KLS Gogte Institute of Technology, Belagavi

Department of Computer Science Engineering **Academic Year: 2020-21(ODD SEM)**

Program: B.E (Computer Science Engineering) **Semester:** V (A, B, C)

IA Test – I

Course Title: UNIX SYSTEM PROGRAMMING **Code:** 18CS53

Max. Marks: 30 (Part **A: 5 marks and Part B: 25 marks)** **Duration:** 1 Hr. 15 Mins. **Date:** 04/11/2020

Instructions: 1. **Part A is compulsory(Each question carries 1 marks each)**
2. **Part B: Answer any 5 questions, all questions carry equal marks.**

Q.No	PART A	[L]	[CO]	[PO]	[M]
1	POSIX stands for _____				
2	___ used to query file related configuration limits. a. file API b. sysconf c. pathconf d. lseek				
3	_____ displays error status code when API attempted to write data to pipe which has no reader. a. EIO b. EPIPE c. ECHILD d. EINTR		1	12	5
4	Block device file is created by mkfifo command. (TRUE / FALSE)				
5	/etc/shadow file stores all user information. (TRUE / FALSE)				

Q. No.	PART B	[L]	[CO]	[PO]	[M]
1	Illustrate the difference between ANSI C and K&R C with an example.	2	1	3	5
2.	Explain POSIX feature test macros.	2	1	2	5
3.	Write a C/C++ program to implement runtime configuration limits for following limits. a. Max no. of child Processes. b. Max no. of open files. c. Max no. of characters allowed in path name. d. Max no. of characters allowed in file name.	3	1	3	5
4.	Explain API common characteristics with some error status codes	2	1	2	5
5.	What is a file? Explain the different file types in UNIX along with commands to create them.	2	2	2	5
6.	Explain the different file attributes available in UNIX system.	2	2	3	5
7.	Write a psuedocode for a given company.txt files that contains information of all employees. Size of file is 2000 bytes. Employee's confidential data is stored between the regions of 1000 to 2000 byte. Currently file pointer is pointing to 5000th position. Move the pointer to 1000th position and apply the write lock using fcntl function so that other processes cannot access the confidential data stored in that region.	3	2	2	5

KLS Gogte Institute of Technology, Belagavi

Department of Computer Science Engineering **Academic Year: 2020-21(ODD SEM)**

Program: B.E (Computer Science Engineering) **Semester:** V

IA Test – II

Course Title: UNIX SYSTEM PROGRAMMING **Code:** 18CS53

Max. Marks: 30 (Part **A: 5 marks and Part B: 25 marks)** **Duration:** 1 Hr. 15 Mins. **Date:** 05/12/2020

Instructions: 1. Part A is compulsory(Each question carries 1 marks each)
2. Part B: Answer any 5 questions, all questions carry equal marks.

Q.No	PART A	[L]	[CO]	[PO]	[M]
1	which of following is a signal handler? a) Ignoring a signal b) generating a signal c) killing a signal d) aborting a signal	1	1	12	5
2	atexit() function is used to _____ a) register function b) deallocate resources c) call user functions d) call exit functions				
3	alarm timer timeouts can be generated by using the API_____ a) signal b) alarm() c) raise() d) sound()				
4	_____ places the bookmark. a) longjmp b)setjmp c) stack segment d) heap segment				
5	_____signal sent to a parent process when its child process has terminated.				

Q. No.	PART B	[L]	[CO]	[PO]	[M]
1.	Explain the memory layout of C program.	L2	1	1	5
2.	Demonstrate the use of **setjmp** and **longjmp** functions with a sample program.	L3	1	3	5
3.	Write a C program to display all the environment variables passed to a program.	L3	1	3	5
4.	Explain unix kernel support for process with a neat diagram.	L2	1	2	5
5.	Define signal. List any 5 signals along with their meaning.	L1	4	1	5
6.	Explain signal mask along with syntax. Write a sample program to check and add a signal into the mask.	L3	4	3	5
7.	Explain the coding rules for a daemon process.	L2	4	1	5

KLS GOGTE INSTITUTE OF TECHNOLOGY, BELGAUM

Department of Computer Science & Engineering

Internal Assessment-I

Subject: Object Oriented Modeling & Design **Code:18CS52**

Semester: V **Div: ALL**

Max. Marks:25 **Date:04/11/2020** **Duration: 1 Hr 45 Mins.**

Note: Answer any FIVE questions, each question carries five marks.

