**Course File**

***Subject Title/Subject Code : Theory of Computation/4CS4-06***

Semester : IV Year: 2nd

| Name of the Faculty: |  | |
| --- | --- | --- |
|  |  | |
| E-mail id: naresh.mali@technonjr.com |  | |

**Class Schedule**

**Total Number of Lectures:** 42

i**)Course Objective**

##### Central to the theory of computation are the concepts of automat, formal languages, grammar, algorithms, compatibility, decidability, and complexity. Why study theory when the current focus of Computer Science (and all the more so for Information Systems) is on technology and the pragmatic areas of knowledge concerned with the development and management of computer information systems? The reasons are manifold. Theory provides a simple, elegant view of the complex machine that we call a computer. Theory possesses a high degree of permanence and stability, in contrast with the ever-changing paradigms of the technology, development, and management of computer systems. Further, parts of the theory have direct bearing on practice, such as Automata on circuit design, compiler design, and search algorithms; Formal Languages and Grammars on compiler design; and Complexity on cryptography and optimization problems in manufacturing, business, and management. Last, but not least, research-oriented students will make good use of the theory studied in this course.

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**VISSION & MISSION OF INSTITUTE**

## **Vision**

Empowering student with recent and emerging technologies to create innovative technical leaders capable of contributing to industrial and societal needs for betterment of mankind across the globe.

## **Mission**

**M1**: To provide dynamic learning environment to students by providing constant exposure to latest technologies by linking closely with the industries.

**M2**: To establish effective interface with industry to obtain live problems to enhance critical thinking and problem solving skills among students and consultancy projects for faculty.

**M3**: To provide avenues and opportunities to faculty for domain specific training and qualification upgradation.

**M4**: To develop ethical leaders with strong communication skills.

**VISION & MISSION OF DEPARTMENT**

**Department Vision**

To be among top five well known department of Computer Science and Engineering in the state of Rajasthan in placing the students at premier industry.

**Department Mission**

**M1:** To equip students with ability to be innovative and excellence to face the challenges in the digital world.

**M2:** To prepare students with high quality employ ability skills catering to current trends in industries, problem solving skills, innovative pursuits and ready to face challenges in the domain and allied disciplines.

**M3:** To provide ambience for entrepreneurship and start-ups through incubation center among students.

**M4:** To encourage continuous faculty training on industry-based Development, and Innovation.

**PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)**

**Technical Proficiency** Graduates will have a strong foundation in core concepts, tools, and technologies relevant to their discipline.

**Career Development** Graduate will be capable of pursuing diverse career paths in field of Computer Science & Engineering with proficiency in software development/ pursue higher education an or become entrepreneurs.

**Problem-Solving** Graduates will have a strong math foundation so that they will be proficient problem solvers, capable of identifying, analyzing , and solving complex technical problems using critical thinking and creative approaches.

**Professional Attitude** Graduates will be sensitive to societal and professional environment, possess strong communication skills and will be skilled in working collaboratively within diverse teams adhering to ethical standards and professional practices.

**Learning Environment** To create a learning environment that ensures graduates continue learning throughout their careers, effortlessly adopting new technologies to stay innovative in their chosen fields and remain effective contributors in their chosen field.

**PROGRAM SPECIFIC OUTCOMES (PSO's)**

**PSO1**: Students will be able to design, develop, test, debug, deploy, analyze , troubleshoot, maintain, manage, and ensure security during the complete product lifecycle.

**PSO2**: Student will be able to apply software engineering/ information system development skills to solve problems across diverse domains.

**PSO3**: Students will be well-prepared to initiate and oversee innovative startups within their respective sectors. **PROGRAMME OUTCOMES (POs)**

**A student will develop:**

**PO 01. ENGINEERING KNOWLEDGE:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

**PO02. PROBLEM ANALYSIS**: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences

**PO03. DESIGN/ DEVELOPMENT OF SOLUTION**: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

**PO04. CONDUCTION OF INVESTIGATION OF COMPLEX PROBLEMS**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

**PO05. MODERN TOOL USAGE**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with and understanding of the limitations.

**PO06. THE ENGINEERING AND SOCIETY**: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

**PO07. ENVIRONMENT & SUSTAINABILITY**: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

**PO08. ETHICS**: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

**PO09. INDIVIDUAL AND TEAM WORK:** Function effectively as an individual, and as a member or leader in diverse teams, and in multi disciplinary settings.

**PO10. COMMUNICATION**: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

**PO11. PROJECT MANAGEMENT & FINANCE:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one’s own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

**PO12. LIFE-LONG LEARNING**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

**COURSE OUTCOMES (COs) OF THE SUBJECT**

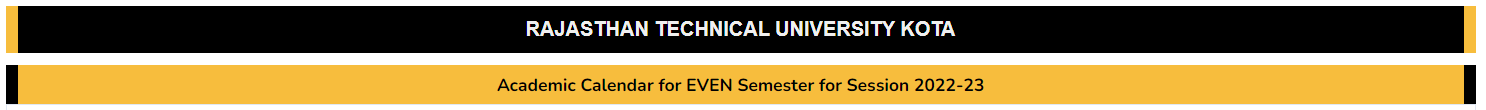
| CO No. | Mapping | Statement |
| --- | --- | --- |
| 1 | Analyzing | Develop the base of fundamental concept of automata theory, formal language, and computation models. Developed of reducibility and its significance in the theory of computation. |
| 2 | Analyzing | Analyze and identify differentiate between types of automata, such as finite automata, pushdown automata, and turning machine solve to complex problems. |
| 3 | Evaluating | Demonstrated proficiency in constructing finite automata , pushdown automata, and turning machine to solve specific computational problem. Comprehend the concept of formal language and Grammars, include regular languages, context-free languages, and context-sensitive languages. |
| 4 | Apply | Relate the theory of computation to various real-world applications, such as compiler design and language processing and automata theory concept. |
| 5 | Synthesis | The synthesis approach can be extremely valuable, as it allows developers to automate the creation of programs or systems from high-level specifications, reducing human effort, and minimizing the potential for manual errors. However, it remains an active area of research, and finding efficient and effective synthesis methods for complex problems is an ongoing challenge in the field of theoretical computer science. |

**COS MAPPING WITH POs AND PSOs**

| **Course Outcome** | **PO1** | **PO2** | **PO3** | **PO4** | **PO5** | **PO6** | **PO7** | **PO8** | **PO9** | **PO10** | **PO11** | **PO12** | **PSO1** | **PSO2** | **PSO3** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **CO1** | 3 | 2 | 3 | 2 | 1 | - | - | 1 | 1 | - | - | 1 | 1 | 2 | 1 |
| **CO2** | 3 | 2 | 3 | 3 | 1 | - | - | - | - | - | - | 1 | 1 | 2 | 1 |
| **CO3** | 2 | 3 | 3 | 1 | 1 | - | - | 1 | - | - | - | 1 | 1 | 2 | 1 |
| **CO4** | 1 | 2 | 3 | 2 | 1 | - | - | 1 | - | - | - | 1 | 1 | 2 | 1 |
| **CO5** | 3 | 2 | 3 | 2 | - | - | - | - | 1 | - | - | 1 | 1 | 2 | 1 |

**UNIVERSITY ACADEMIC CALENDAR**







| **Academic Calendar Even Semester 2022-23** | | | | |
| --- | --- | --- | --- | --- |
| **Particulars** | **B.Tech-II** | **B.Tech- IV** | **B.Tech- VI** | **B.Tech- VIII** |
| Commencement of classes | 10-04-2023 | 27-02-2023 | 27-02-2023 | 02-02-2023 |
| Last Working Day | 08-07-2023 | 03-06-2023 | 03-06-2023 | 16-05-2023 |
| Course Progression Report-I | 10-05-2023 | 05-04-2023 | 05-04-2023 | 10-03-2023 |
| First Mid Term Exam | 15-05-2023 | 10-04-2023 | 10-04-2023 | 16-03-2023 |
| Remedial Class-I | 24-05-2023 | 20-04-2023 | 20-04-2023 | 27-03-2023 |
| Course Progression Report-II | 16-06-2023 | 13-05-2023 | 13-05-2023 | 26-04-2023 |
| Second Mid Term Exam | 19-06-2023 | 18-05-2023 | 18-05-2023 | 01-05-2023 |
| Remedial Class-II | 30-07-2023 | 27-05-2023 | 27-05-2023 | 10-05-2023 |
| Commencement of Theory Exam | 20-07-2023 | 15-06-2023 | 16-06-2023 | 26-05-2023 |
| Commencement of Practical Exam | 10-07-2023 | 05-06-2023 | 05-06-2023 | 18-05-2023 |

**Evaluation Scheme**

FACULTY DETAILS:

