SIXTH SEMESTER B.TECH. (ITNS)

END SEMESTER EXAMINATION, APRIL – MAY, 2023

Course Code: **INITE22**

Course Title: **Digital Forensics**

Time: 3 Hours

Max. Marks: 40

Note: Attempt all the five questions. Missing data/information (if any), maybe suitably assumed & mentioned in the answer.

Q.No	Questions	Marks	COs
Q1	Attempt any 2 parts of the following		
1a	What is digital forensics? How is it different from data recovery. Explain with example.	4	CO1
1b	What is a log file? Explain about different sorts of log files available in a system.	4	CO1
1c	Explain the steps involved in assessing a cyber forensics case.	4	CO1
Q2	Attempt any 2 parts of the following		
2a	What are types of data acquisition? Also discuss four methods of data collection.	4	CO2
2b	Differentiate between RAID10 and RAID15. What are the steps to acquire a RAID disk?	4	CO2
2c	Write down the steps involved in preparing a target drive for acquisition in Linux.	4	CO2
Q3	Attempt any 2 parts of the following		
3a	Explain the modes of protection in the DiD strategy.	4	CO3
3b	E-mail accessed with a Web browser leaves files in temporary folders. True or False? Justify your answer.	4	CO3
3c	Write the steps involved in recovering an e-mail from magnet AXIOM.	4	CO3
Q4	Attempt any 2 parts of the following		
4a	What are the three rules for a forensic hash? In forensic hashes, when does a collision occur?	4	CO4
4b	You have been called to the scene of a fatal car crash where a laptop computer is still running. What type of field kit should you take with you? And why?	4	CO4
4c	The plain view doctrine in computer searches is well-established law. True or False? Justify your answer.	4	CO4
Q5	Attempt any 2 parts of the following		
5a	What is the purpose of using write-blocker in a forensic workstation?	4	CO5
5b	Validation and verification functions work hand in hand. Explain.	4	CO5
5c	Explain the tasks performed by a digital forensics tool.	4	CO5

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Roll No. 2070021N3322

SIXTH SEMESTER B.TECH. (IT, ITNS)

END SEMESTER EXAMINATION, APRIL – MAY, 2023

Course Code: **ITITC19, INITC19**

Course Title: **Network & Networking Devices Workshop**

Time: 3 Hours

Max. Marks: 20

Note: Attempt all the five questions. Missing data/information (if any), maybe suitably assumed & mentioned in the answer.

Q.No	Questions	Marks	COs
Q1	Attempt any 2 parts of the following		
1a	What is VLAN? Explain about the different types of VLANs.	2	CO1
1b	What are Zinin's routing principles? Differentiate between static and dynamic routing.	2	CO1
1c	What is RIP? How many timers RIP protocol uses? Elaborate.	2	CO1
Q2	Attempt any 2 parts of the following		
2a	Differentiate between Layer 2 and Layer 3 switches.	2	CO2
2b	What is a repeater? How is it different from an amplifier? Explain the working of a bridge with example.	2	CO2
2c	Explain different types of cables and their connectors.	2	CO2
Q3	Attempt any 2 parts of the following		
3a	What is WiMAX? How does channel acquisition takes place between base station and subscriber station in WiMAX?	2	CO3
3b	Explain the Bluetooth protocol stack. Explain the different phases of Bluetooth hands free connection.	2	CO3
3c	Draw the architecture for Zigbee and explain its components.	2	CO3
Q4	Attempt any 2 parts of the following		
4a	Explain the architecture of 5G. How 5G can be used in Device to Device communication.	2	CO4
4b	What is Cloud Computing? What are challenges faced while migrating to the Cloud? Give real time applications of cloud.	2	CO4
4c	What are the security concerns faced in implementation of IoT?	2	CO4
Q5	Attempt any 2 parts of the following		
5a	Deploy a basic network configuration using 3 routers in a LAN configuration.	2	CO5
5b	Write down the steps along with commands for creating hosts in any network simulator.	2	CO5
5c	Write short notes on any two: a) IOS image generation using TFTP server b) Gateway and Firewall c) Wifi	2	CO5

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Roll No.....

