CODE: 2005PC09 | R20 | SET - 2

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B.TECH III YEAR I SEMESTER REGULAR EXAMINATIONS, DECEMBER-2023
COMPILER DESIGN
(CSE, CSE-AIML & IT)

[Time: 3 Hours] **[Max. Marks: 70]**

PART – A

(5 x 2 = 10M)

Note: 1. This Part consists of 8 QUESTIONS
2. Answer any 5 questions. Each question carries 2 Marks.

1	A	Define Bootstrapping and the need of Bootstrapping?	2M	BTL2
	B	Differentiate Compiler and Interpreter	2M	BTL2
	C	Define CFG and what is the importance of it in compilers?	2M	BTL2
	D	What do you mean by a handle and handle pruning?	2M	BTL1
	E	Discuss about Synthesized and Inherited attributes	2M	BTL1
	F	Explain various form of Intermediate Code?	2M	BTL1
	G	List out the parts of Runtime Environment needed for compilation.	2M	BTL1
	H	Write down the steps to construct a Flow graph for a program?	2M	BTL2

PART – B

(5 x 12 = 60M)

Note: 1. This Part consists of 10 QUESTIONS
2. Answer any 1 question from each Section. Each question carries 12 Marks.
3. Illustrate your answers with NEAT sketches wherever necessary.

SECTION - I

2.A	List out the phases of compiler? Explain all the phases in detail with a neat sketch?	6M	BTL2
2.B	Explain the translation process at each phase of compiler for the given expression d:=b+c*60.	6M	BTL3

(OR)

3.A	Define token? Explain how Finite automata is used to recognize tokens in a program?	6M	BTL2
3.B	What is LEX? Explain the importance of LEX tool with an example?	6M	BTL1

CODE: 2005PC09 | **R20** | **SET - 2**

SECTION - II

4.A	Check whether the following grammar is LL(1) or not? S ->iEtS | iEtSeS |a E->b	6M	BTL3
4.B	Construct LALR parser for the following grammar S->CC C->aC C->d	6M	BTL3

(OR)

5.A	Construct LL(1) parser for the below grammar. E-> E+T|T T->TF|F F->F*|a|b	6M	BTL3
5.B	Construct CLR parsing table for the below grammar. S->AA A->Aa|b	6M	BTL3

SECTION - III

6.A	How to implement symbol table for block structured and non-block structured languages?	6M	BTL2
6.B	Explain the procedure to translate Control Statements into Three address code with example.	6M	BTL3

(OR)

7.A	Distinguish Syntax Directed Definition and Syntax Directed Translation?	6M	BTL1
7.B	Draw the syntax tree for the following expression: (a+(b*c)^d-e)/(f+g)	6M	BTL3

SECTION – IV

8.A	Explain Local and Global Optimizations with an example?	6M	BTL1
8.B	Discuss about various storage allocation strategies in runtime environment?	6M	BTL2

(OR)

9.A	Write the comparison among Static allocation, Stack allocation and Heap Allocation with their merits and limitations.	6M	BTL3
9.B	What is code optimization? Explain machine independent code optimization.	6M	BTL2

SECTION – V

10.A	Explain about data flow analysis carried out in compiler?	6M	BTL2
10.B	Discuss about Register Allocation Strategies followed in compilers?	6M	BTL2

(OR)

11.A	Explain how Live variable analysis is carried out in compilers?	6M	BTL2
11.B	Explain how machine dependent code optimization is done in compiler?	6M	BTL2

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CODE: 2005PC11 | R20 | SET - 1

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B.TECH III YEAR I SEMESTER REGULAR EXAMINATIONS, DECEMBER-2023
COMPUTER NETWORKS
(CSE, CSE-AIML, CSE-DS & IT)

[Time: 3 Hours] **[Max. Marks: 70]**

PART – A

(5 x 2 = 10M)

Note: 1. This Part consists of 8 QUESTIONS
2. Answer any 5 questions. Each question carries 2 Marks.

