Seat No.	

Tatyasaheb Kore Institute of Engineering and Technology, Warananagar

(An Autonomous Institute, Affiliated to Shivaji University, Kolhapur)

T.Y.B.Tech.(Comp. Sci. and Engg.) (Sem-VI)

End Semester Examination, July- 2023

Course Name : Advanced Computer Architecture Course Code: CSE602

Day & Date : **Wednesday, 5-Jul-2023** Max Marks 60 Marks

Time : **2:00 pm to 4:00 pm**

Instructions:
a) All questions are compulsory
b) Figures to the right indicates full marks, Course Outcome (CO) & Bloom's Taxonomy Level (BL)
(L1-Remembering, L2- Understanding, L3 – Applying, L4 – Analyzing, L5 – Evaluating, L6 - Creating)
c) Use of non-programmable calculator is allowed
d) Assume suitable data if required.

		Marks	B.L	CO
Q.1	**Attempt any TWO**	**12**		
a)	Explain the Flynn's classification (Multiplicity of Instruction and Data Stream) of computer architectures with neat diagrams.	**6**	**L2**	**1**
b)	Draw and explain S-access memory organization.	**6**	**L2**	**3**
c)	Explain any four performance evaluation factors for pipeline processors.	**6**	**L2**	**1**
Q.2	**Attempt any TWO**	**12**		
a)	What is way prediction? How it is used to reduce the cache hit time?	**6**	**L1**	**3**
b)	What is associative memory? Explain hardware organization of associative memory with suitable diagram and example.	**6**	**L2**	**1**
c)	Describe the following i) Compulsory miss ii) Capacity miss iii) Conflict miss	**6**	**L1**	**3**
Q.3	**Attempt any TWO**	**12**		
a)	Explain the components of Processing Element (PE) in SIMD computer.	**6**	**L2**	**1**
b)	Make use of the data routing and masking mechanisms for processing elements in SIMD computers. With neat diagram, explain the calculation of the summation S(k)= $\sum_{i=1}^{k} A_i$, k= 0, 1, … ,7 in a SIMD machine.	**6**	**L3**	**1**
c)	Explain NVIDA GPU Computational structures.	**6**	**L2**	**1,2**
Q.4	**Attempt any TWO**	**12**		
a)	Draw and explain basic structure of a centralized shared memory architecture	**6**	**L2**	**3**
b)	State and explain the basic schemes in enforcing coherence.	**6**	**L2**	**3**
c)	Describe Directory Based cache coherence protocol.	**6**	**L2**	**3**
Q.5	**Attempt any TWO**	**12**		
a)	List the all and explain any two parallel processing mechanisms in uniprocessor computers.	**6**	**L2**	**4**
b)	Explain the basic structure of linear pipeline processor with neat diagram.	**6**	**L2**	**1**
c)	Explain the use of write merging to reduce the cache miss penalty with neat figure.	**6**	**L3**	**3**
d)	Draw and explain the basic structure of vector architecture, VMIPS.	**6**	**L2**	**1**

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Tatyasaheb Kore Institute of Engineering and Technology, Warananagar

(An Autonomous Institute, Affiliated to Shivaji University, Kolhapur)

Department of Computer Science and Engineering

T.Y.B.Tech In-Semester Examination-I, September- 2023

Course Name : **Computer Algorithm** Course Code: CSE504
Day & Date : **29/09/2023** Max Marks : 40Marks
Time : 09.15 AM - 10.45 AM

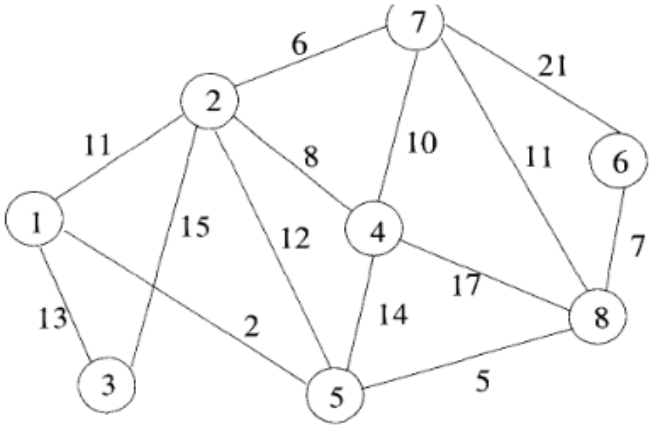
Instructions: i. There are three questions in this question paper. Three sub questions for each question. All questions Q1, Q2 and Q3 are compulsory. Solve any two sub questions based on the instructions provided.
ii. Figures to the right indicates full marks, Bloom's Taxonomy Level and Course Outcome (CO) (BL) (**L1- Remembering, L2- Understanding, L3 – Applying, L4 – Analyzing, L5 – Evaluating, L6 - Creating)**
iii. Use of non-programmable calculator is allowed iv. Assume suitable data if required.