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1. Define state diagram. Design a state diagram for telephone line. [L3, CO-1, PO - 3]
2. What are nested states? Explain the concept of nested states with an example.[L2,CO-1,PO1]
   .
3. What is OO system Development Methodology? Explain. [L2,C0-1,PO-1]
4. Draw the class diagram for figure class has different dimensions (0,1,2). Show at least one example classes for each of the dimensions. [L3, CO-1, PO - 3]
5. Define modeling. List and Explain purpose of modeling. [L1,CO-1,PO-1]
6. Explain the following with examples [L2,CO-1,PO-1]
   i)Multiplicity
   ii)Association classes
   iii)Qualified Association
7. Analyze the working of Microwave Oven Home Appliance, Identify & describe States, Events for the same. [L4, CO-2, PO - 3]

QUIZ-1 **Marks-5M**

1. UML stands for ----------
2. The Same Operation may apply to different classes. Such an operation is
   a) Encapsulation b) Abstraction c) Polymorphism d) None of the mentioned
3. A Link represents Physical or conceptual connection among objects. (True/False)
4. An occurrence at a point in time is.
   a) Signal b) Transition c) Event d) Condition

5.The Symbol to Represent "many" multiplicity is ----------.

KLS Gogte Institute of Technology, Belagavi

Department of Computer Science and Engineering | **Academic Year: 2020-21(ODD SEM)**
Program: B.E (Computer Science and Engineering) | **Semester: V(A,B,C)**

IA Test - II

Course Title: Computer Networks | **Code: 18CS51**
Max. Marks: 30 (Part A: 5 marks and Part B: 25 marks) | **Duration: 1 Hr. 15 Mins. Date: 04/12/2020**

Instructions:	1.	Part A: is compulsory
	2.	Part B: Answer any Five Questions.

Q.No.	PART A	[L]	[CO]	[PO]	[M]
1	Port numbers ranging from 0 to 1023 are called as _____	1	3,4	1,3	5
2	UDP checksum provides error correction[TRUE/FALSE]				
3	Sequence number is of _____bits in TCP header				
4	Network layer provides process-to-process communication [TRUE/FALSE]				
5	Virtual-circuit network provides network-layer_____service				

Qn. No.	PART B	[L]	[CO]	[PO]	[M]
1.	Explain with a diagram the Connection oriented multiplexing and demultiplexing	2	3	1	5
2.	Explain the services provided by the network layer.	2	4	1	5
3.	Explain TCP segment structure with a neat diagram	2	3	1	5
4.	Compare the Go-Back-N and Selective Repeat protocols.	4	3	3	5
5.	Discuss the concept of Virtual circuit networks	2	4	1	5
6.	Demonstrate the interaction that happens between A and B for sending and receiving the data using TCP.	3	3	3	5
7.	Explain the different components of router with the help of a neat diagram.	2	4	3	5

Staff Incharge
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Prof. A.M. Deshpande

Module Coordinator
Dr. U. M. Kulkarni

IQAC members

KLS Gogte Institute of Technology, Belagavi

Department of Computer Science and Engineering
Program: B.E (Computer Science and Engineering)

Academic Year: 2020-21(ODD SEM)
Semester: V(A,B,C)

IA Test – I

Course Title: Computer Networks
Code: 18CS51

Max. Marks: 30 (Part A: 5 marks and Part B: 25 marks)
Duration: 1 Hr. 15 Mins. Date: 02/11/2020

Instructions:	1.	Part A: is compulsory
	2.	Part B: Answer any Five Questions.