1	A	Mention the need of computer networks	2M	BTL2
	B	List the type of network topologies available	2M	BTL2
	C	Abbreviate CSMA/CD	2M	BTL1
	D	Present the constituents of a data frame	2M	BTL1
	E	What is the use of IP address	2M	BTL1
	F	State the function of Transport Layer	2M	BTL1
	G	Give the meaning of Packet Switching	2M	BTL2
	H	Relate the operations of presentation layer in service to application layer	2M	BTL2

PART – B

(5 x 12 = 60M)

Note: 1. This Part consists of 10 QUESTIONS
2. Answer any 1 question from each Section. Each question carries 12 Marks.
3. Illustrate your answers with NEAT sketches wherever necessary.

SECTION - I

2.	Describe the ISO/OSI model with a diagram	12M	BTL3

(OR)

3.A	Detail on Circuit switched networks	6M	BTL2
3.B	Brief on Direction of Data flow in Data Communications	6M	BTL2

SECTION - II

4.A	Analyze the CRC hamming code	6M	BTL3
4.B	Interpret IEEE 802.11 function	6M	BTL2

(OR)

5.A	Justify the operation of ALOHA in medium access layer	6M	BTL3
5.B	Compare IEEE 802.3, 802.5 and 802.11	6M	BTL2

SECTION - III

6.	Elaborate the internetworking and mapping techniques of Network Layer	12M	BTL4

(OR)

7.	Conceptualize the routing protocols with examples	12M	BTL3

SECTION – IV

8.A	Compare UDP and TCP	6M	BTL3
8.B	Justify the issues in data traffic congestion	6M	BTL2

(OR)

9.A	Analyze the QoS in Switched Networks	6M	BTL3
9.B	Analyze the transport layer delivery process methodology	6M	BTL2

SECTION – V

10.	Analyze the functions and services provided to and received by application layer from the linked layers	12M	BTL3

(OR)

11.A	Compare SMTP, FTP and HTTP	6M	BTL3
11.B	Interpret the internet provisions and web page management in application layer	6M	BTL2

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CODE: 2005PC10 | R20 | SET - 2

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B.TECH III YEAR I SEMESTER REGULAR EXAMINATIONS, DECEMBER-2023
DESIGN AND ANALYSIS OF ALGORITHMS
(CSE, CSE-DS, CSE-IOT, CSE-CS&IT)

[Time: 3 Hours] **[Max. Marks: 70]**

PART – A

(5 x 2 = 10M)

Note: 1. This Part consists of 8 QUESTIONS
2. Answer any 5 questions. Each question carries 2 Marks.

1	A	How do you measure the efficiency of an algorithm?	2M	BTL1
	B	Define spanning tree.	2M	BTL1
	C	Write the difference between the Greedy method and Dynamic programming,	2M	BTL1
	D	List out the implementation procedure of Backtracking.	2M	BTL2
	E	Define clique theorem.	2M	BTL2
	F	Describe Divide and conquer general method.	2M	BTL2
	G	Define Traveling Salesman Problem?	2M	BTL1
	H	Give the upper bound and lower bound of matrix multiplication Algorithm?	2M	BTL2

PART – B

(5 x 12 = 60M)

Note: 1. This Part consists of 10 QUESTIONS
2. Answer any 1 question from each Section. Each question carries 12 Marks.
3. Illustrate your answers with NEAT sketches wherever necessary.

SECTION – I

2.A	Prove that 3n3 + 2n2 + 4n + 3 = O (n3).	6M	BTL3
2.B	Explain the minimum cost spanning trees with an algorithm.	6M	BTL2

(OR)

3.A	How to measure the algorithm's efficiency and algorithm's running time?	6M	BTL2
3.B	Construct binary search from the below set by using the Binary search algorithm.{ - 12, -10, -8, -6, -3, 0, 10, 20, 3}	6M	BTL3

SECTION - II

4.	Explain the UNION and FIND operations in detail with data Representation.	12M	BTL2

(OR)