Name of the Faculty : Naresh Mali

Designation : Assistant Professor

Department : Computer Science & Engineering

1. TARGET

a) Percentage Pass : 100%

b) Percentage I class: 60 %

2. METHOD OF EVALUATION

2.1. Continuous Assessment Examinations (Mid-Term 1, Mid-Term 2)

2.2. Assignments / Seminars 

2.3. Mini Projects 

2.4. Quiz 

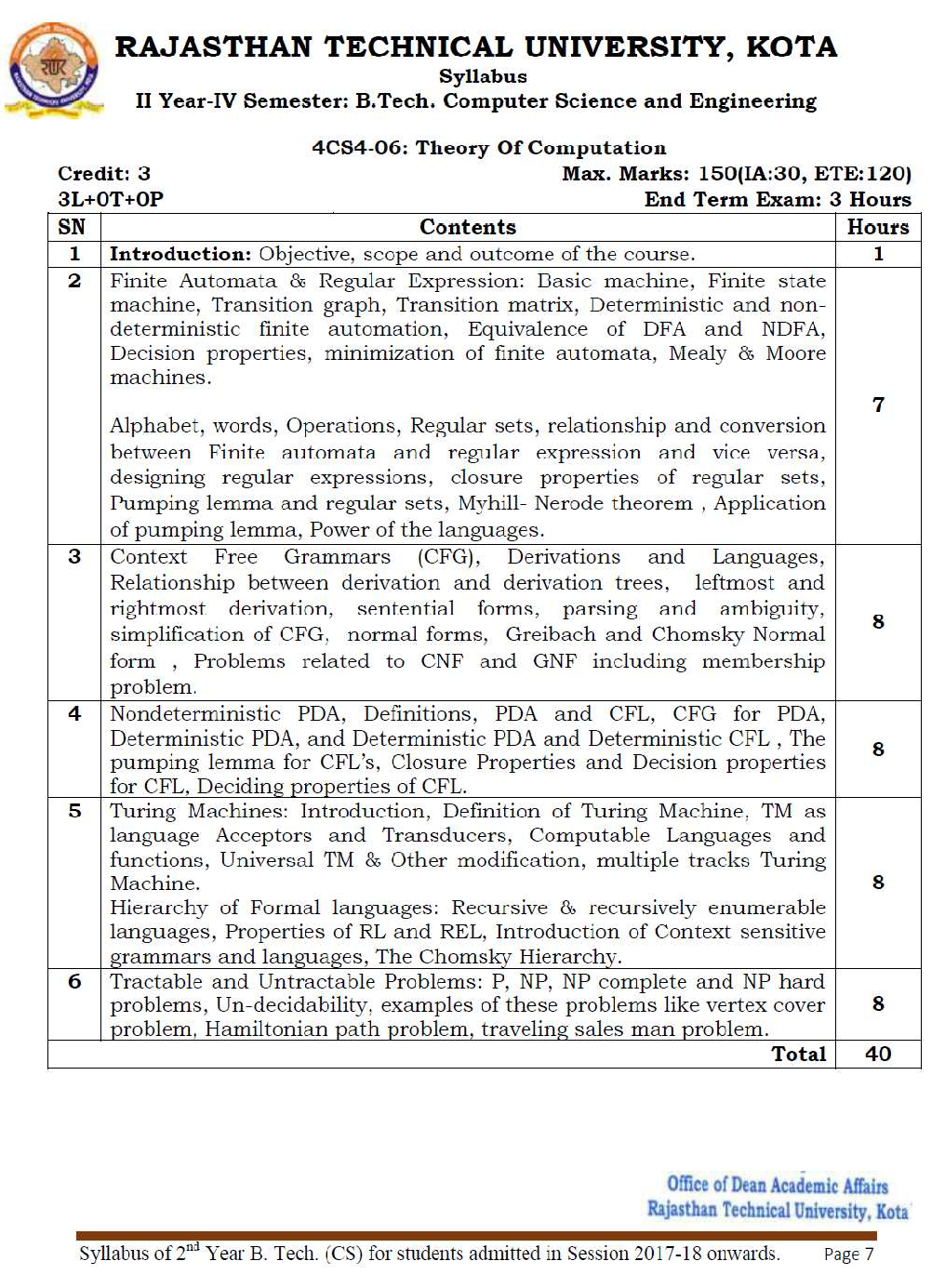
2.5. Semester Examination Others\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3. List out any new topic(s) or any innovation you would like to introduce in teaching the subject in this Semester.

1. Take the help of creative tools to stimulate creativity. Include slide presentations, demonstration or forms of visual exercises that will excite the young minds and capture their interest.

**Signature of Faculty: Signature of HOD**

**UNIVERSITY SYLLABUS**



**PRESCRIBED BOOKS**

**Textbook references:**

**TEXTBOOK:**

1. Aho, Hopcroft and Ullman, Introduction to Automata Theory, Formal Languages and Computation, Narosa

**REFERENCE BOOKS:**

1. Cohen, Introduction to Computer Theory, Addison Wesley.
2. Papadimitriou, Introduction to Theory of Computing, Prentice Hall.
3. Theory of Computer Science Automata ,Language and Computation K.L.P. Mishra N. Chandrasekaran
4. Theory of Computation Mrs. Anuradha A. Puntambekar Technical Publication of Pune.

**Additional Resources (NPTEL):**

**1.** <https://nptel.ac.in/courses/106/104/106104148/>

**WEEKLY TIME TABLE OF THE TEACHER**

| **Day/Time** | **9-10** | **10-11** | **11-12** | **12-1** |  | **2-4** | |
| --- | --- | --- | --- | --- | --- | --- | --- |
| MON DAY | TOC  A |  | TOC  B |  |  |  | |
| TUESDAY |  | TOC  A |  |  |  | |
| WEDNESDAY | TOC  B |  |  |  |  | |
| THURSDAY | TOC  B |  | TOC  A |  |  | |
| FRIDAY | TOC  A |  | TOC  B |  |  | |
| SATURDAY |  |  |  |  |  | |

**COURSE-PLAN**

| UNIT | Lect.  No. | TOPICS | **Teaching Methods/ Teaching Aids** |
| --- | --- | --- | --- |
| **1** | 1 | Objective, scope and outcome of the course | White Board, demonstration ,notes |
| 2 | 2 | Introduction of Basic machine, Finite state machine | White Board, demonstration ,notes |
| 2 | 3 | Representation of FA: Transition graph, Transition matrix | White Board, demonstration ,notes |
| 2 | 4 | Exercise of Finite Automata | White Board, demonstration ,notes |
| 2 | 5 | Types of FA: Deterministic and nondeterministic finite automation | White Board, demonstration ,notes |
| 2 | 6 | Conversion of DFA to NFA | White Board, demonstration ,notes |
| 2 | 7 | Minimization of finite Automata | White Board, demonstration ,notes |
| 2 | 8 | Mealy & Moore machines introduction | White Board, demonstration ,notes |
| 2 | 9 | Conversion of Moore to Melay Machine | White Board, demonstration ,notes |
| 2 | 10 | Conversion of Melay to Moore Machine | White Board, demonstration ,notes |
| 2 | 11 | Introduction of Grammar: Alphabet, words, Operations, Regular sets | White Board, demonstration ,notes |
| 2 | 12 | Relationship and conversion between Finite Automata and regular expression | White Board, demonstration ,notes |
| 2 | 13 | Relationship and conversion between Finite Automata and regular expression | White Board, demonstration ,notes |
| 2 | 14 | Relationship and conversion between regular expression and Finite Automata | White Board, demonstration ,notes |
| 2 | 15 | Relationship and conversion between regular expression and Finite Automata | White Board, demonstration ,notes |
| 2 | 16 | Closure properties of regular sets, Pumping lemma and regular sets | White Board, demonstration ,notes |
| 2 | 17 | Myhill- Nerode theorem , Application of pumping lemma, Power of the languages | White Board, demonstration ,notes |
| 3 | 18 | Introduction of Context Free Grammars (CFG), Derivation of CFG and Context Free language | White Board, demonstration ,notes |
| 3 | 19 | Relationship between derivation and derivation trees | White Board, demonstration ,notes |
| 3 | 20 | Leftmost and rightmost derivation, sentential forms | White Board, demonstration ,notes |
| 3 | 21 | Parsing and ambiguity of CFG | White Board, demonstration ,notes |
| 3 | 22 | Greibach and Chomsky Normal form – 1 | White Board, demonstration ,notes |
| 3 | 23 | Greibach and Chomsky Normal form – 2 | White Board, demonstration ,notes |
| 3 | 24 | Greibach and Chomsky Normal form – 3 | White Board, demonstration ,notes |
| 3 | **25** | Problems related to CNF and GNF including membership problem | White Board, demonstration ,notes |
| 4 | 26 | Introduction of Push down automata, Nondeterministic PDA | White Board, demonstration ,notes |
| 4 | 27 | CFL to PDA – 1 | White Board, demonstration ,notes |
| 4 | 26 | CFL to PDA – 2 | White Board, demonstration ,notes |
| 4 | 25 | PDA to CFG -1 | White Board, demonstration ,notes |
| 4 | 26 | PDA to CFG -2 | White Board, demonstration ,notes |
| 4 | **27** | Deterministic PDA and Deterministic CFL | White Board, demonstration ,notes |
| 4 | 28 | pumping lemma for CFL’s, Closure Properties and Decision properties for CFL, Deciding  properties of CFL | White Board, demonstration ,notes |
| 5 | 21 | Introduction, Definition of Turing Machine | White Board, demonstration ,notes |
| 5 | 20 | Turing Machine Capabilities: Acceptors and Transducers | White Board, demonstration ,notes |
| 5 | 21 | Design TM -1 | White Board, demonstration ,notes |
| 5 | 22 | Design TM -2 | White Board, demonstration ,notes |
| 5 | 23 | Design TM -3 | White Board, demonstration ,notes |
| 5 | 24 | Computable Languages and functions, Universal TM | White Board, demonstration ,notes |
| 5 | 25 | Other modification, multiple tracks Turing Machine | White Board, demonstration ,notes |
| 5 | 26 | Recursive & recursively enumerable languages, Properties of RL and REL | White Board, demonstration ,notes |
| 5 | **27** | Introduction of Context sensitive grammars and languages, | White Board, demonstration ,notes |
| 5 | 28 | Chomsky Hierarchy | White Board, demonstration ,notes |
| 5 | 29 | Tractable and Untractable Problems: P, NP | White Board, demonstration ,notes |
| 5 | 30 | NP complete and NP hard problems | White Board, demonstration ,notes |
| 5 | 31 | Un-decidability, exam7ples of these problems like vertex cover problem | White Board, demonstration ,notes |
| 5 | 32 | Hamiltonian path problem, traveling sales man problem | White Board, demonstration ,notes |
|  | 33 | Revision of Course | White Board, demonstration ,notes |
|  | 34 | Revision of Course | White Board, demonstration ,notes |
|  | 35 | Revision of Course | White Board, demonstration ,notes |
|  | 36 | Revision of Course | White Board, demonstration ,notes |
|  | 37 | Revision of Course | White Board, demonstration ,notes |
|  | 38 | Revision of Course | White Board, demonstration ,notes |
|  | 39 | Revision of Course | White Board, demonstration ,notes |
|  | 40 | Revision of Course | White Board, demonstration ,notes |
|  | 41 | Revision of Course | White Board, demonstration ,notes |
|  | 42 | Revision of Course | White Board, demonstration ,notes |

**Signature of Faculty: Signature of HOD**

**Assignment – 1 ()**

**Assign numerical based questions.**

1. Conversion NFA to DFA .**(C01)**
2. Conversion Mealy Machine to Moore machine. **(C02)**
3. Describe tuples Deterministic PDA Non Deterministic PDA. **(C03)**
4. Define regular and not regular grammar in theory of computation. **(C04)**
5. (a) Convert the following Moore machine into mealy machine. **(C05)**

a b



b a a



b 

b

a

**Assignment – 2 ()**

**Assign numerical based questions.**

1. Conversion DFA to NDFA. **(C01)**
2. Conversion Moore machine to Mealy Machine. **(C02)**
3. Travelling salesman problems and Hamiltonian. **(C03)**
4. (a) Given the grammar**(C04)**

S aB bA

A a as bAA

B b bs aBB

For string “bbaaabbaba” find left most derivation and right most derivation tree.