Course Outcome's are:
CO1- Understand and demonstrate algorithm design methods with analysis
CO2-Devise algorithm for given problem statement and analyze its space and time complexity by using recurrence relation
CO3-Categorize the problem to determine polynomial and non-polynomial based on its nature

		Marks	B.L	CO
Q.1	**Attempt any two of the following**			
a)	Compare the functions 5n, n^2 and $(2^n)/4$ for various values of n. Give your detailed comment on the growth of these functions	**7**	**L2**	
b)	Write an algorithm to generate the transpose of a square matrix of size n*n. Find time and space complexity of the algorithm.	**7**	**L2**	CO 01
c)	Define the terms with example:	**7**	**L1**	
i.	Optimization Problem			
ii.	Feasible Solution and optimum Solution			
iii.	Objective function			
Q.2	**Attempt any two two of the following**			
a)	Explain merge sort algorithm, give one running example. Analyze merge sort for its space and time complexity. Apply merge sort to following input	**7**	**L4**	CO 02

12	5	17	13	31	9	6

b) Illustrate prim's algorithm by applying it to following Graph. **7** **L3**



c) Considering Objective function and constraints, Explain Knapsack Problem with an example. **7** **L3**

Q.3 Attempt any two two of the following

a) The complexity of Divide and conquer method is given by recurrence **6** **L4**

$$T(n) = \begin{cases} T(1) & n = 1 \\ aT(n/b) + f(n) & n > 1 \end{cases}$$

Consider a=2, b=2, T(1)=2 and f(n)=n. Solve above recurrence equation. CO 02

b) Define Optimal merge pattern problem. Give an greedy method solution for merging. Apply method to following file collection **6** **L3**

2	5	7	13	3	9	6

c) Prove the following equalities. **6** **L4**

i. $33n^3+4n^2+5=O(n^3)$

ii. $10n^2+9=\Omega(n^2)$

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Tatyasaheb Kore Institute of Engineering and Technology, Warananagar

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Department of Computer Science and Engineering

T.Y.B.Tech In-Semester Examination-II, October- 2023

Course Name : **Computer Algorithms** Course Code: **CSE504**

Day & Date : **Monday, 30/10/2023** Max Marks : **40Marks**

Time : **9.15 to 10.45AM**

Instructions:

i. All three questions are compulsory.

ii. Figures to the right indicates full marks, Course Outcome (CO) & Bloom's Taxonomy Level (BL) **(L1- Remembering, L2- Understanding, L3 – Applying, L4 – Analyzing, L5 – Evaluating, L6 - Creating)**

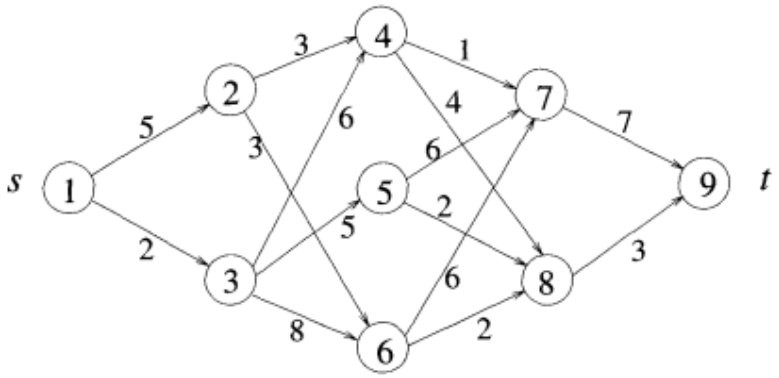
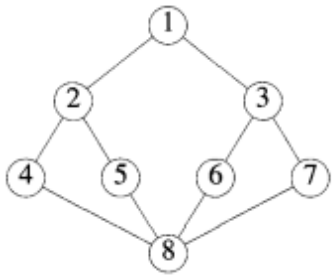
iii. Assume suitable data if required

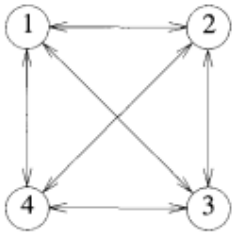
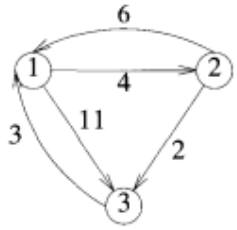
Course Outcomes :

CO:1 Understand and demonstrate algorithm design methods with analysis.

CO2: Devise algorithm for given problem statement and analyze its space and time complexity by using recurrence relation

CO3: Categorize the problem to determine polynomial and non-polynomial based on its nature

		Marks	B L	CO
Q.1	**Attempt any two**			CO 02
a)	Find a minimum cost path from S to T in the following multistage graph of figure1 using forward approach.  Figure :1	**7**	**L5**	
b)	Solve the reliability design problem for the following problem instance having three stages D1, D2, D3. The total cost of the system is 105. The cost of the device D1 is 30, D2 is 15, D3 is 20. Reliabilities are R1=0.9, R2=0.8 and R3=0.5. Why this problem is NP Problem.	**7**	**L5**	
c)	Define Spanning tree. Construct DFS and BFS spanning tree for following Graph(Figure 02)  Figure 2	**7**	**L3**	

Q.2	**Attempt any two**			
a)	With pseudo code, Explain Dynamic programming solution to solve all pair shortes path problem. Write objective function for the same.	**7**	**L3**	**CO 01**
b)	Elaborate BFS and DFS search techniques with suitable example.	**7**	**L3**	
c)	Give an algorithm to count the number of leaf nodes in a binary tree t. What is its computing time?	**7**	**L3**	
Q.3	**Attempt All Questions below.**			
a)	Solve the instance of travelling sales person problem to find tour of minimum cost. (Figure 3). Why this problem is NP Problem.  $\begin{bmatrix} 0 & 10 & 15 & 20 \\ 5 & 0 & 9 & 10 \\ 6 & 13 & 0 & 12 \\ 8 & 8 & 9 & 0 \end{bmatrix}$ (Figure 3) **OR** Compute all pair shortest path for following graph of figure 4. Why this problem is P Problem.  $\begin{array}{c\|ccc} A^0 & 1 & 2 & 3 \\ \hline 1 & 0 & 4 & 11 \\ 2 & 6 & 0 & 2 \\ 3 & 3 & \infty & 0 \end{array}$ figure 4	**6**	**L4**	**CO 3**
b)	Describe Binary tree traversal techniques with suitable example.	**6**	**L3**	**CO 01**

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Tatyasaheb Kore Institute of Engineering and Technology, Warananagar