Q.No.	PART A	[L]	[CO]	[PO]	[M]
1	internet is right way of writing the network of networks [TRUE/FALSE]	1	1,2	1	5
2	The slowest of communication media is a. DSL b. Ethernet c. Wireless media d. OFC				
3	Moving packets from router's input to appropriate router output is named as _____				
4	P2P architecture can also be aliased as no _____ server				
5	POP3 is enhancement of SMTP [TRUE/FALSE]				

Qn. No.	PART B	[L]	[CO]	[PO]	[M]
1.	Explain with a diagram the routing and forwarding that happens in an packet switching networks.	2	1	1	5
2.	Demonstrate the Internet with an appropriate figure for the same having IXP, ISP access nets.	3	1	1	5
3.	Explain the practically implemented network-model and list the functionalities of each of the layer.	2	1	1	5
4.	Compare the client server and P-to-P network architectures.	4	2	3	5
5.	Explain stepwise the non-persistent HTTP protocol.	2	2	3	5
6.	Demonstrate the interaction that happens in SMTP between A and B for sending and receiving the Emails	3	2	3	5
7.	Apply working of P-to-P architecture for file distribution application	4	1,2	3	5

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KLS Gogte Institute of Technology, Belagavi

Department of Computer Science and Engineering — Academic Year: 2020-21(ODD SEM)

OOMD IA Test – II

Program: B.E

Semester: V (All Divisions)

Course Title: Object Oriented Modeling & Design — **Code: 18CS52**

Max. Marks: 25 marks — **Duration: 1 Hr 45 Mins.** — **Date: 4/12/2020**

Instructions: Answer any FIVE questions, each question carries five marks.

Q. No.		[L]	[CO]	[PO]	[M]
1	List and Explain the guidelines for Use case model	[L2]	[CO3]	[PO2]	[5]
2	Define sequence diagram. Draw the sequence diagram for ATM system.	[L2]	[CO2]	[P03]	[5]
3	Analyze an online Book Store System. a. List two actors. Explain the relevance of each actor. b. List four use cases at a comparable level of abstraction. Summarize the purpose of each use case with a sentence. c. Prepare a use case diagram for an online Book Store System .	[L4]	[CO2]	[PO2]	[5]
4	Explain the following steps required to construct a Domain Class Model with an example. a)Finding Classes b)Group classes into packages	[L2]	CO[4]	PO[3]	[5]
5	Identify the steps performed in constructing a Domain State Model	[L3]	[CO4]	[PO3]	[5]
6	Build the activity diagram for execute order w.r.t stock trade processing	[L3]	[CO4]	[PO5]	[5]
7	With an example give the comparison between the features of use case relationship.	[L4]	[CO4]	[PO5]	[5]

Quiz : 5 marks — **Duration : 15 minutes**

Q.No					
1	What is a lifeline? a) It is a frame consisting of a rectangle with a pentagon in its upper left-hand corner b) It is a rectangle containing an identifier with a dashed line extending below the rectangle c) It is a name compartment; the interaction is represented inside the rectangle d) None of the mentioned	[L1]	[CO1]	[PO2]	[5]
2	_____UML diagrams has a static view. a) Class b) Use case c) State chart d) Activity				
3	Which of the following doesn't include in message types? a) Call b) Return c) Send d) Delete				
4	A decision point within an activity diagram may be shown with an activity symbol. (TRUE/FALSE)				
5	A _____ is a sequence of events that occur during one particular execution of a system such as for a Use case.				

KLS GogteInstitute of Technology, Belagavi

Department of Computer Science and Engineering — Academic Year: 2020-21(ODD SEM)

Program: B.E (Common to all Divisions) — Semester: v

IA Test – II

Course Title: FLAT — Code:18CS54

Max. Marks:30 (Part A: 5 marks and Part B: 25 marks) — Duration:2 HRS. Date:05/12/2020

Instructions: 1. Part A is compulsory
2. Part B: Answer any FIVE questions.