5. .(a) Convert the following Mealy machine into Moore machine. **(C05)**

a/1 a/2 



a/1

b/1 b/1



b/2

(b) Write short notes on Chomsky Normal Forms?

**SAMPLE QUIZ QUESTIONS**

| 1. | Who is considered the "father of theoretical computer science" and introduced the concept of Turing machines? |
| --- | --- |
| 2. | What is the Halting Problem, and why is it significant in the theory of computation? |
| 3. | Which formal language class is recognized by a deterministic finite automaton (DFA)? |
| 4 | What is the difference between a regular language and a context-free language? |
| 5 | Which class of formal languages is recognized by a pushdown automaton (PDA)? |
| 6 | What is the difference between decidability and recognizability for formal languages? |
| 7 | State the pumping lemma for regular languages and explain its significance. |
| 8 | Define the classes P and NP in computational complexity theory. |
| 9 | What is the significance of the P vs. NP problem in computer science? |
| 10 | Explain the concept of polynomial-time reductions and its role in complexity theory. |
| 11 | What are NP-complete problems, and why are they essential in computational complexity? |
| 12 | Define the concept of a non-deterministic Turing machine and its significance. |
| 13 | How does the Chomsky hierarchy classify formal grammars and languages? |
| 14 | Explain the relationship between a context-free grammar and a pushdown automaton. |
| 15 | What is the pumping lemma for context-free languages, and how is it used? |
| 16 | Define the concept of recursively enumerable languages and give an example. |
| 17 | What is the difference between a decider and a recognizer in terms of Turing machines? |
| 18 | Explain the concept of the Busy Beaver function and its connection to Turing machines. |
| 19 | Can a universal Turing machine simulate any other Turing machine? Why or why not? |
| 20 | State the difference between deterministic and non deterministic finite automata? |

**MIDTERM-I**

**TECHNO INDIA NJR INSTITUTE OF TECHNOLOGY, UDAIPUR**

**B. TECH 2nd – YEAR (IV SEM.) – MT-I**

Theory of Computation (**4CS4-06**)

**Time:** 2 Hr **Max. Marks:** 70

**Note:**

1. The paper is divided into 2 parts: Part-A and, Part-B.
2. Part-A contains 10 questions and carries 2 mark each.
3. Part-B contains 5 questions. Each question is having two options and carries 10 marks each.

Part- A (20 Marks)

| 1. What is Finite Automata with examples? | CO1 |
| --- | --- |
| 1. Convert regular expression to finite automata 2. a\*b (a+b)\* **2**. a\* bc\* | CO1 |
| 1. Difference between transition graph and transition matrix with example? | CO1 |
| 1. Write closure properties of regular set with example? | CO1 |
| 1. What is finite state machine with examples? | CO2 |
| 1. Convert finite automata to regular expression? 2. a b **2.** a c   c b | CO2 |
| 1. Write application of pumping lemma? With examples | CO2 |
| 1. Write Transition table of given state diagram?   0  0  0 1  1  1 | CO2 |
| 1. What is NFA with examples? | CO3 |
| 1. What is Moore machine with examples? | CO3 |

Part- B (50 Marks)

| 1. Convert NFA to DFA   0,1  1 0,1 | CO1 |
| --- | --- |
| OR | |
| 1. Equivalence of DFA and NDFA.  | State | 0 | 1 | | --- | --- | --- | | q0 | q0 | q1 | | q1 | q1 | q0, q1 | | CO1 |

| 1. Difference between NFA and DFA with tuples? | CO1 |
| --- | --- |
| OR | |
| 1. Convert Mealy to Moore machine?   a/0  b/0 a/1    a/0  b/0    b/1 | CO1 |

| 3. Explain My hill Nerode theorem with examples? | CO2 |
| --- | --- |
| OR | |
| 1. Find out the string generated by given CFG (**bbbbbbaa**)   S XY  X bbX **ε**  Y aY **ε** | CO2 |
| 1. Minimization of DFA | CO2 |
| OR | |
| 4. Drive the string “**aabbabba**” for leftmost derivation and right most derivation using a CFG given by:  S ab bA  A a aS Baa  B b bS aBB | CO2 |

| 1. Convert Moore to Mealy machine?  | Present State | Next State  a=0 a=1 | | output | | --- | --- | --- | --- | | q0 | q3 | q1 | 0 | | q1 | q1 | q2 | 1 | | q2 | q2 | q3 | 0 | | q3 | q3 | q0 | 0 | | CO2 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| OR | |
| 1. What is C.N.F. and Convert CFG to CNF form.   S 1A 0B  A 1AA 0S 0  B 0BB 1 | CO2 |