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Department of Computer Science and Engineering

T.Y.B.Tech In-Semester Examination-I, September- 2023

Course Name :	**Cyber Security and Cyber Laws**	Course Code:	**CSE-506**
Day & Date :	Saturday 30/09/2023	Max Marks :	40Marks
Time :	9.15 to 10.45 AM		

Instructions:

i. All questions are compulsory

ii. Figures to the right indicates full marks, Course Outcome (CO) & Bloom's Taxonomy Level (BL) (**L1- Remembering, L2- Understanding, L3 – Applying, L4 – Analyzing, L5 – Evaluating, L6 - Creating)**

iii. Use of non-programmable calculator is allowed iv. Assume suitable data if required

Course Outcomes:

CO1: Explain the cyber security concepts

CO2: Describe the cyber security vulnerabilities and prevention techniques

		Marks	B.L	CO
Q.1	**Attempt any two**			**CO1**
a)	Illustrate the following terms related to Cyber Security 1) Hacker Slang 2) Script Kiddies 3) Penetration tester 4) Phreaking	**7**	**L1**	
b)	Define Malware? Describe different types of Malware?	**7**	**L1**	
c)	State the function of perimeter and layered security approach?	**7**	**L1**	
Q.2	**Attempt any two**			**CO1**
a)	Define Auction Fraud? Classify 4 Categories of online auction fraud.	**7**	**L1**	
b)	Define Cyber Stalking? How to Evaluate Cyber Stalking?	**7**	**L1**	
c)	Describe Investment offers, common schemes and investment advice related to Internet Fraud	**7**	**L2**	
Q.3	**Attempt any two**			**CO2**
a)	Illustrate the Different Web Attacks	**6**	**L2**	
b)	Explain shill Bidding, Bid Shielding and Bid Siphoning related to Auction Fraud	**6**	**L2**	
c)	Enlist the Tips for Avoiding Internet Fraud?	**6**	**L1**	

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SWVSM'S

Tatyasaheb Kore Institute of Engineering and Technology, Warananagar

(An Autonomous Institute, Affiliated to Shivaji University, Kolhapur)

Department of Computer Science and Engineering

T.Y.B.Tech In-Semester Examination-II, October- 2023

Course Name :	Cyber Security and Cyber Laws	Course Code:	**CSE-506**
Day & Date :	**Tuesday 31/10/2023**	Max Marks :	40Marks
Time :	**9.15 to 10.45 AM**		

Instructions:

i. All questions are compulsory

ii. Figures to the right indicates full marks, Course Outcome (CO) & Bloom's Taxonomy Level (BL) (**L1- Remembering, L2- Understanding, L3 – Applying, L4 – Analyzing, L5 – Evaluating, L6 - Creating)**

iii. Use of non-programmable calculator is allowed

iv. Assume suitable data if required

Course Outcomes

CO1 Explain the cyber security concepts

CO2 Describe the cyber security vulnerabilities and prevention techniques Remember

CO3 Understand the different rules and regulations under I.T. Act

CO4 Analyze the concepts of digital forensics & incident management

		Marks	B.L	CO
Q.1	**Attempt any two**			**CO1**
a)	List Different Types of viruses?	**7**	**L1**	
b)	What is Dos? Illustrate with example.	**7**	**L2**	
c)	State Trojan horses? Describe in detail	**7**	**L2**	
Q.2	**Attempt any two**			**CO4**
a)	Interpret Passive and Active Scanning Technique?	**7**	**L3**	
b)	Demonstrate the different Windows hacking techniques?	**7**	**L3**	
c)	Mention Use of Penetration Testing? Explain step by step process and methods	**7**	**L2**	
Q.3	**Attempt any two**			**CO2**
a)	Execution process of SQL Script Injection with example	**6**	**L3**	
b)	How to detect and eliminate virus, spyware in detail	**6**	**L2**	
c)	Discuss Common Tools Used for DOS Attack?	**6**	**L1**	

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SWVSM's

Tatyasaheb Kore Institute of Engineering and Technology, Warananagar

(An Autonomous Institute, Affiliated to Shivaji University, Kolhapur)

T.Y.B.Tech.(Comp. Sci. and Engg.) (Sem-VI)

End Semester Examination, July- 2023

Course Name	**:**	Internet of Things (OEC)	**Course Code**	**:**	CSE607
Day & Date	**:**	Wednesday, 12-Jul-2023	**Max Marks**	**:**	60 Marks
Time	**:**	2:00 pm to 4:00 pm			

Instructions:
a) All questions are compulsory
b) Figures to the right indicates full marks, Course Outcome (CO) & Bloom's Taxonomy Level (BL) **(L1-Remembering, L2- Understanding, L3 – Applying, L4 – Analyzing, L5 – Evaluating, L6 - Creating)**
c) Use of non-programmable calculator is allowed
d) Assume suitable data if required.

		Marks		
Q.1	**Attempt any two**	**12**	**B.L**	**CO**
(a)	Draw Object Classification diagram and explain characteristics of an IoT object	6	L1, L2	1
(b)	Enlist and explain Key IoT technologies in brief.	6	L1, L2	1,4
(c)	Write the working definition of IoT? Justify it and discuss H2H, H2M and M2M environment	6	L2, L3	1
Q.2	**Attempt any two**	**12**	**B.L**	**CO**
(a)	Define components of RFID with suitable diagram	6	L1, L2	2,4
(b)	What is Raspberry Pi? Illustrate different components of Raspberry Pi board.	6	L1, L2, L3, L4	3,4
(c)	Explain the principle of RFID with neat diagram. Explain RFID reader operations	6	L1, L2	2,4
Q.3	**Attempt any two**	**12**	**B.L**	**CO**
(a)	Explain Cellular and Mobile Network Technologies for IoT/M2M	6	L1, L2	2,4
(b)	Enlist the technicalities of the IEEE 802.15.6 WBANs	6	L1, L2	4
(c)	Discuss Bluetooth and its Low-Energy profile as IoT/M2M wireless technology? Discuss BLE packet and its fields	6	L1, L2	2,4
Q.4	**Attempt any two**	**12**	**B.L**	**CO**
(a)	Explain healthcare monitoring applications on the basis of (a) Chronic Disease Monitoring (b) Personal Wellness Monitoring (c) Personal Fitness	6	L2, L3	1,4