5.	Construct Binary Search Tree using following values. 17, 19, 13, 16, 12, 9, 14, 18, 6, 15, 22, 27, 8. Find the Traversing order using BST Traversal technique.	12M	BTL3

SECTION - III

6.A	Identify the Minimum and maximum from a list of values using divide And conquer technique. {150, -20, 98, 250, -5, -150, 850, 750, 650, -120}	6M	BTL3
6.B	Solve the time complexity of quick sort algorithm using divide and conquer method with an algorithm.	6M	BTL3

(OR)

7.A	Calculate the maximum profit for knapsack instances values is n = 3, m = 10, w (1:3) = {5, 6, 7}, P(1:3) = {10, 15, 14) using greedy method.	6M	BTL3
7.B	Explain the binary search algorithm using divide and conquer technique.	6M	BTL2

SECTION – IV

8.A	Determine the backtracking solution to solve 8-queens problem.	6M	BTL3
8.B	Explain the general method of Branch and Bound.	6M	BTL2

(OR)

9.A	Give solution to Subset sum problem using Backtracking technique.	6M	BTL2
9.B	Discuss the Inverting a lower triangular matrix	6M	BTL3

SECTION – V

10.A	Explain non-deterministic polynomial time algorithm for clique problem.	6M	BTL3
10.B	Demonstrate the 3-SAT problem.	6M	BTL3

(OR)

11.	Determine the Cook's theorem with an example.	12M	BTL3

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CODE: 2012PE01 | R20 | SET - 1

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B.TECH III YEAR I SEMESTER SUPPLY EXAMINATIONS, DECEMBER-2023
FOUNDATIONS OF DATA SCIENCE
(CSE, CSE-IOT, CSE-CS & IT)

[Time: 3 Hours] **[Max. Marks: 70]**

PART – A **(5 x 2 = 10M)**

Note: 1. This Part consists of 8 QUESTIONS
2. Answer any 5 questions. Each question carries 2 Marks.

1	A	Given an example for big data framework.	2M	BTL2
	B	What is data science?	2M	BTL2
	C	What is a hypothesis? Give an example.	2M	BTL3
	D	Difference between logistic and linear regression?	2M	BTL4
	E	Write an applications of Principle Component Analysis (PCA)	2M	BTL3
	F	Give a few of the data transformation techniques.	2M	BTL3
	G	Differentiate Feature Generation and Feature Selection.	2M	BTL4
	H	What is an ensemble algorithm?	2M	BTL2

PART – B **(5 x 12 = 60M)**

Note: 1. This Part consists of 10 QUESTIONS
2. Answer any 1 question from each Section. Each question carries 12 Marks.
3. Illustrate your answers with NEAT sketches wherever necessary.

SECTION - I

2.A	What are your interpretations from the following pie chart? Answer tothe following questions.  (i) What is the total number of tickets to comedy-themed movies? (ii) What is the dollar value of tickets sold to horror movies? (iii) What is the percentage of tickets sold to action and romantic comedies together?	6M	BTL4
2.B	Write in detail about the data analytics lifecycle.	6M	BTL2

(OR)

3.A	Given an example of any 3 types of plotting techniques used in data visualization.	6M	BTL3
3.B	Explain with an example of different Exploratory Data Analysis (EDA).	6M	BTL3

SECTION - II

4.A	How covariance is related to the correlation coefficient and do you think covariance and correlation always have the same sign? Investigate those with suitable scenarios.	8M	BTL4
4.B	How to identify the potential data sources? Mention a few of the data sources?	4M	BTL2

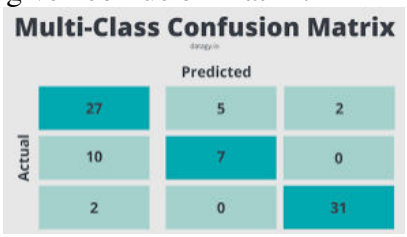
(OR)

5.A	Write one complete EDA case study.	8M	BTL3
5.B	Write steps involved in testing the hypothesis on means, proportions and variances.	4M	BTL4