**Marks and Gap Analysis of Mid-Term 1**

| S.No. | University Roll No. | Name of Student | Mid-Term 1  MM-70 | Remark  ( Remedial Class need or not – Y/N ) |
| --- | --- | --- | --- | --- |
|  | 22ETCCS001 | AADARSH SONI | AB | **Y** |
|  | 22ETCCS002 | ABDUL ATTIF | 26 | **Y** |
|  | 22ETCCS003 | ABHIJEET GARG | 43 | **N** |
|  | 22ETCCS004 | ADITYA CHHIPA | 42 | **N** |
|  | 22ETCCS005 | ADITYA GIRI GOSWAMI | 35 | **Y** |
|  | 22ETCCS006 | ADITYA SHARMA | 67 | **N** |
|  | 22ETCCS007 | AJIT KUMAR | 31 | **Y** |
|  | 22ETCCS008 | AKASH SONI | 49 | **N** |
|  | 22ETCCS009 | AKSHAT JANGID | 49 | **N** |
|  | 22ETCCS010 | AKSHAT KUMAR SAINI | 27 | **Y** |
|  | 22ETCCS011 | AKSHI BARGURJAR | 30 | **Y** |
|  | 22ETCCS012 | AKSHIT NALWAYA | 23 | **Y** |
|  | 22ETCCS013 | AKSHITA KUMAWAT | 51 | **N** |
|  | 22ETCCS014 | AKSHITA PANCHAL | 21 | **Y** |
|  | 22ETCCS015 | ALI ASGAR ORA WALA | 18 | **Y** |
|  | 22ETCCS017 | ANGHA VARANGAONKAR | 59 | **N** |
|  | 22ETCCS018 | ANKIT DHANAWAT | 45 | **N** |
|  | 22ETCCS019 | ANSHIKA JAIN | 50 | **N** |
|  | 22ETCCS020 | ARCHIT JAIN | 15 | **Y** |
|  | 22ETCCS021 | ARIN UPADHAYAY | 26 | **Y** |
|  | 22ETCCS022 | ARUSH MENARIA | 63 | **N** |
|  | 22ETCCS023 | ARYAN TALWAR | 37 | **Y** |
|  | 22ETCCS024 | AVIKA SURANA | 23 | **Y** |
|  | 22ETCCS025 | BHAWANA KUMARI | 60 | **N** |
|  | 22ETCCS026 | BHUMI JAIN | 50 | **N** |
|  | 22ETCCS027 | BHUWAN SUTHAR | AB | **Y** |
|  | 22ETCCS028 | CHETAN NAGDA | AB | **Y** |
|  | 22ETCCS029 | CHIRAG SHARMA | AB | **Y** |
|  | 22ETCCS030 | MS. CIA SHARMMA | 57 | **N** |
|  | 22ETCCS031 | DAIVIK SHARMA | 28 | **Y** |
|  | 22ETCCS032 | DAKSH JAIN | 36 | **Y** |
|  | 22ETCCS033 | DAKSH MENARIA | 11 | **Y** |
|  | 22ETCCS034 | DEV PARAKH | 50 | **N** |
|  | 22ETCCS035 | DHANESH JOSHI | 58 | **N** |
|  | 22ETCCS036 | DHEERAJ SINGH THAPA | AB | **Y** |
|  | 22ETCCS037 | DHWANI KHUSHLANI | 60 | **N** |
|  | 22ETCCS038 | DIKSHIT DARJI | 33 | **Y** |
|  | 22ETCCS039 | MSDIKSHITA SHARMA | 29 | **Y** |
|  | 22ETCCS040 | DIVYA BAGORA | 31 | **Y** |
|  | 22ETCCS041 | DIVYANSHU SHARMA | 11 | **Y** |
|  | 22ETCCS042 | DIVYASHAKTI PAL | 42 | **N** |
|  | 22ETCCS043 | DIYA JAIN | 25 | **Y** |
|  | 22ETCCS044 | DIYA PALIWAL | 42 | **N** |
|  | 22ETCCS045 | FALGUN CHOUDHARY | 67 | **N** |
|  | 22ETCCS046 | GARGI SHARMA | 51 | **N** |
|  | 22ETCCS047 | GARV BAKLIWAL | 31 | **Y** |
|  | 22ETCCS048 | GARVIT NANDAWAT | AB | **N** |
|  | 22ETCCS049 | GAURAV JAIN | 5 | **Y** |
|  | 22ETCCS050 | GAURAVI NEGI | 33 | **Y** |
|  | 22ETCCS051 | GAURI SUTHAR | 68 | **N** |
|  | 22ETCCS053 | GOURAV POKHARNA | 26 | **Y** |
|  | 22ETCCS054 | HARDIK BATWAL | 64 | **N** |
|  | 22ETCCS055 | HARSH DANGI | 55 | **N** |
|  | 22ETCCS056 | HARSH KAWADIA | 47 | **N** |
|  | 22ETCCS057 | HARSH TAMBOLI | 46 | **N** |
|  | 22ETCCS058 | HARSHAL JAIN | 52 | **N** |
|  | 22ETCCS059 | HARSHIT POKHARNA | 49 | **N** |
|  | 22ETCCS060 | HARSHVARDHAN SINGH CHAUHAN | 29 | **Y** |
|  | 22ETCCS061 | HARSHVARDHAN SINGH KITAWAT | 20 | **Y** |
|  | 22ETCCS062 | HEMANT AHUJA | 54 | **N** |
|  | 22ETCCS064 | HIMANK LOHAR | AB | **Y** |
|  | 22ETCCS065 | HIMANSHI PRAJAPAT | 35 | **Y** |
|  | 22ETCCS066 | HIMANSHU KALAL | 35 | **Y** |
|  | 22ETCCS067 | HONHAR RAWAL | AB | **Y** |
|  | 22ETCCS068 | HUSAIN BOHRA TIDIWALA | 28 | **Y** |
|  | 22ETCCS069 | JAINISH JAIN | 12 | **Y** |
|  | 22ETCCS070 | JAYESH JOSHI | 36 | **Y** |
|  | 22ETCCS071 | JAYESH MANDAWAT | AB | **Y** |
|  | 22ETCCS072 | JINENDRA SINGH DODIYA | 34 | **Y** |
|  | 22ETCCS073 | KANIKA GUPTA | 17 | **Y** |
|  | 22ETCCS074 | KANISHK GUPTA | 49 | **N** |
|  | 22ETCCS075 | KAPIL KALAL | AB | **Y** |
|  | 22ETCCS076 | KARAN SWAMI | 50 | **N** |
|  | 22ETCCS077 | KARTIK JAIN | 45 | **N** |
|  | 22ETCCS078 | KARTIK KRISHNA KALE | 38 | **Y** |
|  | 22ETCCS079 | KAVYA PALIWAL | AB | **Y** |
|  | 22ETCCS080 | KETAN OJHA | 21 | **Y** |
|  | 22ETCCS081 | KHUSH JAIN | 59 | **N** |
|  | 22ETCCS082 | KHUSHI SHARMA | 37 | **Y** |
|  | 22ETCCS083 | KIRTAN TAMBOLI | 26 | **Y** |
|  | 22ETCCS085 | KONPAL SHARMA | 63 | **N** |
|  | 22ETCCS086 | KRITI PATWA | 62 | **N** |
|  | 22ETCCS087 | KUSH PARSAI | 40 | **N** |
|  | 22ETCCS088 | KUSHAL MEENA | 27 | **Y** |
|  | 22ETCCS089 | LAKSHIT PALIWAL | AB | **Y** |
|  | 22ETCCS090 | LAKSHY JAIN | 11 | **Y** |
|  | 22ETCCS091 | LAKSHYARAJ CHOUDHARY | 28 | **Y** |
|  | 22ETCCS092 | LAL SINGH JHALA | 7 | **Y** |
|  | 22ETCCS093 | LUCKY LOHAR | 25 | **Y** |
|  | 22ETCCS094 | MAHATV BHATNAGAR | 18 | **Y** |
|  | 22ETCCS095 | MAHENDRA SINGH SISODIYA | AB | **Y** |
|  | 22ETCCS096 | MSMAHIMA CHOUHAN | 44 | **N** |
|  | 22ETCCS097 | MAHIPAL SINGH JHALA | 31 | **Y** |
|  | 22ETCCS098 | MAHIRAJ SINGH SANKHLA | 31 | **Y** |
|  | 22ETCCS099 | MANAS PARWANI | 24 | **Y** |
|  | 22ETCCS100 | MANASVI SHARMA | 44 | **N** |
|  | 22ETCCS101 | MANASWINI SHARMA | 36 | **Y** |
|  | 22ETCCS102 | MANSI DUBE | 63 | **N** |
|  | 22ETCCS103 | MAYANK KASERA | 8 | **Y** |
|  | 22ETCCS104 | MAYANK TRIVEDI | 8 | **Y** |
|  | 22ETCCS105 | MEDHAVI KAUSHIK | 31 | **Y** |
|  | 22ETCCS106 | MEETRAJ SINGH | 29 | **Y** |
|  | 22ETCCS107 | MITALI PALIWAL | 37 | **Y** |
|  | 22ETCCS108 | MITVESH AMETA | AB | **Y** |
|  | 22ETCCS109 | MOHAMMED YASAR | 9 | **Y** |
|  | 22ETCCS110 | MOHIT KALAL | 19 | **Y** |
|  | 22ETCCS111 | MOHIT KUMAWAT | 17 | **Y** |
|  | 22ETCCS112 | MONIL SETH | 65 | **N** |
|  | 22ETCCS113 | NAKUL PANDYA | 20 | **Y** |
|  | 22ETCCS114 | NEERAJ DANGI | 23 | **Y** |
|  | 22ETCCS115 | NIKHIL RAJ MALI | 42 | **N** |
|  | 22ETCCS116 | NIMISHKA CHAUHAN | 46 | **N** |
|  | 22ETCCS117 | NISHANT MENARIA | 47 | **N** |
|  | 22ETCCS118 | MSPALAK KUMAWAT | 48 | **N** |
|  | 22ETCCS119 | PARSHVI HARKAWAT | 41 | **N** |
|  | 22ETCCS120 | PRAGYA BUJ | 58 | **N** |
|  | 22ETCCS121 | PRATIBHA SINGH | 53 | **N** |
|  | 22ETCCS122 | PRINCE DANGI | 15 | **Y** |
|  | 22ETCCS123 | PRIYANSH JAIN | 63 | **N** |
|  | 22ETCCS124 | PURVAM CHATURVEDI | 9 | **Y** |
|  | 22ETCCS125 | PUSHKAR GAMETI | 23 | **Y** |
|  | 22ETCCS126 | PUSHPENDRA MENARIA | 56 | **N** |
|  | 22ETCCS127 | QAIDJOHAR JUKKER | 45 | **N** |
|  | 22ETCCS128 | RAGHAVENDRA BAHETI | 15 | **Y** |
|  | 22ETCCS129 | RAJ LAXKAR | 7 | **Y** |
|  | 22ETCCS130 | RAJ SHRIMALI | 30 | **Y** |
|  | 22ETCCS131 | RAM MUNDRA | 22 | **Y** |
|  | 22ETCCS132 | RAMMITH K R | 43 | **N** |
|  | 22ETCCS133 | RANITH BISWAS | 4 | **Y** |
|  | 22ETCCS134 | RANJIT SINGH SHAKTAWAT | 50 | **N** |
|  | 22ETCCS135 | MSRAUNAK TAK | 52 | **N** |
|  | 22ETCCS136 | RAVI JOSHI | 14 | **Y** |
|  | 22ETCCS137 | RAVI MENARIYA | 36 | **N** |
|  | 22ETCCS138 | RITIK SHARMA | 44 | **N** |
|  | 22ETCCS139 | RITISHA SEN | 38 | **Y** |
|  | 22ETCCS140 | ROHIT AGARWAL | 46 | **N** |
|  | 22ETCCS141 | ROSHAN SHARMA | 26 | **Y** |
|  | 22ETCCS142 | ROSHNI MENARIA | 23 | **Y** |
|  | 22ETCCS143 | RUDRA PUROHIT | 34 | **Y** |
|  | 22ETCCS144 | RUDRAVEER SINGH PANWAR | 51 | **N** |
|  | 22ETCCS145 | SHAAN SANADHYA | 9 | **Y** |
|  | 22ETCCS146 | SHACHI JAIN | 18 | **Y** |
|  | 22ETCCS147 | SHAURYA KUNDAR | 18 | **Y** |
|  | 22ETCCS148 | SHOURYA BORDIA | 30 | **Y** |
|  | 22ETCCS149 | SHUBHAM YADAV | AB | **Y** |
|  | 22ETCCS150 | SIDDHARTH KUMAR SINGH | AB | **Y** |
|  | 22ETCCS151 | SIDDHARTH MENARIA | 32 | **Y** |
|  | 22ETCCS152 | SRAJAN MENARIA | 11 | **Y** |
|  | 22ETCCS154 | SUMIT DANGI | 27 | **Y** |
|  | 22ETCCS155 | SURBHI TAILOR | 23 | **Y** |
|  | 22ETCCS156 | SURYANSH MADHUKAR | 29 | **Y** |
|  | 22ETCCS157 | TALENT JAIN | 33 | **Y** |
|  | 22ETCCS158 | TANISHK VYAS | 28 | **Y** |
|  | 22ETCCS159 | TANVI SHARMA | 28 | **Y** |
|  | 22ETCCS160 | TOHEED AKHTAR | AB | **Y** |
|  | 22ETCCS161 | TUSHAR PRAJAPAT | AB | **Y** |
|  | 22ETCCS162 | TUSHAR SINGH RAWAT | 15 | **Y** |
|  | 22ETCCS163 | UJJWAL SINGH CHOUHAN | 25 | **Y** |
|  | 22ETCCS164 | USHIT SHARMA | 35 | **Y** |
|  | 22ETCCS165 | UTKARSH BAJPAI | 29 | **Y** |
|  | 22ETCCS166 | VAIBHAV GOYAL | 52 | **N** |
|  | 22ETCCS167 | VANSH BHATNAGAR | 39 | **Y** |
|  | 22ETCCS168 | VINAY VADERA | 11 | **Y** |
|  | 22ETCCS169 | VINITA MENARIA | 60 | **N** |
|  | 22ETCCS170 | VISHAL MENARIYA | 58 | **N** |
|  | 22ETCCS171 | VISHAL SINGH RAO | 37 | **Y** |
|  | 22ETCCS172 | VIVEK SHARMA | 66 | **N** |
|  | 22ETCCS173 | VIVEK SHRIMALI | 25 | **Y** |
|  | 22ETCCS174 | YANA OZHA | 62 | **N** |
|  | 22ETCCS175 | YASH VAGHELA | 40 | **N** |
|  | 22ETCCS300 | KEVALI ASHOK KANAGALE | 68 | **N** |
|  | 22ETCCS301 | KARAN SUTHAR | 0 | **Y** |
|  | 22ETCCS302 | VINEET SHARMA | 18 | **Y** |
|  | 23ETCCS200 | GOPAL PALIWAL | 14 | **Y** |
|  | 23ETCCS201 | MANISH VYAS | 4 | **Y** |
|  | 23ETCCS202 | RAHUL RAJPUROHIT | AB | **Y** |
|  | 23ETCCS203 | VAISHALI H PUROHIT | 31 | **Y** |
|  | 23ETCCS204 | YASH SINGHATWADIA | 18 | **Y** |