(b)	Enlist the generic city sensors used in City Automation IoT application. Discuss the approaches to capture the vehicle location	6	L2, L3	1,4
(c)	Define and explain Assistive Technology (AT)? What communication technologies for AT with classic smartphone are used ? Explain any one in detail?	6	L2, L3	1,4

Q.5	**Attempt any two**	**12**	**B.L**	**CO**
(a)	Draw and explain 3 domains in IoT Frameworks	6	L2, L3	1
(b)	Explain technical aspects in device intelligence, device power and communication capabilities in IoT	6	L2, L3	1,4
(c)	What is Raspberry Pi ? What are GPIO pins and their use? Why Python is favorite programming language for Raspberry Pi	6	L1, L2, L3, L4	3,4
(d)	Discuss Smart Metering/Advanced Metering Infrastructure application with suitable diagram	6	L1, L2	4

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Tatyasaheb Kore Institute of Engineering and Technology, Warananagar

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T.Y.B.Tech.(Comp. Sci. and Engg.) (Sem-II)

End Semester Examination, July- 2023

Course Name : **Machine Learning** Course Code: CSE603

Day & Date : **Friday, 7-Jul-2023** Max Marks : 60 Marks

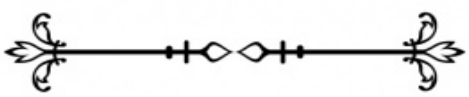
Time : **2:00 pm to 4:00 pm**

Instructions:
a) All questions are compulsory
b) Figures to the right indicate full marks, Course Outcome (CO) & Bloom's Taxonomy Level (BL) **(L1- Remembering, L2- Understanding, L3 – Applying, L4 – Analyzing, L5 – Evaluating, L6 - Creating)**
c) Use of a non-programmable calculator is allowed
d) Assume suitable data if required.

		Marks	B.L	CO
Q.1	**Attempt any two**	**12**		
a)	Define Machine learning and list the steps involved in MLDC.	**6**	**L1**	**1**
b)	Calculate the slope and intercept using a linear regression model for the given data set. Find the predicted value for given X=11. X= (1,2,3,4) Y= (3,4,5,7).	**6**	**L5**	**1**
c)	What is Data visualization? Why do we use it? Explain the Bar chart and Pie chart.	**6**	**L2**	**1**
Q.2	**Attempt any two**	**12**		
a)	When we use Linear Classifier, Explain Linear Classifier With a suitable example.	**6**	**L2**	**2**
b)	Cluster the following eight points (with (x, y) representing locations) into three clusters: A1(2, 10), A2(2, 5), A3(8, 4), A4(5, 8), A5(7, 5), A6(6, 4), A7(1, 2), A8(4, 9) Initial cluster centers are: A1(2, 10), A4(5, 8) and A7(1, 2).	**6**	**L6**	**3**
c)	Differentiate between Supervised Learning & Unsupervised Learning.	**6**	**L4**	**3**
Q.3	**Attempt any two**	**12**		
a)	What is Regular Expression? Discuss some general rules used to make patterns with one example	**6**	**L2**	**4**
b)	What is NLP? Which Python library is imported for NLP? Write three basic steps to use NLP Library	**6**	**L3**	**4**
c)	Difference between stemming, Lemmatization, and Tokenization.	**6**	**L4**	**4**
Q.4	**Attempt any two**	**12**		
a)	What is Neural Networks? Explain some applications of Neural Networks.	**6**	**L3**	**5**
b)	What are Recommendation Systems? Explain with a suitable example.	**6**	**L2**	**5**

c)	Enlist techniques for building recommendation engines. Explain the content-based recommender engine.	**6**	**L2**	**5**

Q.5	**Attempt any two**	**12**		
a)	Elaborate on the steps involved in preprocessing of data.	**6**	**L1**	**1**
b)	What technique is used for predicting the continuous-valued output? and explain any one technique.	**6**	**L4**	**1**
c)	What is the Sigmoid function? Explain the logistic regression with a suitable example.	**6**	**L3**	**2**
d)	Consider the given data set, and justify which attribute is to be considered as the decision tree's Root node. Assume Profit as Target. Data Set: Age: [old, old, old, mid, mid, mid, mid, new, new, new] Competition: [Yes, No, No, Yes, Yes, No, No, Yes, No, No] Type: [S/w, S/w, H/w, S/w, H/w, H/w, S/w, S/w, H/w, S/w] Profit: [Down, Down, Down, Down, Down, Up, Up, Up, Up, Up]	**6**	**L5**	**2**



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Tatyasaheb Kore Institute of Engineering and Technology, Warananagar

(An Autonomous Institute, Affiliated to Shivaji University, Kolhapur)

T.Y.B.Tech.(Comp. Sci. and Engg.) (Sem-II)

