KOLHAPUR INSTITUTE OF TECHNOLOGY'S,
COLLEGE OF ENGINEERING (AUTONOMOUS), KOLHAPUR
(AFFILIATED TO SHIVAJI UNIVERSITY, KOLHAPUR)

S.Y. B.Tech. (Computer Science & Engineering)

Manasi Katare

(Semester- IV)

MID SEMESTER EXAMINATION, MARCH- 2022

Course Code: UCSE0401

Course Name: Automata Theory

Day and Date: Saturday , 19-Mar-22 **PRN:** 2021000694

Time: 09:30 AM To 11:30 AM **Max Marks:** 50

Instructions:

IMP: Verify that you have received question paper with correct course, code, branch etc.

i) All questions are compulsory.
ii) Figure to the right indicate full marks.
iii) Assume suitable data wherever necessary.

			Marks	B.L.	CO's
Q.1	**Attempt any two**		**16**		
A	If two DFA over language L_1 and L_2 given below, $L_1 = \{x \mid string\ ending\ with\ 01\ over\ \Sigma = \{0,1\}^*\}$ $L_2 = \{x \mid string\ of\ odd\ length\ over\ \Sigma = \{0,1\}^*\}$ Draw a DFA for a language accepted for $L_1 \cup L_2$		**8**	3	CO3
B	i.	Construct CFG for the language having equal number of a's followed by equal number of b's over set ∑={a,b}*	**8**	2	CO3
	ii.	Construct CFG for the language Odd length palindrome & Even Length Palindrome string set S={ xx^R } ∑={0,1}*			
C	Apply Kleene's Theorem to construct NFA-Λ for the regular expression i. (ab+ba)*aa(ba+bb)* ii. 1*0(0+1)*+(1*01)*(0+1)*		**8**	3	CO3
Q.2	**Attempt any two**		**16**		
A	Convert the following grammar into CNF: S→ABA | aB | bB |aa | bb | BaB | AbA A→aA | ab | ba | aBB | bAA B→bB| ba| bb | bAA | aBB		**8**	3	CO2
B	Write down the regular expression for the following languages? i. L = {ab, aab, bab, aabbab, ……} ii. L = {11, 110, 1111, 110110, …….} iii. A String with Odd Number of 1's over		**8**	3	CO2

C Draw DFA from below transition table where Q0 is initial state and Q2, Q5 and Q7 the is final state also minimize the given DFA by minimization technique. | 8 | 2 | CO2 |

State	0	1
→ Q0	Q1	Q5
Q1	Q6	Q2*
Q2*	Q0	Q2*
Q3	Q2*	Q6
Q4	Q7	Q5
Q5*	Q2*	Q6
Q6	Q6	Q4
Q7*	Q6	Q2*

Q.3 Attempt any three **18**

A Consider the CFG with productions
$S \rightarrow aSbScS \mid aScSbS \mid bSaScS \mid bScSaS \mid cSaSbS \mid cSbSaS \mid \Lambda$. Draw the language generated by the given CFG | 6 | 3 | CO1 |

B Construct a DFA accepting string containing **"1010"** over an $\Sigma = \{0,1\}^*$ | 6 | 2 | CO1 |

C | 6 | 3 | CO1 |

Convert the following Non-Deterministic Finite Automata (NFA) into Deterministic Finite Automata (DFA)?

States/input	0	1
{p}	{q, s}	{q}
*{q}**	{r}	{q, r}
{r}	{s}	{p}
*{s}**	∅	{p}

Where {q}* and {s}* be the final states.

D Explain Deterministic Finite Automata, (DFA) Non-Deterministic Finite Automata (NFA) and Non-Deterministic Finite Automata-Λ (NFA-Λ) with its transition function with example | 6 | 2 | CO1 |

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S.Y. B.Tech. (Computer Science and Engineering)

(Semester- IV)

MID SEMESTER EXAMINATION, MARCH- 2022

Course Code : UCSE0402

Course Name : Computer Graphics

Day and Date : Sunday , 20-Mar-22 **PRN :** 2021000694

Time : 09:30 AM To 11:30 AM **Max Marks:** 50

Instructions:

IMP: Verify that you have received question paper with correct course, code, branch etc.

i) All questions are compulsory.
ii) Figure to the right indicate full marks.
iii) Assume suitable data wherever necessary.