B.Tech SIXTH SEM/EIGHTH SEM
END-SEMESTER EXAMINATION, April-May 2023

Course Code-INITE23
Course Title-Fog and Edge computing
Time-.3 Hours

Max. Marks- 40

Note:- Attempt all the five questions.Missing data /information(if any),may be suitably assumed and mentioned in the answer

Q1	**Attempt any two parts of the following**	Marks	CO
1a	Why do you think fog computing is necessary to implement IOT? Will the need for fog diminish as network capacity and delay improve over time?	4	1
1b	What new technologies and standards do we need to develop for fog? What commercial opportunities will fog computing bring?	4	1
1c	Compare the similarities and dissimilarities between Fog and Cloud computing.	4	2
Q2	**Attempt any two parts of the following**		
2a	How does various methods helps to authenticate devices and messages in fog computing? Explain various approaches.	4	4
2b	How does data analytics work before offloading to the cloud?	4	5
2c	Discuss the Privacy and security issues in fog computing in detail.	4	4
Q3	**Attempt any two parts of the following**		
3a	How can we define the term 'EDGE' in edge computing and why we are focusing on edgecomputing? Explain.	4	1
3b	Explain the edge computing architecture with neat diagram.	4	1
3c	Is it possible to use edge computing without using cloud services? How is edge computing different from fog computing?	4	4
Q4	**Attempt any two parts of the following**		
4a	Why Optimization plays a vital role on fog computing and why it is important to define optimization problem using formal model?	4	3
4b	How do you explain various taxonomy of optimization problems in fog computing?	4	3
4c	How can we setup Fog environment in virtual machine using window OS and Linux?	4	5
Q5	**Attempt any two parts of the following**		
5a	How does Middleware architecture solves various issues in IOT?	4	4
5b	How the proposed architecture of fog and edge computing is helpful? Illustrate with neat diagram.	4	1
5c	Cloud technology is moving towards more distribution across multicloud. How does light weight virtualization beneficial for it?	4	2

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SIXTH SEMESTER - B. TECH (IT/ITNS)

END-SEMESTER EXAMINATION, MAY - 2023

Course Code: **ITITC20/INITC20**

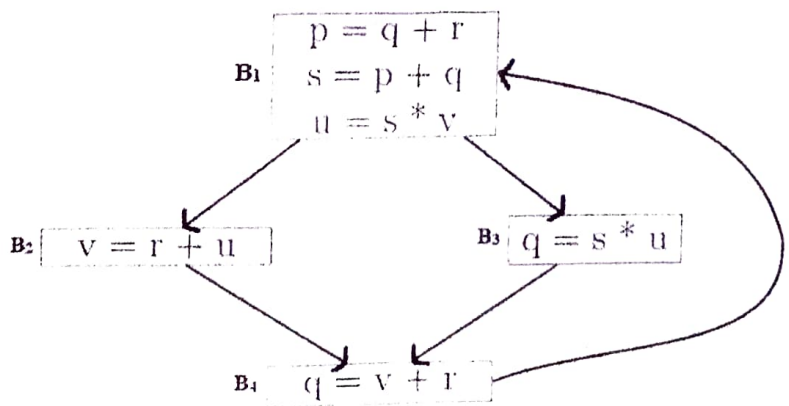
Course Title: **Compiler and Translator Design**

Time: 3 Hours

Max. Marks: 40

Note: - Attempt all the five questions. Missing data/ information (if any), may be suitably assumed and mentioned in the answer.

Q. No.	Question	Marks	CO
Q1	**Attempt any two parts of the following:**		
1a	"Symbol table is a necessary component of compiler". Justify this statement with examples.	4	CO1
1b	Convert the regular expression **(a+b)*ab** to DFA directly.	4	CO2
1c	Write the output of each phase of the compiler for the following fragment of C code: float i, j; i = i*70 + j + 2.	4	CO1
Q2	**Attempt any two parts of the following:**		
2a	What is Shift-Reduce parser? Explain the four possible actions a shift-reduce parser can make. Which are the conflicts that can generally arise during shift-reduce parsing? Consider the following grammar to parse the input string **12021** using shift-reduce parser and check whether its accepted or not. $S \rightarrow 1S1$ $S \rightarrow 2S2$ $S \rightarrow 0$	4	CO3
2b	Generate the LR(0) items for the following grammar: $S \rightarrow L=R \mid R$ $L \rightarrow *R \mid id$ $R \rightarrow L$ Construct the SLR(1) parsing table and check whether the grammar is SLR(1) or not.	4	CO3
2c	Construct the CLR(1) parsing table for the following grammar and check whether the grammar is CLR(1) or not. $S \rightarrow AA$ $A \rightarrow aA \mid b$	4	CO3
Q3	**Attempt any two parts of the following:**		
3a	Differentiate between the following terms: Parse Tree, Abstract Syntax Tree and Annotated Parse Tree with examples.	4	CO3
3b	Explain the different methods of intermediate code representation with examples. Translate the following expression to quadruples, triples and indirect triples representation of three-address code:	4	CO5