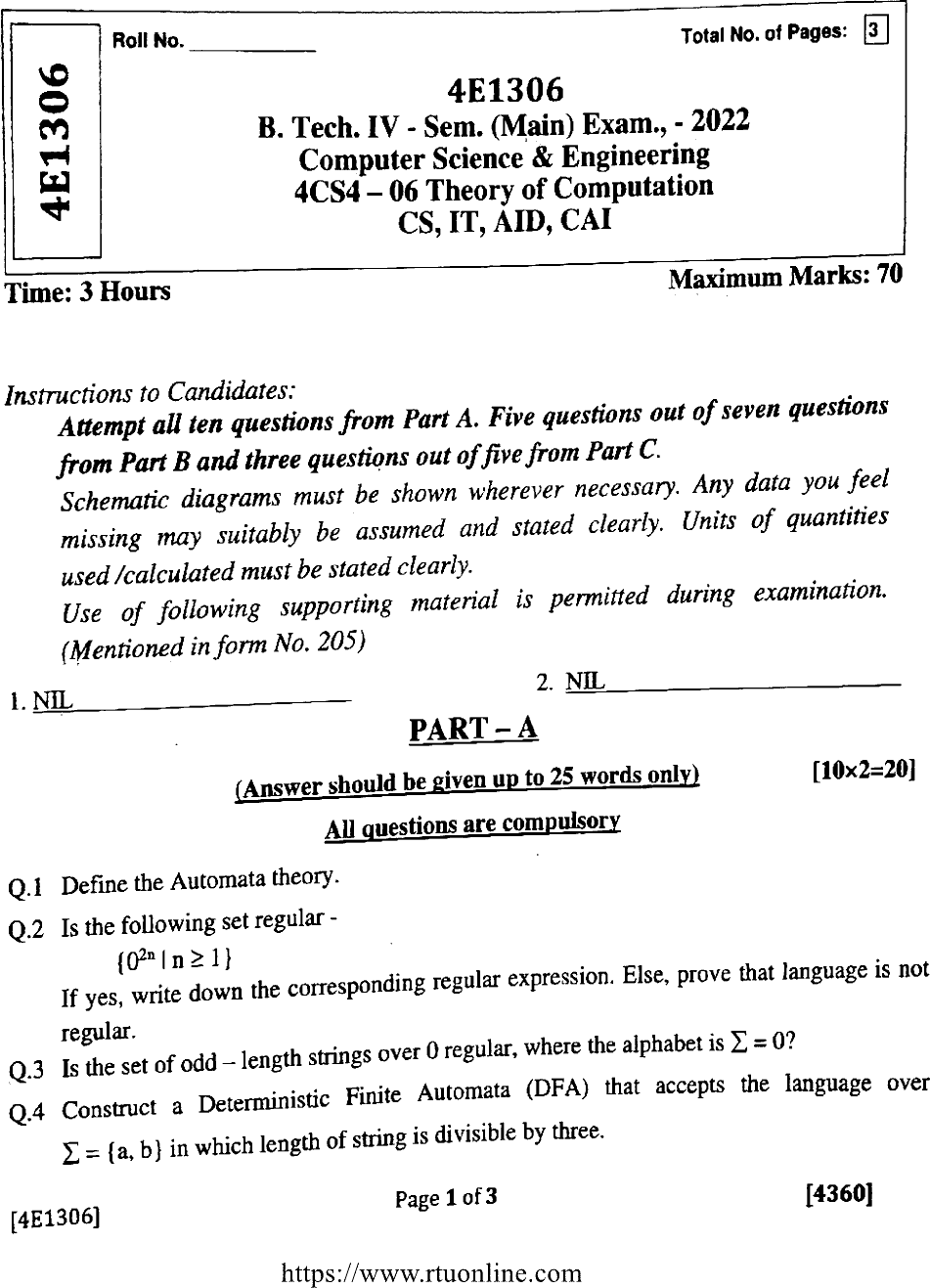
**\***(Y, if obtained marks are <50%)

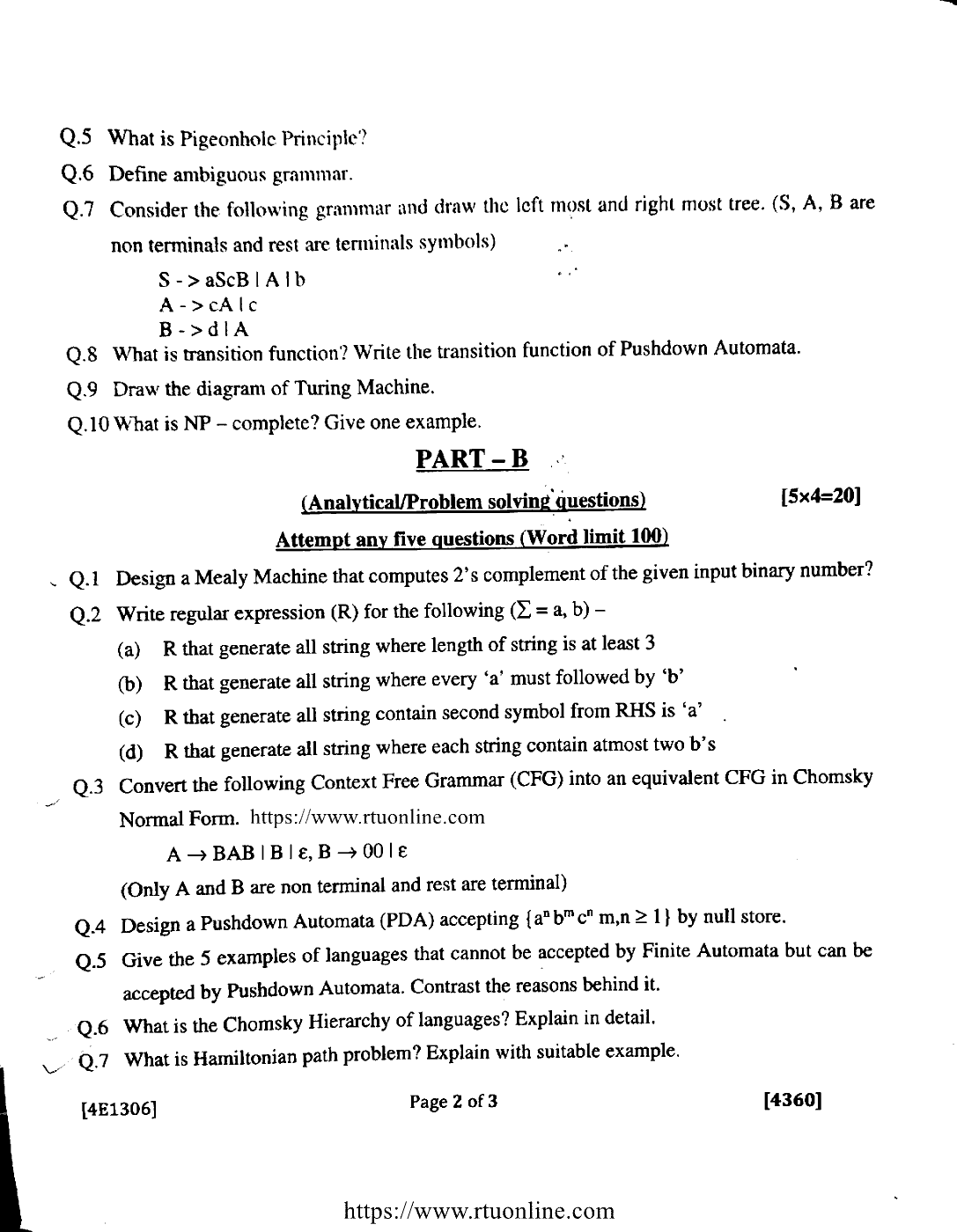
**Signature of Faculty: Signature of HOD**

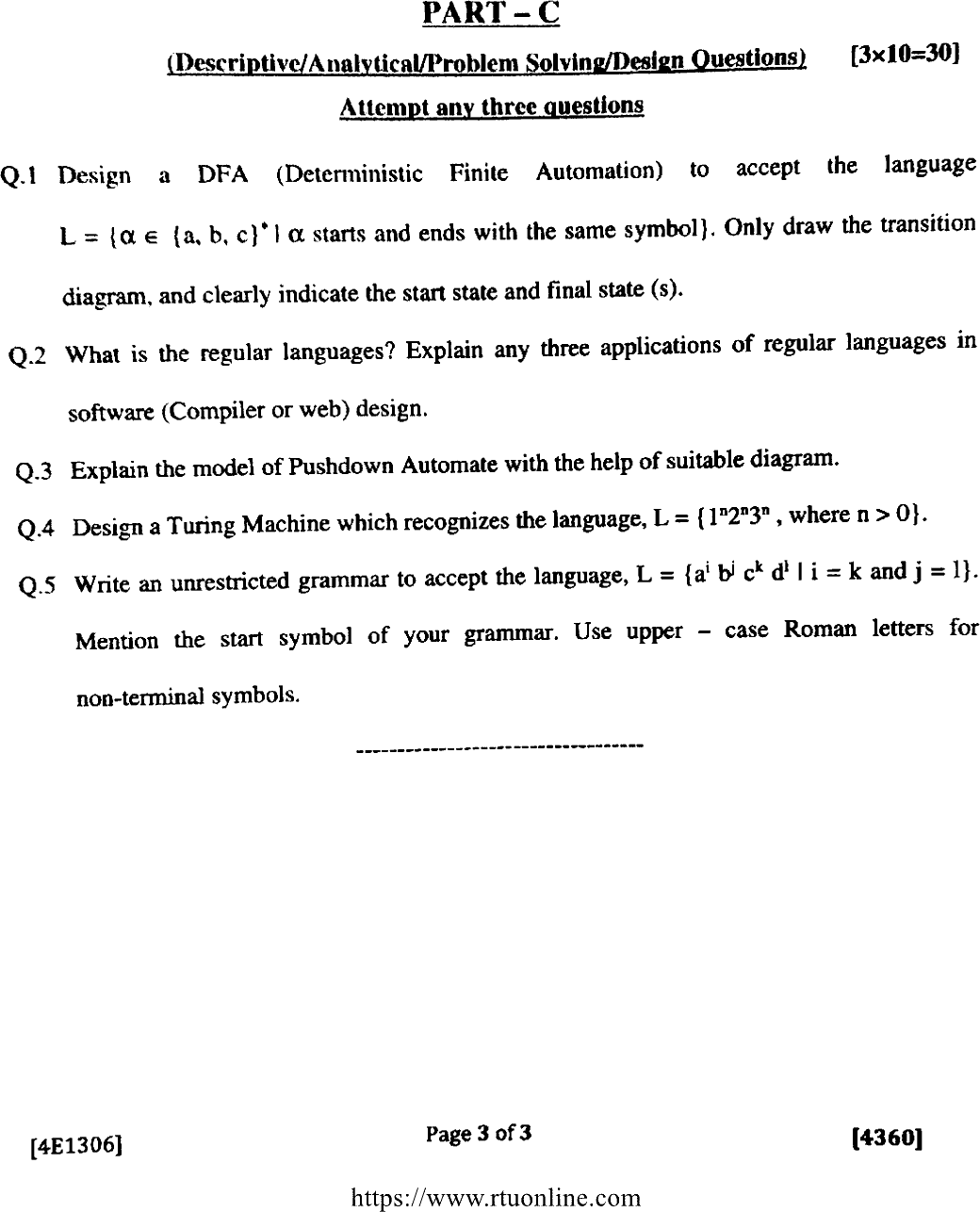
**Remedial Action Taken to Remove the Gaps (After Mid- Term I)**