		Marks	B.L	CO's
Q.1	**Attempt any three**	**18**		
A	Derive the transformation matrix for rotation of object through arbitrary angle in both the directions.		III	CO2
B	Evaluate Bresenhams circle generation algorithm for radius=5 units and center coordinates (10, 5).		III	CO2
C	Explain 24 bit plane frame buffer with lookup table.		II	CO1
D	What are plane geometric projections? Explain orthographic projections in detail.		I	CO2
Q.2	**Attempt any two**	**16**		
A	Describe with the help of transformation matrix the procedure to obtain rotation about an arbitrary axis in space.		II	CO2
B	Evaluate Bresenham's line drawing algorithm for line (0,0) to (-5,5).		III	CO2
C	Explain the working of following types of input devices: a. Joystick b. Tablet		I	CO1
		4		**1**

Q.3 Attempt any two **16**

A	A rectangle is represented by coordinates A(0,0), B(20,0), C(20,30) and D(0,30). Write and explain steps that are occurring in transformation to change the square coordinates to A'(10,10), B'(20,10), C'(20,20) and D'(10,20).	III	CO2
B	Explain the working of Color CRT display device.	I	CO1
C	Write a note on RLE.	I	CO2

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S.Y. B.Tech. (Computer Science & Engineering)

(Semester- IV)

MID SEMESTER EXAMINATION, MARCH- 2022

Course Code : UCSE0404

Course Name : Computer Organization and Architecture

Day and Date : Thursday , 24-Mar-22 **PRN :** 2021000694

Time : 10:00 AM To 12:0 Noon **Max Marks:** 50

Instructions:

IMP: Verify that you have received question paper with correct course, code, branch etc.

i) All questions are compulsory.
ii) Figure to the right indicate full marks.
iii) Assume suitable data wherever necessary.

		Marks	B.L	CO's
Q.1	**Attempt any Two**	**16**		
A	Apply IEEE 754 floating point format to represent 32.89		III	CO1
B	List the features of RISC and CISC architecture		II	CO3
C	Explain organization of IAS computer		II	CO3

Q.2 Attempt any two **16**

A III CO2

Inputs				PRESENT STATE	NEXT STATE	Outputs				
IOREQ	CONT	MACK	PBGNT			PBREQ	CNTLD	CMREQ	RLD	CE
0	d	d	d	S_0	S_0	0	0	0	0	0
1	d	d	d	S_0	S_1	0	0	0	0	0
d	d	d	0	S_1	S_1	1	0	0	0	0
d	d	d	1	S_1	S_2	1	0	0	0	0
d	d	0	d	S_2	S_2	0	1	1	0	0
d	d	1	d	S_2	S_3	0	1	1	0	0
d	d	d	d	S_3	S_4	0	0	0	0	1
d	0	d	d	S_4	S_0	0	0	0	1	0
d	1	d	d	S_4	S_5	0	0	0	1	0
d	d	0	d	S_5	S_5	0	0	1	0	0
d	d	1	d	S_5	S_3	0	0	1	0	0

Design control unit for the above state table using classical method

B Explain one hot method of hardwired control unit design in detail — II CO2

C Draw a state transition graph for CPU's control unit and write the expression for primary outputs and secondary outputs. — II CO2

Q.3	**Attempt any three**		**18**	
A	Develop basic microprograme for multiplier control unit		II	CO2
B	Compare hardwired and microprogrammed control unit		II	CO2
C	List and Discuss the factors that affect the length of microinstruction.		II	CO2
D	Discuss the types of instruction according to number of addresses used in instruction		I	CO1

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(Semester- IV)

MID SEMESTER EXAMINATION, MARCH- 2022

Course Code : UCSE0405

Course Name : Software Engineering

Day and Date : Friday, 25/03/2022 **PRN :** 2021000694

Time : 10:00 AM To 12:00Noon **Max Marks:** 50

Instructions:

IMP: Verify that you have received question paper with correct course, code, branch etc.

i) All questions are compulsory.
ii) Figure to the right indicate full marks.
iii) Assume suitable data wherever necessary.