SECTION - III

6.A	Calculate y=mx+c using simple linear regression. Age x: 43, 21, 25, 42, 57, 59, 247 Glucose Level y: 99, 65, 79, 75, 87, 81, 486	12M	BTL4

(OR)

7.A	Find the Accuracy, F1-Score, Precision, Specificity, and Recall using the given confusion matrix. 	10M	BTL4
7.B	Write all the steps involved in Principal Component Analysis (PCA).	2M	BTL3

SECTION – IV

8.A	Discuss in detail about Filters, Wrappers, and Embedded methods.	10M	BTL3
8.B	What is meant by data cleaning?	2M	BTL2

(OR)

9.A	Demonstrate data discretization techniques with an example.	6M	BTL3
9.B	Demonstrate data reduction techniques with an example.	6M	BTL3

SECTION – V

10.A	Why Random Forest Classifier algorithm is a supervised learning algorithm Investigate the steps and computational process of the Random Forest Classifier algorithm with a suitable application scenario.	8M	BTL4
10.B	Write steps involved in decision tree classification.	4M	BTL3

(OR)

11.A	Here four training samples are classified into two classes: C1 and C2.Demonstratethe working of KNN algorithm and utilize it to classify the test sample with X1 = 3 and X2 = 7. X1, X2, Y 7, 7, C1 7, 4, C1 3, 4, C2 1, 4, C2	12M	BTL3

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CODE: 2000HS04 | R20 | SET - 3

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B.TECH III YEAR I SEMESTER REGULAR EXAMINATIONS, DECEMBER-2023
MANAGEMENT SCIENCE
(COMMON TO CSE, IT)

[Time: 3 Hours] **[Max. Marks: 70]**

PART – A

(5 x 2 = 10M)

Note: 1. This Part consists of 8 QUESTIONS.
2. Answer any 5 questions. Each question carries 2 Marks .

1	A	Define Management. List out the functions of management.	2M	BTL1
	B	Explain product life cycle.	2M	BTL1
	C	List out the functions of HR manager.	2M	BTL1
	D	Differentiate between PERT and CPM.	2M	BTL1
	E	What is the importance of Balance score card?	2M	BTL1
	F	Write short notes on Hertzberg Two Factor Theory of Motivation.	2M	BTL1
	G	What is ABC Analysis?	2M	BTL1
	H	What is performance management system?	2M	BTL1

PART – B

(5 x 12 = 60M)

Note: 1. This Part consists of 10 QUESTIONS
2. Answer any 1 question from each Section. Each question carries 12 Marks.
3. Illustrate your answers with NEAT sketches wherever necessary.

SECTION - I

2.A	What are the functions managers perform to attain the set goals? Explain	6M	BTL2
2.B	When delegation can be successful? Explain.	6M	BTL2

(OR)

3.A	Explain the principles of management as outlined by Henri Fayal.	6M	BTL2
3.B	Discuss the utility of organization structure in an organization.	6M	BTL3

SECTION - II

4.A	Define work study. Elaborate its significance in the modern context. Illustrate.	6M	BTL2
4.B	What do you understand by economic order quantity? Derive a formula to determine it.	6M	BTL3

(OR)

5.A	Discuss the various stages in product life cycle.	6M	BTL3
5.B	What do you understand by plant layout? Explain its systems and evaluat the same.	6M	BTL3

SECTION - III

6.A	Discuss the functions of Human resource in an industrial setting.	6M	BTL3
6.B	Differentiate between job evaluation and merit rating.	6M	BTL3

(OR)

7.A	Identify the techniques of training under off-the job training methods.	6M	BTL2
7.B	What is the link between wage and salary administration?	6M	BTL2

SECTION – IV

8.A	Briefly explain various steps in programme evaluation and review technique.	6M	BTL2
8.B	What are the objectives of project management?	6M	BTL2

(OR)