| S.no. | University Roll no. | Name of Student | Topics to be discussed in Remedial Class | Schedule Date of Remedial Class | Outcome  Achieved |
| --- | --- | --- | --- | --- | --- |
| 1 | 22ETCCS001 | AADARSH SONI | Conversion NFA to DFA |  | C01 |
| 2 | 22ETCCS002 | ABDUL ATTIF | Conversion to Mealy to Moore machine |  | C01 |
| 3 | 22ETCCS005 | ADITYA GIRI GOSWAMI | Conversion Moore to Mealy Machine |  | C01 |
| 4 | 22ETCCS007 | AJIT KUMAR | What is Context free Grammer |  | C01 |
| 5 | 22ETCCS010 | AKSHAT KUMAR SAINI | Conversion to CFG to CNF |  | C02 |
| 6 | 22ETCCS011 | AKSHI BARGURJAR | Conversion to CFG to GNF |  | C02 |
| 7 | 22ETCCS012 | AKSHIT NALWAYA | Discuss about LMD and RMD Derivation tree with Context free Grammer |  | C02 |
| 8 | 22ETCCS014 | AKSHITA PANCHAL | Wha is Hamiltonian path problem |  | C02 |
| 9 | 22ETCCS015 | ALI ASGAR ORA WALA | Travelling salesman problems |  | C02 |
| 10 | 22ETCCS020 | ARCHIT JAIN | Kruskal algorithms |  | C02 |
| 11 | 22ETCCS021 | ARIN UPADHAYAY | Recursive and Recursive enumerable language with examples |  | C02 |
| 12 | 22ETCCS027 | BHUWAN SUTHAR | Conversion R.E To F.A. with examples |  | C02 |
| 13 | 22ETCCS028 | CHETAN NAGDA | What is Minimization with DFA with examples |  | C01 |
| 14 | 22ETCCS029 | CHIRAG SHARMA | Conversion NFA to DFA |  | C01 |
| 15 | 22ETCCS031 | DAIVIK SHARMA | Conversion to Mealy to Moore machine |  | C01 |
| 16 | 22ETCCS032 | DAKSH JAIN | Conversion Moore to Mealy Machine |  | C01 |
| 17 | 22ETCCS033 | DAKSH MENARIA | What is Context free Grammer |  | C01 |
| 18 | 22ETCCS036 | DHEERAJ SINGH THAPA | Conversion to CFG to CNF |  | C01 |
| 19 | 22ETCCS038 | DIKSHIT DARJI | Conversion to CFG to GNF |  | C01 |
| 20 | 22ETCCS039 | MSDIKSHITA SHARMA | Discuss about LMD and RMD Derivation tree with Context free Grammer |  | C01 |
| 21 | 22ETCCS040 | DIVYA BAGORA | Wha is Hamiltonian path problem |  | C03 |
| 22 | 22ETCCS041 | DIVYANSHU SHARMA | Travelling salesman problems |  | C03 |
| 23 | 22ETCCS043 | DIYA JAIN | Kruskal algorithms |  | C03 |
| 24 | 22ETCCS047 | GARV BAKLIWAL | Recursive and Recursive enumerable language with examples |  | C03 |
| 25 | 22ETCCS049 | GAURAV JAIN | Conversion R.E To F.A. with examples |  | C03 |
| 26 | 22ETCCS050 | GAURAVI NEGI | What is Minimization with DFA with examples |  | C03 |
| 27 | 22ETCCS053 | GOURAV POKHARNA | Discuss about LMD and RMD Derivation tree with Context free Grammer |  | C03 |
| 28 | 22ETCCS060 | HARSHVARDHAN SINGH CHAUHAN | Wha is Hamiltonian path problem |  | C03 |
| 29 | 22ETCCS061 | HARSHVARDHAN SINGH KITAWAT | Travelling salesman problems |  | C03 |
| 30 | 22ETCCS064 | HIMANK LOHAR | Kruskal algorithms |  | C04 |
| 31 | 22ETCCS065 | HIMANSHI PRAJAPAT | Recursive and Recursive enumerable language with examples |  | C04 |
| 32 | 22ETCCS066 | HIMANSHU KALAL | Conversion R.E To F.A. with examples |  | C04 |
| 33 | 22ETCCS067 | HONHAR RAWAL | What is Minimization with DFA with examples |  | C04 |
| 34 | 22ETCCS068 | HUSAIN BOHRA TIDIWALA | Conversion NFA to DFA |  | C04 |
| 35 | 22ETCCS069 | JAINISH JAIN | Conversion to Mealy to Moore machine |  | C04 |
| 36 | 22ETCCS070 | JAYESH JOSHI | Conversion Moore to Mealy Machine |  | C04 |
| 37 | 22ETCCS071 | JAYESH MANDAWAT | What is Context free Grammer |  | C04 |
| 38 | 22ETCCS072 | JINENDRA SINGH DODIYA | Conversion to CFG to CNF |  | C04 |
| 39 | 22ETCCS073 | KANIKA GUPTA | Conversion to CFG to GNF |  | C04 |
| 40 | 22ETCCS075 | KAPIL KALAL | Discuss about LMD and RMD Derivation tree with Context free Grammer |  | C04 |
| 41 | 22ETCCS078 | KARTIK KRISHNA KALE | Wha is Hamiltonian path problem |  | C04 |
| 42 | 22ETCCS079 | KAVYA PALIWAL | Travelling salesman problems |  | C04 |
| 43 | 22ETCCS080 | KETAN OJHA | Kruskal algorithms |  | C04 |
| 44 | 22ETCCS082 | KHUSHI SHARMA | Recursive and Recursive enumerable language with examples |  | C04 |
| 45 | 22ETCCS083 | KIRTAN TAMBOLI | Conversion R.E To F.A. with examples |  | C04 |
| 46 | 22ETCCS088 | KUSHAL MEENA | What is Minimization with DFA with examples |  | C04 |
| 47 | 22ETCCS089 | LAKSHIT PALIWAL | Conversion NFA to DFA |  | C04 |
| 48 | 22ETCCS090 | LAKSHY JAIN | Conversion to Mealy to Moore machine |  | C04 |
| 49 | 22ETCCS091 | LAKSHYARAJ CHOUDHARY | Conversion Moore to Mealy Machine |  | C04 |
| 50 | 22ETCCS092 | LAL SINGH JHALA | What is Context free Grammer |  | C04 |
| 51 | 22ETCCS093 | LUCKY LOHAR | Conversion to CFG to CNF |  | C04 |
| 52 | 22ETCCS094 | MAHATV BHATNAGAR | Conversion to CFG to GNF |  | C04 |
| 53 | 22ETCCS095 | MAHENDRA SINGH SISODIYA | Discuss about LMD and RMD Derivation tree with Context free Grammer |  | C04 |
| 54 | 22ETCCS097 | MAHIPAL SINGH JHALA | Wha is Hamiltonian path problem |  | C04 |
| 55 | 22ETCCS098 | MAHIRAJ SINGH SANKHLA | Travelling salesman problems |  | C04 |
| 56 | 22ETCCS099 | MANAS PARWANI | Kruskal algorithms |  | C04 |
| 57 | 22ETCCS101 | MANASWINI SHARMA | Recursive and Recursive enumerable language with examples |  | C04 |
| 58 | 22ETCCS103 | MAYANK KASERA | Conversion R.E To F.A. with examples |  | C04 |
| 59 | 22ETCCS104 | MAYANK TRIVEDI | What is Minimization with DFA with examples |  | C04 |
| 60 | 22ETCCS105 | MEDHAVI KAUSHIK | Discuss about LMD and RMD Derivation tree with Context free Grammer |  | C03 |
| 61 | 22ETCCS106 | MEETRAJ SINGH | Wha is Hamiltonian path problem |  | C03 |
| 62 | 22ETCCS107 | MITALI PALIWAL | Travelling salesman problems |  | C03 |
| 63 | 22ETCCS108 | MITVESH AMETA | Kruskal algorithms |  | C03 |
| 64 | 22ETCCS109 | MOHAMMED YASAR | Recursive and Recursive enumerable language with examples |  | C03 |
| 65 | 22ETCCS110 | MOHIT KALAL | Conversion R.E To F.A. with examples |  | C03 |
| 66 | 22ETCCS111 | MOHIT KUMAWAT | What is Minimization with DFA with examples |  | C03 |
| 67 | 22ETCCS113 | NAKUL PANDYA | Recursive and Recursive enumerable language with examples |  | C03 |
| 68 | 22ETCCS114 | NEERAJ DANGI | Conversion R.E To F.A. with examples |  | C03 |
| 69 | 22ETCCS122 | PRINCE DANGI | What is Minimization with DFA with examples |  | C03 |
| 70 | 22ETCCS124 | PURVAM CHATURVEDI | Conversion NFA to DFA |  | C03 |
| 71 | 22ETCCS125 | PUSHKAR GAMETI | Conversion to Mealy to Moore machine |  | C03 |
| 72 | 22ETCCS128 | RAGHAVENDRA BAHETI | Conversion Moore to Mealy Machine |  | C03 |
| 73 | 22ETCCS129 | RAJ LAXKAR | What is Context free Grammer |  | C03 |
| 74 | 22ETCCS130 | RAJ SHRIMALI | Conversion to CFG to CNF |  | C03 |
| 75 | 22ETCCS131 | RAM MUNDRA | Conversion to CFG to GNF |  | C03 |
| 76 | 22ETCCS133 | RANITH BISWAS | Discuss about LMD and RMD Derivation tree with Context free Grammer |  | C03 |
| 77 | 22ETCCS136 | RAVI JOSHI | Wha is Hamiltonian path problem |  | C03 |
| 78 | 22ETCCS139 | RITISHA SEN | Travelling salesman problems |  | C03 |
| 79 | 22ETCCS141 | ROSHAN SHARMA | Kruskal algorithms |  | C03 |
| 80 | 22ETCCS142 | ROSHNI MENARIA | Recursive and Recursive enumerable language with examples |  | C03 |
| 81 | 22ETCCS143 | RUDRA PUROHIT | Conversion R.E To F.A. with examples |  | C03 |
| 82 | 22ETCCS145 | SHAAN SANADHYA | What is Minimization with DFA with examples |  | C03 |
| 83 | 22ETCCS146 | SHACHI JAIN | Conversion NFA to DFA |  | C03 |
| 84 | 22ETCCS147 | SHAURYA KUNDAR | Conversion to Mealy to Moore machine |  | C03 |
| 85 | 22ETCCS148 | SHOURYA BORDIA | Conversion Moore to Mealy Machine |  | C03 |
| 86 | 22ETCCS149 | SHUBHAM YADAV | What is Context free Grammer |  | C03 |
| 87 | 22ETCCS150 | SIDDHARTH KUMAR SINGH | Conversion to CFG to CNF |  | C03 |
| 88 | 22ETCCS151 | SIDDHARTH MENARIA | Conversion to CFG to GNF |  | C03 |
| 89 | 22ETCCS152 | SRAJAN MENARIA | Discuss about LMD and RMD Derivation tree with Context free Grammer |  | C03 |
| 90 | 22ETCCS154 | SUMIT DANGI | Wha is Hamiltonian path problem |  | C03 |
| 91 | 22ETCCS155 | SURBHI TAILOR | What is Minimization with DFA with examples |  | C03 |
| 92 | 22ETCCS156 | SURYANSH MADHUKAR | Discuss about LMD and RMD Derivation tree with Context free Grammer |  | C03 |
| 93 | 22ETCCS157 | TALENT JAIN | Wha is Hamiltonian path problem |  | C03 |
| 94 | 22ETCCS158 | TANISHK VYAS | Travelling salesman problems |  | C03 |
| 95 | 22ETCCS159 | TANVI SHARMA | Kruskal algorithms |  | C03 |
| 96 | 22ETCCS160 | TOHEED AKHTAR | Recursive and Recursive enumerable language with examples |  | C03 |
| 97 | 22ETCCS161 | TUSHAR PRAJAPAT | Conversion R.E To F.A. with examples |  | C03 |
| 98 | 22ETCCS162 | TUSHAR SINGH RAWAT | What is Minimization with DFA with examples |  | C03 |
| 99 | 22ETCCS163 | UJJWAL SINGH CHOUHAN | Recursive and Recursive enumerable language with examples |  | C03 |
| 100 | 22ETCCS164 | USHIT SHARMA | Conversion R.E To F.A. with examples |  | C03 |
| 101 | 22ETCCS165 | UTKARSH BAJPAI | What is Minimization with DFA with examples |  | C03 |
| 102 | 22ETCCS167 | VANSH BHATNAGAR | Conversion NFA to DFA |  | C03 |
| 103 | 22ETCCS168 | VINAY VADERA | Conversion to Mealy to Moore machine |  | C03 |
| 104 | 22ETCCS171 | VISHAL SINGH RAO | Conversion Moore to Mealy Machine |  | C03 |
| 105 | 22ETCCS173 | VIVEK SHRIMALI | What is Context free Grammer |  | C03 |
| 106 | 22ETCCS301 | KARAN SUTHAR | Conversion to CFG to CNF |  | C03 |
| 107 | 22ETCCS302 | VINEET SHARMA | Conversion to CFG to GNF |  | C03 |
| 108 | 23ETCCS200 | GOPAL PALIWAL | Discuss about LMD and RMD Derivation tree with Context free Grammer |  | C04 |
| 109 | 23ETCCS201 | MANISH VYAS | Wha is Hamiltonian path problem |  | C04 |
| 110 | 23ETCCS202 | RAHUL RAJPUROHIT | Travelling salesman problems |  | C04 |
| 111 | 23ETCCS203 | VAISHALI H PUROHIT | Kruskal algorithms |  | C04 |
| 112 | 23ETCCS204 | YASH SINGHATWADIA | Recursive and Recursive enumerable language with examples |  | C04 |