		Marks	B.L	CO's
Q.1	**Attempt any Two**	16		
A	List and Explain components of an SRS.	8	I	CO1
B	Apply Software Problem, Cost, Schedule, Quality, Scale, and Maintenance points for Library Management System.	8	III	CO4
C	Explain the functioning of iterative model with neat labeled diagram	8	I	CO1
Q.2	**Attempt any two**	16		
A	What is Functional requirement in SRS? Create Functional and Non Functional Requirements for Personal home Library Software where you can have Friend as User entity.	8	II	CO4
B	Describe Work Break down Structure and & WBS dictionary. Create WBS for the Project – Introducing self-checkout grocery store.	8	II	CO3
C	Given the following information for a one-year project, answer the following questions. Recall the PV is the planned value, EV is the earned value, AC is the actual cost and BAC is the budget at completion. PV= $ 23000 ; EV =$20000 ; AC =$25000 ; BAC = $120000 What is the Cost variance, Schedule variance, Cost performance index (CPI) and Scheduled performance index (SPI) for the project?	8	III	CO4

Q.3	**Attempt any three**	**18**		
A	Give SDM for Problem Statement **"Determine the different number of words in an input file"**	**6**	III	CO4
B	Explain Cohesion and coupling with its types.	**6**	II	CO1
C	Illustrate open closed principal with printer example	**6**	I	CO3
D	Describe two metrics for quantifying complexity of an object oriented design. How you will use one of them to identify highly complex or error prone modules?	**6**	II	CO3

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S.Y.B.Tech. (Computer Science & Engineering)
(Semester- IV)
END SEMESTER EXAMINATION, MAY- 2022

Course Code: UCSE0401

Course Name: Automata Theory

Day and Date: Tuesday, 24-May-22 **PRN:** 2021000694

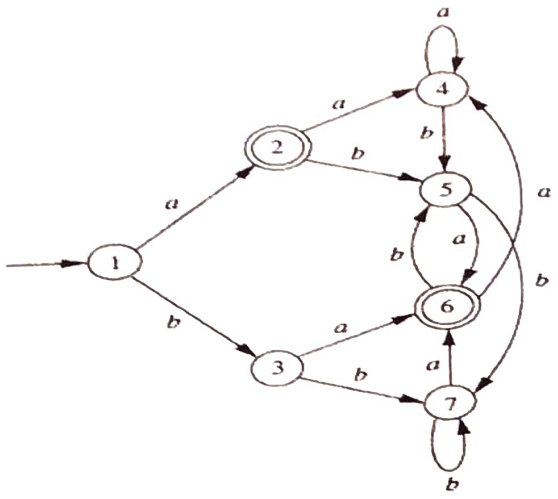
Time: 09:30 AM To 12:30 PM **Max Marks:** 100

Instructions:

IMP: Verify that you have received question paper with correct course, code, branchetc.

i) All questions are compulsory.
ii) Figure to the right indicates full marks.
iii) Assume suitable data wherever necessary.

		Marks	B.L.	CO's
Q.1	**Attempt any Two**	16		
A	Convert the following grammar into CNF: S→ABA | aB | bB |aa | bb | BaB | AbA A→aA | ab | ba | aBB | bAA | a B→bB| ba| b		2	CO2
B	Minimize the following DFA with minimum state with steps.		2	CO1



(f)

Define Ambiguous Grammar? Check whether the given grammar is Ambiguous grammar by generating the string "((*id*+*id*) −(*id*/*id*))"the grammar given by, 1 CO2

$E \rightarrow (E)$,

$E \rightarrow E + E$,

$E \rightarrow E - E$,

$E \rightarrow E * E$,

$E \rightarrow E/E$,

$E \rightarrow id$

Attempt any two **16**

Design DFA for string containing ***ab*** or ***bba*** over a ∑ = {a, b} * and also parse the string "***aaaabbbabbabbab***". 3 CO2

Remove the Λ productions and unit productions from the given grammar's. 2 CO1

i. S→ABC|BaB , A→aA|BaC|aaa|Λ, B→bBb|a|Λ, C→CA|AC|b|c

ii. S→ AaA | CA |BaB , A→ aaBa | CDA |aa , B→ bB | baB | bb |aS , C → Ca |bC |D| Λ , D → bD | Λ