End Semester Examination, July- 2023

Course Name : **Database Engineering** Course Code: **CSE601**

Day & Date : **Monday, 3-Jul-2023** Max Marks : **60 Marks**

Time : **2:00 pm to 4:00 pm**

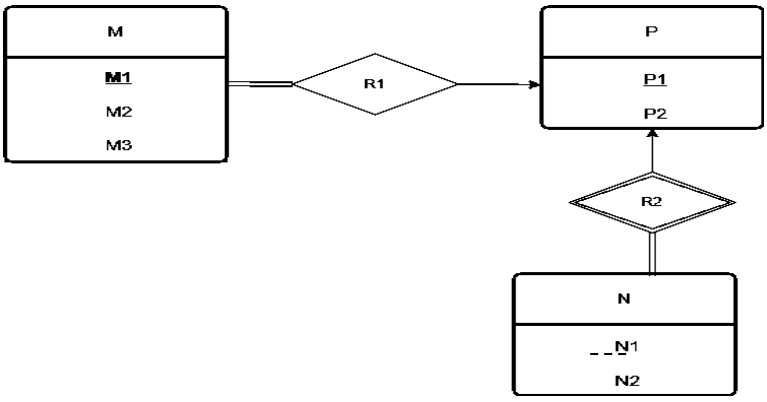
Instructions: a) All questions are compulsory

b) Figures to the right indicates full marks, Course Outcome (CO) & Bloom's Taxonomy Level (BL) **(L1-Remembering, L2- Understanding, L3 – Applying, L4 – Analyzing, L5 – Evaluating, L6 - Creating)**

c) Use of non-programmable calculator is allowed

d) Assume suitable data if required.

		Marks	B. L	CO
Q.1	**Attempt any two**	**12**		
a)	Enlist operators in relational algebra. State and explain any four relational algebra operations with example		**2**	**1, 2**
b)	Consider the following ER diagram.		**5**	**2**



Reduce the above ER diagram to Relational Model. Explain the steps/rules followed for reduction of the ERD

c)	Define UNF, 1NF and 2NF. Elaborate the methods for normalizing a relation from UNF to 1 NF		**3**	**2**
Q.2	**Attempt any two**	**12**		
a)	Consider the following relational database, where the primary keys are underlined.		**5**	**3**

department (dname, dnumber, mgr_ssn, mgr_start_date)
employee (fname, minit, lname, ssn, bdate, address, gender, salary, super_ssn, dnumber).
dept_locations (dnumber, dlocation)
project (pname, pnumber, plocation, dnumber)
works_on (ssn, pnumber, hrs).

dependent (ssn, dependent_name, gender, bdate, realtionship)

Determine an expression in the SQL to express each of the following queries:

i. Retrieve the name and address of all employees who work for the 'Research' department.

ii. Retrieve all employees whose address starts with 'K' and ends with 'pur' and has 'ha' as substring

iii. Retrieve the total number of employees in the 'Research' department.

b) Compare the following types of indices: **4** **1, 2**
Primary Indices Vs. Secondary Indices

c) Illustrate SQL Constraints with suitable example **4** **3**

Q.3 **Attempt any two** **12**

a) Explain the types of locks that a transaction can acquire on a data item. Explain with suitable example how transaction can lock and unlock a data item. **2** **4**

b) **4** **4**

T_1	T_2	T_3	T_4	T_5
				read (X)
	read (Y)			
read (Y)				
		write (Y)		
		write (Z)		
				read (Z)
	read (Z)			
read (X)				
			read (W)	
		write (W)		
				write (Y)
				write (Z)

Consider the above concurrent schedule. Explain the actions taken with respect to the execution of the schedule considering Timestamp based protocol for concurrency control. (assume the TID to be the transaction number given in increasing order from T1 to T5)

c) What is meant by serial and concurrent schedule? Elaborate Conflict serializable schedule with appropriate example. **3** **4**

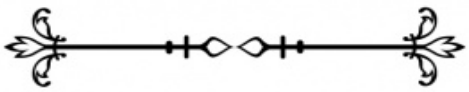
Q.4 **Attempt any two** **12**

a) Define log records with respect to log-based recovery. Illustrate deferred database modification and its recovery scheme in detail with example **2** **4**

b) **4** **4**

(a)	(b)	(c)
<T_0 start>	<T_0 start>	<T_0 start>
<T_0, A, 1000, 950>	<T_0, A, 1000, 950>	<T_0, A, 1000, 950>
<T_0, B, 2000, 2050>	<T_0, B, 2000, 2050>	<T_0, B, 2000, 2050>
	<T_0 commit>	<T_0 commit>
	<T_1 start>	<T_1 start>
	<T_1, C, 700, 600>	<T_1, C, 700, 600>
		<T_1 commit>

	Elaborate the Recovery actions in immediate database modification scheme given the log as it appears at three instances of time			
	c) List and explain the types of Failures		**2**	**4**
Q.5	**Attempt any two**	**12**		
	a) Construct an E-R diagram for a hospital with a set of patients and a set of medical doctors. Associate with each patient a log of the various tests and examinations conducted.		**6**	**1,2**
	b) Define the terms Super key, Candidate Key and Primary Key and also Differentiate between them with appropriate example		**4**	**2**
	c) Illustrate natural join, outer join, views in SQL with proper examples		**3**	**3**
	d) Illustrate file organization with variable length records.		**2**	**2**



Roll No.	