**Signature of Faculty: Signature of HOD**







**TECHNO INDIA NJR INSTITUTE OF TECHNOLOGY, UDAIPUR**

**B. TECH 2nd – YEAR (III SEM.) – MT-II**

Theory of Computation (**4CS4- 06**)

**Time:** 2 Hr **Max. Marks:** 70

**Note:**

1. The paper is divided into 2 parts: Part-A and, Part-B.
2. Part-A contains 10 questions and carries 2 mark each.
3. Part-B contains 5 questions. Each question is having two options and carries 10 marks each.

Part- A (20 Marks)

|  | What is definition of PDA? | CO1 |
| --- | --- | --- |
|  | What is Turing machine with examples? | CO1 |
|  | Difference between Deterministic and Non-Deterministic PDA? | CO2 |
|  | What is Hamiltonian path problem with examples? | CO2 |
|  | Write properties of Context free language? | CO3 |
|  | What is Mealy machine explain with tuples? | CO3 |
|  | What is Multiple tracks with examples? | CO4 |
|  | Given the NDFA as shown in figure below determine the equivalent DFA: | CO4 |
|  | Convert the Grammer C.F.G. to G.N.F.  S AB  A Aa Bb b  B b | CO5 |
|  | M={q1, q2 , q3}, {0,1}, δ , q1,{ q3} is a non deterministic finite automata where δ is given by :  δ (q1,0) = { q2 , q3} δ (q1,1) ={ q1}  δ (q2,0) = { q1 , q2} δ (q2,1) = ɸ  δ (q3,0) = { q2} δ (q3,1) = δ { q1 , q2}  Construction an equivalent DFA | CO5 |

Part- B (50 Marks)

| 1. Minimize the give finite automation | CO1 |
| --- | --- |
| OR | |
| 3. Convert the below NDFA to its equivalent DFA. | CO1 |

| 1. Convert the following Moore machine into mealy machine. | CO2 |
| --- | --- |
| OR | |
| 2.Consider the Mealy machine described by the given transition table. Construct a Moore machine, which is equivalent to the Mealy machine? | CO2 |

| 1. Construct a PDA accepting the language.   **L={anb2n/n≥1}** | CO3 |
| --- | --- |
| OR | |
| 1. Consider the following production   S aB Ba  A aS bAA a  A Bs a BB b  For string “**aaabbabbba**” find left most and right most derivation trees. | CO3 |

| 1. PDA design to Accept the following language.   **L={WcWR / Wε {a,b}+ }** | CO4 |
| --- | --- |
| OR | |
| 1. Turing Machine design to accept the following language.   **L={an bn cn / n≥1}** | CO4 |

| 1. Construct a language **L={an bn cn / n≥1}** using LBA as follows  | **<** | **A** | **a** | **b** | **b** | **c** | **c** | **>** | | --- | --- | --- | --- | --- | --- | --- | --- | | CO5 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| OR | |
| 1. Short Notes. (Attempt any 4) 2. Travelling Salesman Problem. 3. Chomsky hierarchy of language. 4. Universal Turing Machine. 5. Rice Theorems. 6. Kruskal’s Algorithms. 7. P and NP hard problems. | CO5 |