Write a language for the given regular expression 2 CO1

i. $(b+(b^*ab^*ab^*))^*$

ii. $(0+1)^*101(0+1)^*$

iii. (a+b)*(aa*bb*aa*+bb*aa*(a+b)*

iv. (aab+bbaba)*baba

Attempt any two **16**

Draw a Turing Machine to copy Strings function over a ∑= {a, b} * 3 CO4

Construct PDA which accept Odd length Palindrome {WW^R| W = {a,b}*} Where, W first half of string and W^R Reverse in second half. 3 CO3

Move Number	State	Input	Stack Symbol	Move(s)
1	q_0	a	Z_0	(q_0, XZ_0)
2	q_0	b	Z_0	(q_0, XZ_0)
3	q_0	a	X	(q_0, XX)
4	q_0	b	X	(q_0, XX)
5	q_0	c	X	(q_1, X)
6	q_0	c	Z_0	(q_1, Z_0)
7	q_1	a	X	(q_1, Λ)
8	q_1	b	X	(q_1, Λ)
9	q_1	Λ	Z_0	(q_2, Z_0)
(all other combinations)				none

3 CO4

Construct the CFG (Context Free Grammar) from the PDA given in State Transition Table (STT) above

Q4	**Attempt any two**	**16**		
	Construct a Bottom -Up Parser for the grammar given below and show the working of Parser for the string **"a+a*a$"** $S \rightarrow S_1\$$ $S_1 \rightarrow S_1+T \mid T$ $T \rightarrow T * a \mid a$		3	CO3
	Design a Turing Machine to Compute a function Reverse of string for both odd length and even length over a $\sum = \{a, b\}$ *		3	CO3
	Design a Turing Machine to delete a symbol from the given input over $\sum = \{a,b\}$ *		3	CO3
Q5	**Attempt any three**	**18**		
	Write a short note on Top-Down Parsing & Bottom-Up Parsing with example?		2	CO4
	Describe Turing Machine & Acceptance by a Turing Machine		2	CO4
	Show that a language $a^n b^n c^n, where n > 0$ is not a Context Free Language (CFL) using Pumping Lemma		2	CO4
	Write a note on Universal Turing Machine (UTM)?		2	CO4
Q6.	**Attempt any three**	**18**		
1	Design a Turing Machine for Reminder function (N Mod 2), where N is Binary Number.		3	CO3
2	If L_1, L_2 and L_3 given below are context free languages show that $L_1 \cap L_2 \cap L_3$ is not context free language. $L_1 = \{ a^i b^j c^k \mid i \leq j \}$, $L_2 = \{ a^i b^j c^k \mid j \leq k \}$ and $L_3 = \{ a^i b^j c^k \mid k \leq i \}$		2	CO3
3	Draw a Turing Machine (TM) which accepts a language $\{ a^n b^n \mid n \geq 0 \}$		2	CO3
4	Design a PDA which accept a language $L = \{x \in \{a, b\}^* \mid n_b(x) > n_a(x)\}$ where $n_a(x)$ is the number of a's in string x and $n_b(x)$ is the number of b's in string x		3	CO3

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DR27P

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Manasi

S.Y. B.Tech. (Computer Science & Engineering)

(Semester- IV)

END SEMESTER EXAMINATION, MAY- 2022

Course Code : UCSE0403

Course Name : Computer Networks

Day and Date : Saturday , 28-May-22

Time : 09:30 AM To 12:30 PM

PRN : 2021000694

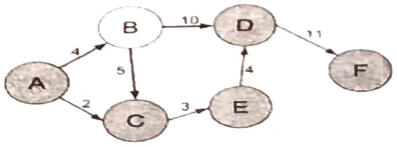
Max Marks: 100

Instructions:

IMP: Verify that you have received question paper with correct course, code, branch etc.

i) All questions are compulsory.
ii) Figure to the right indicates full marks.
iii) Assume suitable data wherever necessary.