Q.No	PART A	[L]	[CO]	[PO]	[M]
1	Push down automata accepts which language a) Context sensitive language b) Context free language c) Recursive language d) None of these	1	2	4	5
2	A context free grammar G is in Chomsky normal form if every production is of the form a) A → BC or A → A b) A → BC or A → a c) A → BCa or B → b d) None of these				
3	A context free language is called ambiguous if a) It has two or more rightmost derivations for some terminal string ω ϵ L (G) b) It has two or more leftmost derivations for some terminal string ω ϵ L (G) c) Both (a) and (b) d) None of these				
4	PDA is more powerful than a) Turing machine b) Finite automata c) Both (a) and (b) d) None of these				
5	The symbol Z0 in formal definition of PDA is used for_____				

Q. No.	PART B	[L]	[CO]	[PO]	[M]
1	Define PDA.Design PDA for the following Language show the acceptance by final state. L={$a^n b^n$ | n>=0}	3	5	3	5
2	Define CNF and also convert the following Grammar into CNF form. S → ABa A→ aab B → Ac	2	3	4	5
3	Analyse the given grammar and formulate the grammar without epsilon , unit and useless symbols and productions. S → aA | aBB A → aaA | ϵ B → bB | bbC C → B	4	3	11	5

4	State and prove pumping lemma for Regular Language.	3	2	2	5
5	Define CFG and hence design CFG for the following Languages. a. L={$0^m 1^m 2^n$ | m>=1 , n>=0} b. L= { $a^{n-1} b^n$ | n>=0}	3	3	11	5
6	Obtain Leftmost and Rightmost derivation for the string **aaabbabbba** using the following grammar , and hence write parse trees. S → aB | bA A → aS |bAA | a B → bS | aBB |b	2	3	4	5
7	Check whether the following grammar is ambiguous or not S → AB | aaB A → a | Aa B → b		3		

KLS GogteInstitute of Technology, Belagavi

Department of Computer Science and Engineering — Academic Year: 2020-21(ODD SEM)

Program: B.E (Common to all Divisions) — Semester: v

IA Test – I

Course Title: FLAT — Code:18CS54

Max. Marks:30 (Part A: 5 marks and Part B: 25 marks) — Duration:2 HRS. Date:06/11/2020

Instructions: 1. Part A is compulsory
2. Part B: Answer any FIVE questions.

Q.No	PART A	[L]	[CO]	[PO]	[M]
1	The transition function for NFA is a mapping function given as_____	1	2	1	5
2	Regular Expressions are used in representing text patterns in unix OS (True / False)				
3	Every language defined by Finite Automata is _____Language				
4	L= {$a^n b^n$ | n>=0} is accepted by DFA. (TRUE / FALSE)				
5	Finite state machine _____ recognize palindromes. a) can b) can't c) may d) may not				

Q. No.	PART B	[L]	[CO]	[PO]	[M]
1	Define Regular Expression .Design NFA for the RE (11+0)*(00+1)*	1	2	1	5
2	Define DFA. Design a DFA which accepts the language L={w:Na(w)mod 3 = 0 and Nb(w) mod 2=0 }	1	1	2	5
3	Apply Subset construction Scheme and hence Convert following NFA to DFA δ | 0 | 1 →q0 | { q0, q1 } | { q0 } q1 | Φ | {q2} *q2 | Φ | Φ	3	1	2	5
4	Apply Table filling algorithm to minimize the DFA δ | a | b →q0 | q1 | q3 q1 | q0 | q2 *q2 | q3 | q3 *q3 | q3 | q3	3	2	3	5
5	Apply state elimination method to obtain the Regular Expression. δ | 0 | 1 →*q0 | q0 | { q1 } *q1 | q1 | {q2} q2 | q2 | q2	3	2	3	5

6	Define Non- deterministic Finite Automata (NFA). Design a NFA for the following language and Compute **δ*(q0, aabba)** **L= { w | w∈ Σ* and w is abab^n or aba^n for n >= 0}**	2	1	2	5
7	Define Ɛ-closure and find Ɛ-closure of each state. δ | ϵ | a | b | c →p | - | p | q | r q | p | q | r | - *r | q | r | - | p	2	1	1	5