9.A	A small project consisting of eight activities has the following characteristics: **Time – Estimates (in weeks)** (i) Draw the PERT network for the project. (ii) Prepare the activity schedule for the project. (iii) Determine the critical path. (iv) If a 30- week deadline is imposed, what is the probability that the project will be finished within the time limit?	12M	BTL4

Activity	*Preceding activity*	*Most optimistic time (a)*	*Most likely time (m)*	*Most Pessimestic time (b)*
A	None	2	4	12
B	None	10	12	26
C	A	8	9	10
D	A	10	15	20
E	A	7	7.5	11
F	B,C	9	9	9
G	D	3	3.5	7
H	E, F, G	5	5	5

SECTION – V

10.A	What are the internal factors that need to be examined for the firm to assess its strengths and weakness? Illustrate.	6M	BTL2
10.B	Identify and discuss the stages in the process of strategy formulation and implementation.	6M	BTL3

(OR)

11.A	What is bench marking? How is useful?	6M	BTL2
11.B	Briefly explain the concept of SWOT by taking an example of your choice.	6M	BTL3

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CODE: 2004OE03 | R20 | SET - 1

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B.TECH III YEAR I SEMESTER REGULAR/SUPPLY EXAMINATIONS, DECEMBER-2023
PRINCIPLES OF ELECTRONIC COMMUNICATIONS
(CSE, CSE-DS, CSE-IOT, CSE-AIML, CSE-CS&IT)

[Time: 3 Hours] **[Max. Marks: 70]**

PART – A

(5 x 2 = 10M)

Note: 1. This Part consists of 8 QUESTIONS
2. Answer any 5 questions. Each question carries 2 Marks.

1	A	What is the relationship between the height of the antenna and wave length.	2M	BTL2
	B	Define modulation and classify?	2M	BTL1
	C	Define amplitude modulation.	2M	BTL1
	D	Define ASK and PSK.	2M	BTL1
	E	Define numerical aperture.	2M	BTL1
	F	What are the effects on a satellite signal if the angle of elevation is too low?	2M	BTL2
	G	What is handoff?	2M	BTL1
	H	Define wireless local area network (WLAN).	2M	BTL1

PART – B

(5 x 12 = 60M)

Note: 1. This Part consists of 10 QUESTIONS
2. Answer any 1 question from each Section. Each question carries 12 Marks.
3. Illustrate your answers with NEAT sketches wherever necessary.

SECTION - I

2.A	Illustrate the need for modulation in communication systems.	6M	BTL2
2.B	Explain the concept of frequency translation with suitable example.	6M	BTL2

(OR)

3.A	Define the terms Gain, attenuation and decibels. And explain their importance in communications, with examples.	12M	BTL2

SECTION - II

4.A	Explain the PWM with neat diagram.	6M	BTL2
4.B	A sinusoidal modulating waveform of amplitude 5 V and a frequency of 2 KHz is applied to FM generator, which has a frequency sensitivity of 40 Hz/volt. Determine the frequency deviation, modulation index, and	6M	BTL5

	bandwidth.		

(OR)

5.A	Compare the characteristics of AM with FM	6M	BTL3
5.B	Illustrate the PCM transmitter and receiver with a diagram.	6M	BTL2

SECTION - III

6.A	Describe Internet Telephony.	6M	BTL2
6.B	Outline the general operation of a cordless telephone.	6M	BTL2

(OR)

7.A	Summarize the paging systems.	6M	BTL2
7.B	Explain the working of Token ring with neat diagram.	6M	BTL2

SECTION – IV

8.A	Outline the operative physical principles of launching a satellite and maintaining its orbit.	6M	BTL2
8.B	Illustrate the concept and operation of the Global Positioning System.	6M	BTL2

(OR)

9.A	Explain the block diagram of optical fiber communication system with transmitter and receiver.	12M	BTL2

SECTION – V

10.A	Explain GSM architecture in detail with a neat diagram.	12M	BTL2

(OR)

11.A	Draw the block diagram of a RFID tag and explain.	6M	BTL2
11.B	Discuss WCDMA in detail.	6M	BTL2

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