		Marks	B.L	CO's
Q.1	**Attempt any Two**	**16**		
A	Describe working of connection oriented concurrent server.	**8**	2	CO2
B	Identify the number of addresses in the block, first IP address and last IP address for an address 210.22.15.9 and 192.168.22.5.	**8**	3	CO1
C	Solve and find shortest paths for the problem using shortest path routing algorithm (Dijkstra's) for a given graph where starting node is A.	**8**	3	CO1



		Marks	B.L	CO's
Q.2	**Attempt any Two**	**16**		
A	Illustrate the different parameters from ARP packet format.	**8**	2	CO1
B	Outline error reporting messages: i) Destination unreachable ii)Source quench	**8**	2	CO1
C	Explain different parameters from UDP protocol.	**8**	2	CO1

Q.3	**Attempt any Two**	**16**		
A	Explain DHCP operation when client and server on different network.	**8**	2	CO3
B	Outline the reason for using well known port 67 and 68 by DHCP server and client respectively.	**8**	2	CO3
C	Summarize the different parameters from DHCP packet.	**8**	2	CO3
Q.4	**Attempt any Two**	**16**		
A	Define i) Domain ii) Web Server iii) URL	**8**	1	CO3
B	Outline format of HTTP response message with example.	**8**	2	CO3
C	Outline data and control connection used in FTP protocol.	**8**	2	CO3
Q.5	**Attempt any Three**	**18**		
A	Define i) Browser ii) Web Server iii)URL	**6**	1	CO3
B	Outline format of HTTP response message with example.	**6**	2	CO3
C	Illustrate persistent and nonpersistent connection in HTTP protocol.	**6**	2	CO3
D	Summarize 2nd scenario used for sending the email using SMTP protocol.	**6**	2	CO3
Q.6	**Attempt any Three**	**18**		
A	Outline the different components of network management on Internet i.e. SNMP, SMI and MIB.	**6**	2	CO3
B	Explain 1st and 2nd approach used for streaming audio and video.	**6**	2	CO4
C	Summarize SIP protocol used in live streaming.	**6**	2	CO4
D	Illustrate different types of RTCP messages.	**6**	2	CO4

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S.Y.B.Tech. (Computer Science & Engineering)

Manasi

(Semester- IV)

END SEMESTER EXAMINATION, MAY- 2022

Course Code : UCSE0402

Course Name : Computer Graphics

Day and Date : Thursday, 26/05/2022 **PRN :** 2021000694.

Time : 09:30 AM To 12:30 PM **Max Marks:** 100

Instructions:

IMP: Verify that you have received question paper with correct course, code, branch etc.

i) All questions are compulsory.
ii) Figure to the right indicate full marks.
iii) Assume suitable data wherever necessary.

			Marks	B.L	CO's
Q.1	**Attempt any Two**		**16**		
	A	Explain the working principle of raster refresh graphics display. Draw a neat diagram.	**8**	1	1
	B	Elaborate Bresenham's Circle algorithm in detail with an example.	**8**	2	2
	C	Explain the concept of homogeneous coordinate system and translation of an object with suitable example.	**8**	2	2
Q.2	**Attempt any two**		**16**		
	A	A straight line (1,1) to (10,1) is rotated by an angle 90 degree in anticlockwise about pt.(1,1) Write and explain above transformation with matrices.	**8**	5	2
	B	Describe the working of pen and ink plotter in detail.	**8**	1	1
	C	Differentiate in between Edge Fill and Seed Fill Algorithm.	**8**	4	2
Q.3	**Attempt any two**		**16**		
	A	Consider the clipping window with X_l=-1,X_r=+1,Y_b=-1 and Y_t=+1 and the line from P_1=(-3/2,1/6) to P_2=(1/2,3/2). Find the intersection of the line with edges of the clipping window.	**8**	5	2
	B	Describe anti-aliasedray tracing algorithm.	**8**	2	4
	C	List and explain the characteristics of B-spline curve.	**8**	2	3