	a + b * c / e ↑ f + b * a		
3c	What are Synthesized and Inherited attributes for non-terminals? Evaluate the given input arithmetic expression using the following SDT: E → E & T {E.val = E.val * T.val;} | T{E.val = T.val;} T → T @ F {T.val = T.val – F.val;} | F{T.val = F.val;} F → digit {F.val = digit.lexval;} Input string: 5 & 9 @ 6 & 8 @ 4	4	CO4
Q4	**Attempt any two parts of the following:**		
4a	Discuss the basic blocks and control-flow graph in code generation. Determine the basic blocks for the intermediate code given below and represent its control-flow graph. 1) i = 1 2) j = 1 3) t1 = 5 * i 4) t2 = t1 + j 5) t3 = 4 * t2 6) t4 = t3 7) a[t4] = -1 8) j = j + 1 9) if j <= 5 goto (3) 10) i = i + 1 11) if i < 5 goto (2)	4	CO6
4b	What do you mean by local optimization and global optimization? Explain the techniques used for optimization taking suitable examples.	4	CO6
4c	Explain the different peephole optimization techniques in detail with suitable examples.	4	CO6
Q5	**Attempt any two parts of the following:**		
5a	What is the purpose of code optimization? Explain different types of loop optimization techniques with examples.	4	CO6
5b	What is Live-variable analysis? Compute the live variables for each basic block in the following control flow graph:  	4	CO6
5c	Differentiate between compiler and debugger. Write a short note on GCC compiler and GNU debugger.	4	CO1

SIXTH SEMESTER B. TECH (ITNS)

END-SEMESTER EXAMINATION, MAY- 2023

Course Code- INITC18
Course Title- Information Security

Time- **3 Hours**

Max. Marks- **40**

Note: - Attempt all the Five questions. Missing data/ information (if any), maybe suitably assumed & mentioned in the answer.

Q. No.	Question	Marks	CO
Q1	**Attempt any two parts of the following**		
1a	How message authentication and confidentiality can be achieved with message authentication code (MAC)?	4 M	CO1
1b	State the pigeonhole principle and describe its application in analyzing hash functions.	4 M	CO1
1c	What is message digest 5 and how it works?	4 M	CO1
Q2	**Attempt any two parts of the following**		
2a	In an RSA system, the public key of a given user is e=31, n=3599. What is the private key of this user?	4 M	CO2
2b	Using the ElGamal scheme, let p = 881 and d = 700. Find values for e1 and e2. Choose r = 17. Find the value of S1 and S2 if M = 400.	4 M	CO2
2c	Write two algorithms for the elliptic curve digital signature scheme: one for the signing process and one for the verifying process.	4 M	CO2
Q3	**Attempt any two parts of the following**		
3a	Draw a diagram to show the general idea behind the three protocols discussed for zero-knowledge authentication. For p = 569, q = 683, and s = 157, show three rounds of the Fiat-Shamir protocol by calculating the values and filling in the entries of a table.	4 M	CO3
3b	Write the key distribution scenario in which each user shares a unique master key with key distribution center	4 M	CO3
3c	What is the function of TGS server in Kerberos	4 M	CO3
Q4	**Attempt any two parts of the following**		

4a	Explain the difference and similarities between the SSL and TLS	4 M	CO4
4b	Explain the operation PGP message generation and message reception.	4 M	CO4
4c	What are the cryptographic algorithms used in S/MIME?	4 M	CO4
Q5	**Attempt any two parts of the following**		
5a	What is password management? Discuss various virus counter measures?	4 M	CO5
5b	Write short notes on virtual private network.	4 M	CO5
5c	What is firewall. Discuss the configuration and types of firewall.	4 M	CO5