Yes
31..40	High	Yes	Fair	Yes
>40	Medium	No	excellent	No

(OR)

b) Explain in detail about the aapplications of data mining in Spatial and   15   K2   CO5
Text data.

3

VIVEKANANDHA COLLEGE OF ENGINEERING FOR WOMEN
[AUTONOMOUS INSTITUTION AFFILIATED TO ANNA UNIVERSITY, CHENNAI]
Elayampalayam – 637 205, Tiruchengode, Namakkal Dt., Tamil Nadu.

Question Paper Code: 6008

B.E. / B.Tech. DEGREE END-SEMESTER EXAMINATIONS – NOV. / DEC. 2023
Fifth Semester
Information Technology
U19IT515 – WEB TECHNOLOGY
(Regulation 2019)

Time : Three Hours   Maximum : 100 Marks

Answer ALL the questions

Knowledge Levels (KL)	K1 – Remembering	K3 – Applying	K5 - Evaluating
	K2 – Understanding	K4 – Analyzing	K6 - Creating

PART – A

(10 x 2 = 20 Marks)

Q.No.	Questions	Marks	KL	CO
1.	What is the meaning of 401 Unauthorized Http Response Codes?	2	K2	CO1
2.	What is the relation between XHTML and XML?	2	K1	CO1
3.	How can you integrate CSS on a web page?	2	K2	CO2
4.	Define recursive function for finding factorial of the number using Java Script.	2	K2	CO2
5.	Define Web services.	2	K1	CO3
6.	Write the syntax for the update query in MySQL.	2	K2	CO3
7.	State the significance of gradle in springboot.	2	K2	CO4
8.	What is CRUD operation?	2	K1	CO4
9.	List the components of ANGULAR JS.	2	K1	CO5
10.	What is deferred bootstrap?	2	K2	CO5

PART – B

(5 x 13 = 65 Marks)

Q.No.	Questions	Marks	KL	CO
11. a)	How can name conflicts be avoided in XML? Explain with an example.	13	K2	CO1

(OR)

	b)	Define frame. Create a HTML page that displays multiple frames in a window.	13	K2	CO1
12.	a)	Write a JavaScript that scrolls a text message in the status bar of the browser window.	13	K3	CO2
		(OR)			
	b)	Explain the document and window object with example.	13	K2	CO2
13.	a)	Create a student registration form using ASP.net.	13	K3	CO3
		(OR)			
	b)	Write a program to accept the employee code from the user and display the details of employee like emp code, name, designation and salary.	13	K3	CO3
14.	a)	Discuss the architecture of modern web application. Create online book store application with appropriate front end and back end design.	13	K3	CO4
		(OR)			
	b)	Build a restful service for user registration form.	13	K3	CO4
15.	a)	Describe in detail MVC architecture.	13	K2	CO5
		(OR)			
	b)	Discuss the procedure for setting up Angular JS and adding boot strap.	13	K2	CO5

PART – C

(1 x 15 = 15 Marks)

Q. No.		Questions	Marks	KL	CO
16.	a)	Discuss the syntax of various control statements and arrays in Java Script with example.	15	K3	CO3
		(OR)			
	b)	Discuss a simple application for e-commerce shopping site using Angular JS and spring boot.	15	K3	CO4

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