Q.4	**Attempt any two**	**16**		
A	Discuss Sutherland-Cohen subdivision clipping algorithm with suitable example.	**8**	2	2
B	Explain in detail parametric and non-parametric curves	**8**	2	3
C	Write the details of cubic spline with its application.	**8**	2	3
Q.5	**Attempt any three**	**18**		
A	State and explain basic ray tracing algorithm.	**6**	2	4
B	Describe parametric equation of parabolic blended curve.	**6**	2	3
C	Explain the flat shading method for rendering a polygon.	**6**	3	4
D	Illustrate specular reflection model for calculating surface intensity at a given point.	**6**	2	4
Q.6	Write a short note on **any three**	**18**		
A	Bezier Curve	**6**	2	3
B	Window to view porting	**6**	2	2
C	Gouraud shading method for rendering a polygon.	**6**	2	4
D	Warnock algorithm	**6**	2	3

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S.Y. B.Tech. (Computer Science & Engineering)

Manasi

(Semester- IV)

END SEMESTER EXAMINATION, MAY- 2022

Course Code : UCSE0404

Course Name : Computer Organization and Architecture

Day and Date : Tuesday , 31-May-22 **PRN :** 2021000694

Time : 09:30 AM To 12:30 PM **Max Marks:** 100

Instructions:

IMP: Verify that you have received question paper with correct course, code, branch etc.

i) All questions are compulsory.
ii) Figure to the right indicate full marks.
iii) Assume suitable data wherever necessary.

		Marks	B.L	CO's
Q.1	**Attempt any two**	16		
A	Illustrate the IEEE754 floating point number representation. Calculate and represent (- 11.035) number in single precision		3	1
B	Explain GCD control unit design using classical method in detail		2	2
C	Design Multiplier control unit using the micro programmed approach. Use encoding by function method for specifying control signals		2	2
Q.2	**Attempt any two**	16		
A	Write a program using zero address instruction format for: C= (Ax B)-(CxD)xE		3	1
B	Draw all NAND circuit for one hot multipliers control unit		2	2
C	Differentiate vertical and horizontal microinstruction format		2	2
Q.3	**Attempt any two**	16		
A	How 2 processors in same cluster communicate with each other, in Cm* architecture		2	5
B	Explain the function of tightly coupled multiprocessor system		2	5
C	Discuss the role communication memory in multiprocessor system		2	5

Q.4 Attempt any two **16**

A Explain the performance measures used in pipeline computers 2 5

B List and explain types of pipelined processor 2 5

C Given a 3-stage pipeline processor, calculate the efficiency and throughput for 75 instructions with clock frequency 2.5MHz 3 3

Q.5 Attempt any three **18**

A Demonstrate the working of first fit and best fit memory allocation for the blocks K5(225) and K6(450). Total capacity of memory is 2.5K words. 3 4

Available space list:

Address	Size
0	200
500	300
1250	500
2300	260

Occupied space list:

Address	Size
200	300
800	200
1000	250
1750	550

B Draw the structure of 2-D RAM and explain its function 2 4

C Explain the look through cache organization in detail 2 4

D Calculate hit ratio H for (M1,M2) where $t_{A1}=10^{-8}$ and $t_{A2}=10^{-3}$ with access efficiency of 65 % 3 3

Q.6 Attempt any three **18**

A Compare Loosely Coupled & Tightly Coupled Architecture 2 5

B Explain Flynn's classification of parallel processor 2 5

C Write Short note on associative addressing. 2 4

D Design a 6K x 64-bit RAM using 2K x 64-bit RAM IC 3 4

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S.Y. B.Tech. (Computer Science & Engineering)

(Semester- IV)

END SEMESTER EXAMINATION, MAY- 2022

Course Code : UCSE0461

Course Name : Soft Skills (Audit Course)

Day and Date : Saturday, 4 June 2022 **PRN :** 2021000694

Time : 09:30 AM To 12:30 PM **Max Marks:** 100

Instructions:

IMP: Verify that you have received question paper with correct course, code, branch etc.

i) All questions are compulsory.
ii) Figure to the right indicate full marks.
iii) Assume suitable data wherever necessary.