Tatyasaheb Kore Institute of Engineering and Technology, Warananagar

(An Autonomous Institute, Affiliated to Shivaji University, Kolhapur)

Department of Computer Science and Engineering

T.Y.B.Tech. In-Semester Examination-I, September- 2023

Course Name :	**Object Oriented Modeling and Design**	Course Code:	**CSE-501**
Day & Date :	Monday, 25/09/2023	Max Marks :	40 Marks
Time :	9.15 AM to 10.45 AM		

Instructions:

i. All questions are compulsory

ii. Figures to the right indicates full marks, Course Outcome (CO) & Bloom's Taxonomy Level (BL) (**L1- Remembering, L2- Understanding, L3 – Applying, L4 – Analyzing, L5 – Evaluating, L6 - Creating)**

iii. Use of non-programmable calculator is allowed

iv. Assume suitable data if required

Course Outcomes:

CO1: Explain the modeling as a design technique

CO2: Explain the Object, Dynamic & Functional Modeling

CO3: Describe Structure and Behavior Modeling using UML

CO4: Analysis, Design and Implementation with UML case studies

		Marks	B.L	CO
Q.1	**Attempt any two**			
a)	Describe different Object-Oriented Themes.	**7**	**L2**	**CO1**
b)	What is class and object? Describe with appropriate example.	**7**	**L2**	**CO1**
c)	Describe the following with example i) Events ii) States	**7**	**L2**	**CO1**
Q.2	**Attempt any two**			
a)	Write note on Scenarios and event traces with Example.	**7**	**L2**	**CO1**
b)	Construct and Describe a state diagram of Phone Line.	**7**	**L3**	**CO2**
c)	Describe the three models of OMT.	**7**	**L2**	**CO2**
Q.3	**Attempt any two**			
a)	Describe the following terms: i) Multiplicity ii) Role Names iii) Qualification	**6**	**L2**	**CO1**
b)	Compare Aggregation with Generalization	**6**	**L3**	**CO1**
c)	Describe the following terms with respect to dynamic modeling: i) State Generalization ii) Conditions	**6**	**L2**	**CO2**

Roll No.	

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Tatyasaheb Kore Institute of Engineering and Technology, Warananagar

(An Autonomous Institute, Affiliated to Shivaji University, Kolhapur)

Department of Computer Science and Engineering

T.Y.B.Tech. In-Semester Examination-II, October- 2023

Course Name :	Object Oriented Modeling and Design	Course Code:	CSE-501
Day & Date :	Thursday, 26/10/2023	Max Marks :	40 Marks
Time :	9.15 AM to 10.45 AM		

Instructions:

i. All questions are compulsory

ii. Figures to the right indicates full marks, Course Outcome (CO) & Bloom's Taxonomy Level (BL) (**L1- Remembering, L2- Understanding, L3 – Applying, L4 – Analyzing, L5 – Evaluating, L6 - Creating)**

iii. Use of non-programmable calculator is allowed

iv. Assume suitable data if required

Course Outcomes:

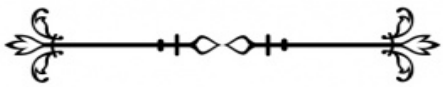
CO1: Explain the modeling as a design technique

CO2: Explain the Object, Dynamic & Functional Modeling

CO3: Describe Structure and Behavior Modeling using UML

CO4: Analysis, Design and Implementation with UML case studies

		Marks	B.L.	CO
Q.1	**Attempt any two**			
a)	Describe the structural things of UML.	**7**	**L2**	
b)	Describe the relationships in UML with example.	**7**	**L3**	**CO3**
c)	Describe the modeling a System's Architecture with respect to UML.	**7**	**L2**	
Q.2	**Attempt any two**			
a)	Write note on – i) Grouping things ii) Annotational things	**7**	**L2**	
b)	What is Use case diagram? Construct use case diagram for Cellular Telephone Call.	**7**	**L3**	**CO3**
c)	Describe Interaction diagram, its contents and common uses.	**7**	**L2**	
Q.3	**Attempt any two**			
a)	What is Message? Explain the different kind of messages in UML with neat diagram.	**6**	**L2**	
b)	Describe the Extensibility Mechanisms in UML.	**6**	**L3**	**CO4**
c)	What is Activity diagram? Construct activity diagram to represent the workflow associated with building a house.	**6**	**L3**	



Roll No.	

Tatyasaheb Kore Institute of Engineering and Technology, Warananagar

(An Autonomous Institute, Affiliated to Shivaji University, Kolhapur)

Department of Computer Science and Engineering

T. Y. B. Tech. In-Semester Examination-I, September-2023

Course Name : **System Software and Compiler Design** Course Code: CSE502

Day & Date : Tuesday, 26/09/2023 Max Marks : 40

Time : 9.15 AM to 10.45AM

Instructions: i. All questions are compulsory

ii. Figures to the right indicates full marks, Course Outcome (CO) & Bloom's Taxonomy Level (BL) (**L1- Remembering, L2- Understanding, L3 – Applying, L4 – Analyzing, L5 – Evaluating, L6 - Creating)**

iii. Assume suitable data if required

Course Outcome's are:

CO1-To identify the role of system programs and application programs

CO2-To understand the basics of system programs like editors, compiler, assembler, linker, loader, interpreter and debugger

CO3 - To design and implement lexical analyzer, syntax analyzer and semantic analyzer

CO4- To identify appropriate code optimizing transformations and issues Code Generation

		Marks	B.L.	C.O.
Q.1	**Attempt any two**			
a)	Define Following terms i. Application Domain ii. Execution Domain iii. Specification Gap iv. Execution Gap	**7**	**L1**	CO1
b)	Write is Syntax of Assembly Language. Explain Types of assembly language statement with an example	**7**	**L2**	
c)	Enlist Advanced Assembler Directives and explain with suitable example for each	**7**	**L2**	
Q.2	**Attempt any two**			
a)	What is Macro? Explain Macro call and Macro Definition with example	**7**	**L2**	CO2
b)	Describe data structures used in Pass I of assembler.	**7**	**L2**	
c)	Write and explain components of Object Module with an example	**7**	**L1**	
Q.3	**Attempt any two**			
a)	Discuss the following parameters with suitable examples i. Positional Parameters ii. Keyword Parameters iii. Default Parameters	**6**	**L2**	CO2
b)	Illustrate a macro which takes A, B, C as actual parameters in macro call and evaluates expression A-B+C with optimization.	**6**	**L3**	
c)	Define Language processor. List and Explain language processor activities	**6**	**L1**	

Roll No.	