		Marks	B.L	CO's
Q.1	**Attempt any two**	**30**		
A	**Explain importance of following soft skills in corporate world?**		3	1
	a) Knowing self			
	b) Attitude building			
	c) Emotional intelligence			
	d) Time Management			
B	Assume that you are applying for the post of Junior Engineer at Suryakanta Software Solutions, Hinjawdi, Pune, draft a suitable resume for the same.		6	2
C	Explain the process of communication with apt diagram.		2	1
Q.2	**Attempt any two**	**30**		
A	**Write answers of the following FAQs of Interview**		3	3
	a) Introduce yourself.			
	b) What are your short term and long term goal?			
	c) What are your strengths and weaknesses			
	d) What are your salary expectations			

B	Write a detail note on Do's and Don'ts of Group Discussion.	3	2
C	You are supposed to deliver a presentation to your junior engineers. What techniques and preparation tips would you use to make it effective?	2	4

Q.3 Attempt any four **40**

A	Discuss "TEAM as Together Everyone Achieve More"	2	3
C	Explain 3 Ps (Prepare, Practice and Perform) of Effective Public Speaking.	3	4
D	What are communication barriers? Explain various types of barriers and solutions to overcome them.	2	1
E	Importance of Communication in Corporate World.	2	1
F	Explain the Roles and Responsibilities of a Leader	3	5
G	Write an email to your Project Guide, requesting him to give you a letter of recommendation.	6	2

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KOLHAPUR INSTITUTE OF TECHNOLOGY'S,
COLLEGE OF ENGINEERING (AUTONOMOUS), KOLHAPUR
(AFFILIATED TO SHIVAJI UNIVERSITY, KOLHAPUR)

DK27...

S.Y.B.Tech. (Computer Science & Engineering)

Manasi

(Semester- IV)

END SEMESTER EXAMINATION, MAY- 2022

Course Code : UCSE0405

Course Name : Software Engineering

Day and Date : Thursday , 02-Jun-22 **PRN :** 2021000694

Time : 09:30 AM To 12:30 PM **Max Marks:** 100

Instructions:

IMP: Verify that you have received question paper with correct course, code, branch etc.

i) All questions are compulsory.
ii) Figure to the right indicate full marks.
iii) Assume suitable data wherever necessary.

		Marks	B.L	CO's
Q.1	**Attempt any two**	**16**		
A	Illustrate a. Prototype model b. Time boxing model		2	CO1
B	Give Structured Design Methodology for ATM		1	CO2
C	Illustrate the phases & milestones of each phases of RUP model with diagram		2	CO1
Q.2	**Attempt any two**	**16**		
A	Outline the desirable characteristics of Good SRS document		2	CO1
B	Build WBS for online shopping website		3	CO1
C	Given the following information for a one-year project, answer the following questions. Recall the PV is the planned value, EV is the earned value , AC is the actual cost and BAC is the budget at completion. PV= $ 32000 ; EV =$30000 ; AC =$35000 ; BAC = $220000 What is the Cost variance, Schedule variance, Cost performance index (CPI) and Scheduled performance index (SPI) for the project?		3	CO2

Q.3	**Attempt any three**	**18**		
A	What is UML. Draw Class Diagram and Object Diagram for "Rental Movie Application with Invoice and Checkout function"		2	CO4
B	What is Use case Diagram? Draw and explain Use case diagram for Contineo System.		2	CO4
C	Analyze why project quality management is essential? Describe 2 main processes involved Quality assurance, Quality control.		2	CO4
D	Describe the Role of the Product Owner in Agile Quality Management. Explain five quality development techniques adapted for better Agile Quality Management.		2	CO4
Q.4	**Attempt any two**	**16**		
A	Discuss object modeling technique using three models		2	CO4
B	What is the Role of Testing? Explain Fault & Failure, Test Case , Test Suit with any Suitable example.		3	CO4
C	What is Sequence Diagram in UML? Build Sequence Diagram for Student and Moodle System		3	CO4
Q.5	**Attempt any two**	**16**		
A	What is unit testing?		1	CO2
B	Elaborate White box testing		2	CO2
C	Why Coding Standards are required? Write Coding Standards for Naming convention, Files, Statement, Comments and Layouts.		2	CO2
Q.6	**Attempt any three**	**18**		
A	Build cause and effect diagram for "User is not able to login in to the System" and explain with 5 why technique.		3	CO3
B	What are different costs of Quality?		1	CO3
C	What is Agile Project Management? Explain with neat diagram of Scrum Framework.		2	CO3
D	What is six sigma? Describe DMAIC process of six sigma		1	CO3

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