TatyasahebKore Institute of Engineering and Technology, Warananagar

(An Autonomous Institute, Affiliated to Shivaji University, Kolhapur)

Department of Computer Science and Engineering

T.Y.B.Tech.In-Semester Examination-II,October -2023

Course Name : **System Software and Compiler Design** **Course Code: CSE502**

Day & Date : **Friday, 27/10/2023** **Max Marks : 40**

Time : 9.15 AM to 10.45 AM

Instructions:

i. All questions are compulsory

ii. Figures to the right indicates full marks, Course Outcome (CO) & Bloom's Taxonomy Level (BL) (**L1- Remembering, L2- Understanding, L3 – Applying, L4 – Analyzing, L5 – Evaluating, L6 - Creating)**

iii. Use of non-programmable calculator is allowed

iv. Assume suitable data if required

Course Outcomes

CO1: To identify the role of system programs and application programs

CO2: To understand the basics of system programs like editors, compiler, assembler, linker, loader, interpreter and debugger

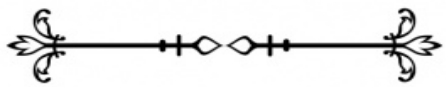
CO3: To design and implement lexical analyzer, syntax analyzer and semantic analyzer

CO4: To identify appropriate code optimizing transformations and issues Code Generation

		Marks	B.L.	CO
Q.1	**Attempt any two**			
a)	Explain the role of Lexical Analyzer with suitable diagram	**7**	**L3**	
b)	Find FIRST set and FOLLOW set of below grammar E -> TE' E' -> +T E'|∈ T -> F T' T' -> *F T' | ∈ F -> (E) | id	**7**	**L4**	CO2
c)	What are the different ways to recognition of keywords/reserve words with transition diagrams?	**7**	**L1**	
Q.2	**Attempt any two**			
a)	What is a Transition Diagram? Draw transition diagrams for: 1. relop 2. number	**7**	**L1**	
b)	Explain method of Removing of Left recursion of grammar with the help of example.	**7**	**L2**	CO3
c)	What is ambiguous grammar? Discuss how to eliminate ambiguity of grammar with an example	**7**	**L5**	

Q.3 Attempt any two

a)	Illustrate Shift – Reduce Parsing Technique with an example	**6**	**L2**	
	OR			
	Derive the String "aabbabba" for left most derivation and right most derivation using a CFG S-> aB|bA A-> a|aS|bAA B->b|bS|aBB	**6**	**L3**	CO3
b)	Explain input buffering in Lexical Analysis	**6**	**L3**	
c)	Write the patterns for: a) Numbers b) Identifiers c) Relation operators d) White spaces	**6**	**L4**	



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Tatyasaheb Kore Institute of Engineering and Technology, Warananagar

(An Autonomous Institute, Affiliated to Shivaji University, Kolhapur)

T.Y.B.Tech.(Comp. Sci. and Engg.) (Sem-VI)

End Semester Examination, July- 2023

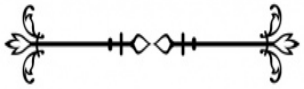
Course Name : **Software Testing And Quality Assu.** Course Code: CSE605

Day & Date : **Monday, 10-Jul-2023** Max Marks : 60 Marks

Time : **2:00 pm to 4:00 pm**

Instructions:
a) All questions are compulsory
b) Figures to the right indicates full marks, Course Outcome (CO) & Bloom's Taxonomy Level (BL) (L1-Remembering, L2- Understanding, L3 – Applying, L4 – Analyzing, L5 – Evaluating, L6 - Creating)
c) Assume suitable data if required.
d) Draw neat diagrams whenever necessary.

		Marks	B.L	CO
Q.1	**Attempt any two**	**12**		
a)	What is the significance of the V-shaped software life cycle model with graphical representation	**6**	**L3**	**CO1**
b)	Explain the issues which must be addressed by the SRS document checklist	**6**	**L2**	**CO3**
c)	Discuss some of the checklist related to source code reviews	**6**	**L4**	**CO1**
Q.2	**Attempt any two**	**12**		
a)	How state chart diagram is useful to design test cases explain with the help of an example of withdrawal from ATM	**6**	**L6**	**CO3**
b)	Explain about Automation Testing & its criteria to select tools	**6**	**L4**	**CO2**
c)	Describe Regression Testing & its several purposes	**6**	**L1**	**CO3**
Q.3	**Attempt any two**	**12**		
a)	Which are seven-step software testing process write in the brief	**6**	**L1**	**CO4**
b)	How would you show your understanding of Workbench/steps of organizing for testing	**6**	**L2**	**CO3**
c)	What are the six tasks required to show the complete test plan.	**6**	**L3**	**CO4**
Q.4	**Attempt any two**	**12**		
a)	What is the main idea of functional test cases of order process for online web application	**6**	**L6**	**CO3**
b)	Explain the significance of navigation testing for online shopping website.	**6**	**L4**	**CO3**
c)	Evaluate the design checklist for user interface	**6**	**L5**	**CO4**
Q.5	**Attempt any two**	**12**		
a)	Why do you think we should test?	**6**	**L4**	**CO4**
b)	What are the features of verification and validation while testing software	**6**	**L5**	**CO2**
c)	How can you make a Comparison between verification methods	**6**	**L4**	**CO3**
d)	How to apply an original way for the user documentation checklist	**6**	**L3**	**CO4**



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Tatyasaheb Kore Institute of Engineering and Technology, Warananagar

(An Autonomous Institute, Affiliated to Shivaji University, Kolhapur)

Department of Computer Science and Engineering

T.Y.B.Tech In-Semester Examination-I, September- 2023

Course Name :-	**Operating System-II**	**Course Code :-**	**CSE503**
Day & Date :-	Wed, 27-09-2023	**Max Marks :-**	40 Marks
Time :-	09:15 am to 10:45 am		

Instructions:

i. All questions are compulsory

ii. Figures to the right indicates full marks, Course Outcome (CO) & Bloom's Taxonomy Level (BL) (**L1- Remembering, L2- Understanding, L3 – Applying, L4 – Analyzing, L5 – Evaluating, L6 - Creating)**

iii. Use of non-programmable calculator is allowed

iv. Assume suitable data if required

Course Outcome's (CO) are-

CO-1 : To provide knowledge to the students about Fundamental architecture of UNIX/Linux operating system fundamentals

CO-2 : To understand File subsystem and related functions (system calls)

Q.1	**Attempt any two**	**Marks**	**B.L**	**CO**
a)	Draw & explain Architecture of UNIX OS	**7**	**L1**	**CO-1**
b)	What is shell? Enlist different types of shell and explain any two in details	**7**	**L2**	
c)	Draw and illustrate sample UNIX file system hierarchy and its characteristics. Provide 3 examples of absolute and relative path	**7**	**L2**	
Q.2	**Attempt any two**	**Marks**	**B.L**	
a)	List the contents of ***/etc/passwd*** file? When it is used by kernel	**7**	**L3**	**CO-2**
b)	What is file descriptor? List the standard file descriptor. Explain its use and discuss when system call returns the file descriptor	**7**	**L2**	
c)	Write down the output of following commands. (i) $ ***cat*** (Enter) (ii) $ ***ls > x.txt*** (Enter) (iii) $ ***cat -n x.txt y.txt z.txt*** (iv) $ ***cp ./x.txt xxyy*** (v) $ ***rm xx/yy/x.txt*** (vi) ***ls -d*** (vii) ***ls -X***	**7**	**L3**	
Q.3	**Attempt All**	**Marks**	**B.L**	
a)	Write syntax of ***open()*** system call? Explain with example	**6**	**L3**	**CO-2**
	OR			
a)	Can we create a new(empty) file using ***open()*** system call? If YES, write ***open()*** syscall using suitable parameters. If NO, justify	**6**	**L3**	
b)	Write difference between ***write()*** and ***lseek()***	**6**	**L1**	**CO-1**
	OR			
b)	List the different cases in which the number of bytes which actually read is less than the amount requested in the ***read()*** syscall	**6**	**L3**	

Roll No.	

SWVSM's

Tatyasaheb Kore Institute of Engineering and Technology, Warananagar

(An Autonomous Institute, Affiliated to Shivaji University, Kolhapur)

Department of Computer Science and Engineering

T.Y.B.Tech In-Semester Examination-II, October- 2023

Course Name	**:-**	Operating System-II	**Course Code**	**:-**	CSE503
Day & Date	**:-**	Sat, 28-10-2023	**Max Marks**	**:-**	40 Marks
Time	**:-**	09:15 am to 10:45 am			

Instructions:

(i) All questions are compulsory

(ii) Figures to the right indicates full marks, Course Outcome (CO) & Bloom's Taxonomy Level (BL) (**L1- Remembering, L2- Understanding, L3 – Applying, L4 – Analyzing, L5 – Evaluating, L6 – Creating)**

(iii) Use of non-programmable calculator is allowed

(iv) Assume suitable data if required

CO2 : To Demonstrate various UNIX commands, system calls(functions) for file subsystem

CO3 : To understand Process Control subsystem and related functions (system calls) and memory allocation

Q.1	**Attempt any two**	**Marks**	**B.L**	**CO**
a)	Enlist seven different ***exec()*** functions in detail and differences among the seven ***exec()*** functions in tabular format	**7**	**L1**	**CO3**
b)	Write the output of below ***sample.c*** code snippet when executed, *#include "apue.h"* *int main(int argc, char *argv[])* *{* *for (int i = 0; i < argc; i++)* *printf("argv[%d]: %s\n", i, argv[i]);* *printf("argc:=%d\n",argc);* *return(0);* *}* $ ***gcc sample.c -o sample*** $ ***./sample a b c d e f g h i***	**7**	**L3**	
c)	Enlist and Explain the three memory allocation functions specified by ISO C. Differentiate between any two	**7**	**L2**	

Q.2	**Attempt any two**	**Marks**	**B.L**	
a)	Explain the ***fork()*** system call in detail with suitable examples. Differentiate between ***fork()*** and ***vfork()***	**7**	**L1**	**CO3**
b)	Write two major uses of ***fork()***? Discuss the output of below 'C' program *#include "apue.h"* *int main()* *{* *fork();* *fork();* *fork();*	**7**	**L3**	

	printf("TKIET\n"); *}*			
c)	Define the Process ID ? Discuss PID 0, PID 1 and PID 2. Explain the functions which returns Process Identifiers	**7**	**L3**	
Q.3	**Attempt any two**	**Marks**	**B.L**	
a)	Demonstrate and explain typical memory arrangement of execution of 'C' program with relevant example	**6**	**L3**	**CO2**
	OR			
a)	How a 'C' program is started and how it terminates? Explain it with suitable block diagram and examples	**6**	**L3**	
b)	Explain ***wait()*** function in detail. Discuss **SIGCHLD** signal	**6**	**L1**	**CO3**
	OR			
b)	Draw and explain **BSD** terminal login process in detail	**6**	**L3**	
	OR			
b)	List the 8 ways of process termination and describe ***exit()***, ***_exit()***&***_Exit()*** system calls	**6**	**L3**