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**Mid Term Exam – II**

**Marks and Gap Analysis of Mid-Term II**

| Sr. No. | University Roll No. | Name of Student | | | Mid-Term 2  MM-32 | | Remark  ( Remedial Class need or not – Y/N ) | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 22ETCCS001 | | | AADARSH SONI | 16 | | | | **Y** | | |
|  | 22ETCCS002 | ABDUL ATTIF | | | 00 | | **Y** | | | | |
|  | 22ETCCS003 | ABHIJEET GARG | | | AB | | **Y** | | | | |
|  | 22ETCCS004 | ADITYA CHHIPA | | | 48 | | **Y** | | | | |
|  | 22ETCCS005 | ADITYA GIRI GOSWAMI | | | 33 | | **Y** | | | | |
|  | 22ETCCS006 | ADITYA SHARMA | | | 64 | | **N** | | | | |
|  | 22ETCCS007 | AJIT KUMAR | | | 39 | | **Y** | | | | |
|  | 22ETCCS008 | AKASH SONI | | | 31 | | **Y** | | | | |
|  | 22ETCCS009 | AKSHAT JANGID | | | 67 | | **N** | | | | |
|  | 22ETCCS010 | AKSHAT KUMAR SAINI | | | 44 | | **Y** | | | | |
|  | 22ETCCS011 | AKSHI BARGURJAR | | | 38 | | **Y** | | | | |
|  | 22ETCCS012 | AKSHIT NALWAYA | | | 25 | | **Y** | | | | |
|  | 22ETCCS013 | AKSHITA KUMAWAT | | | AB | | **Y** | | | | |
|  | 22ETCCS014 | AKSHITA PANCHAL | | | AB | | **Y** | | | | |
|  | 22ETCCS015 | ALI ASGAR ORA WALA | | | 28 | | **Y** | | | | |
|  | 22ETCCS017 | ANGHA VARANGAONKAR | | | 44 | | **Y** | | | | |
|  | 22ETCCS018 | ANKIT DHANAWAT | | | 11 | | **Y** | | | | |
|  | 22ETCCS019 | ANSHIKA JAIN | | | 53 | | **N** | | | | |
|  | 22ETCCS020 | ARCHIT JAIN | | | 00 | | **Y** | | | | |
|  | 22ETCCS021 | ARIN UPADHAYAY | | | AB | | **Y** | | | | |
|  | 22ETCCS022 | ARUSH MENARIA | | | 69 | | **N** | | | | |
|  | 22ETCCS023 | ARYAN TALWAR | | | 52 | | **N** | | | | |
|  | 22ETCCS024 | AVIKA SURANA | | | AB | | **Y** | | | | |
|  | 22ETCCS025 | BHAWANA KUMARI | | | AB | | **Y** | | | | |
|  | 22ETCCS026 | BHUMI JAIN | | | 51 | | **N** | | | | |
|  | 22ETCCS027 | BHUWAN SUTHAR | | | 00 | | **Y** | | | | |
|  | 22ETCCS028 | CHETAN NAGDA | | | 14 | | **Y** | | | | |
|  | 22ETCCS029 | CHIRAG SHARMA | | | 12 | | **Y** | | | | |
|  | 22ETCCS030 | MS. CIA SHARMMA | | | 28 | | **Y** | | | | |
|  | 22ETCCS031 | DAIVIK SHARMA | | | 12 | | **Y** | | | | |
|  | 22ETCCS032 | DAKSH JAIN | | | 51 | | **N** | | | | |
|  | 22ETCCS033 | DAKSH MENARIA | | | AB | | **Y** | | | | |
|  | 22ETCCS034 | DEV PARAKH | | | AB | | **Y** | | | | |
|  | 22ETCCS035 | DHANESH JOSHI | | | AB | | **Y** | | | | |
|  | 22ETCCS036 | DHEERAJ SINGH THAPA | | | AB | | **Y** | | | | |
|  | 22ETCCS037 | DHWANI KHUSHLANI | | | 70 | | **N** | | | | |
|  | 22ETCCS038 | DIKSHIT DARJI | | | AB | | **Y** | | | | |
|  | 22ETCCS039 | MSDIKSHITA SHARMA | | | 45 | | **Y** | | | | |
|  | 22ETCCS040 | DIVYA BAGORA | | | AB | | **Y** | | | | |
|  | 22ETCCS041 | DIVYANSHU SHARMA | | | AB | | **Y** | | | | |
|  | 22ETCCS042 | DIVYASHAKTI PAL | | | AB | | **Y** | | | | |
|  | 22ETCCS043 | DIYA JAIN | | | AB | | **Y** | | | | |
|  | 22ETCCS044 | DIYA PALIWAL | | | 35 | | **Y** | | | | |
|  | 22ETCCS045 | FALGUN CHOUDHARY | | | 55 | | **N** | | | | |
|  | 22ETCCS046 | GARGI SHARMA | | | AB | | **Y** | | | | |
|  | 22ETCCS047 | GARV BAKLIWAL | | | 29 | | **Y** | | | | |
|  | 22ETCCS048 | GARVIT NANDAWAT | | | 29 | | **Y** | | | | |
|  | 22ETCCS049 | GAURAV JAIN | | | AB | | **Y** | | | | |
|  | 22ETCCS050 | GAURAVI NEGI | | | 30 | | **Y** | | | | |
|  | 22ETCCS051 | GAURI SUTHAR | | | 67 | | **N** | | | | |
|  | 22ETCCS053 | GOURAV POKHARNA | | | 12 | | **Y** | | | | |
|  | 22ETCCS054 | HARDIK BATWAL | | | AB | | **Y** | | | | |
|  | 22ETCCS055 | HARSH DANGI | | | 52 | | **N** | | | | |
|  | 22ETCCS056 | HARSH KAWADIA | | | AB | | **Y** | | | | |
|  | 22ETCCS057 | HARSH TAMBOLI | | | 39 | | **Y** | | | | |
|  | 22ETCCS058 | HARSHAL JAIN | | | 38 | | **Y** | | | | |
|  | 22ETCCS059 | HARSHIT POKHARNA | | | 54 | | **N** | | | | |
|  | 22ETCCS060 | HARSHVARDHAN SINGH CHAUHAN | | | 29 | | **Y** | | | | |
|  | 22ETCCS061 | HARSHVARDHAN SINGH KITAWAT | | | 16 | | **Y** | | | | |
|  | 22ETCCS062 | HEMANT AHUJA | | | 47 | | **Y** | | | | |
|  | 22ETCCS064 | HIMANK LOHAR | | | 16 | | **Y** | | | | |
|  | 22ETCCS065 | HIMANSHI PRAJAPAT | | | 60 | | **N** | | | | |
|  | 22ETCCS066 | HIMANSHU KALAL | | | 50 | | **N** | | | | |
|  | 22ETCCS067 | HONHAR RAWAL | | | AB | | **Y** | | | | |
|  | 22ETCCS068 | HUSAIN BOHRA TIDIWALA | | | 45 | | **Y** | | | | |
|  | 22ETCCS069 | JAINISH JAIN | | | 21 | | **Y** | | | | |
|  | 22ETCCS070 | JAYESH JOSHI | | | 44 | | **Y** | | | | |
|  | 22ETCCS071 | JAYESH MANDAWAT | | | AB | | **Y** | | | | |
|  | 22ETCCS072 | JINENDRA SINGH DODIYA | | | 24 | | **Y** | | | | |
|  | 22ETCCS073 | KANIKA GUPTA | | | AB | | **Y** | | | | |
|  | 22ETCCS074 | KANISHK GUPTA | | | 33 | | **Y** | | | | |
|  | 22ETCCS075 | KAPIL KALAL | | | 15 | | **Y** | | | | |
|  | 22ETCCS076 | KARAN SWAMI | | | AB | | **Y** | | | | |
|  | 22ETCCS077 | KARTIK JAIN | | | 63 | | **N** | | | | |
|  | 22ETCCS078 | KARTIK KRISHNA KALE | | | AB | | **Y** | | | | |
|  | 22ETCCS079 | KAVYA PALIWAL | | | 12 | | **Y** | | | | |
|  | 22ETCCS080 | KETAN OJHA | | | AB | | **Y** | | | | |
|  | 22ETCCS081 | KHUSH JAIN | | | 62 | | **N** | | | | |
|  | 22ETCCS082 | KHUSHI SHARMA | | | AB | | **Y** | | | | |
|  | 22ETCCS083 | KIRTAN TAMBOLI | | | 43 | | **Y** | | | | |
|  | 22ETCCS085 | KONPAL SHARMA | | | AB | | **Y** | | | | |
|  | 22ETCCS086 | KRITI PATWA | | | AB | | **Y** | | | | |
|  | 22ETCCS087 | KUSH PARSAI | | | 41 | | **Y** | | | | |
|  | 22ETCCS088 | KUSHAL MEENA | | | AB | | **Y** | | | | |
|  | 22ETCCS089 | LAKSHIT PALIWAL | | | AB | | **Y** | | | | |
|  | 22ETCCS090 | LAKSHY JAIN | | | 28 | | **Y** | | | | |
|  | 22ETCCS091 | LAKSHYARAJ CHOUDHARY | | | AB | | **Y** | | | | |
|  | 22ETCCS092 | LAL SINGH JHALA | | | 00 | | **Y** | | | | |
|  | 22ETCCS093 | LUCKY LOHAR | | | AB | | **Y** | | | | |
|  | 22ETCCS094 | MAHATV BHATNAGAR | | | 33 | | **Y** | | | | |
|  | 22ETCCS095 | MAHENDRA SINGH SISODIYA | | | 62 | | **N** | | | | |
|  | 22ETCCS096 | MSMAHIMA CHOUHAN | | | AB | | **Y** | | | | |
|  | 22ETCCS097 | MAHIPAL SINGH JHALA | | | 33 | | **Y** | | | | |
|  | 22ETCCS098 | MAHIRAJ SINGH SANKHLA | | | 46 | | **Y** | | | | |
|  | 22ETCCS099 | MANAS PARWANI | | | 11 | | **Y** | | | | |
|  | 22ETCCS100 | MANASVI SHARMA | | | 48 | | **Y** | | | | |
|  | 22ETCCS101 | MANASWINI SHARMA | | | 22 | | **Y** | | | | |
|  | 22ETCCS102 | MANSI DUBE | | | 69 | | **N** | | | | |
|  | 22ETCCS103 | MAYANK KASERA | | | 05 | | **Y** | | | | |
|  | 22ETCCS104 | | MAYANK TRIVEDI | | | AB | | **Y** | | | |
|  | 22ETCCS105 | | MEDHAVI KAUSHIK | | | 35 | | **Y** | | | |
|  | 22ETCCS106 | | MEETRAJ SINGH | | | 33 | | **Y** | | | |
|  | 22ETCCS107 | | MITALI PALIWAL | | | 18 | | **Y** | | | |
|  | 22ETCCS108 | | MITVESH AMETA | | | 6 | | **Y** | | | |
|  | 22ETCCS109 | | MOHAMMED YASAR | | | 9 | | **Y** | | | |
|  | 22ETCCS110 | | MOHIT KALAL | | | 23 | | **Y** | | | |
|  | 22ETCCS111 | | MOHIT KUMAWAT | | | 18 | | **Y** | | | |
|  | 22ETCCS112 | | MONIL SETH | | | AB | | **Y** | | | |
|  | 22ETCCS113 | | NAKUL PANDYA | | | 13 | | **Y** | | | |
|  | 22ETCCS114 | | NEERAJ DANGI | | | AB | | **Y** | | | |
|  | 22ETCCS115 | | NIKHIL RAJ MALI | | | AB | | **Y** | | | |
|  | 22ETCCS116 | | NIMISHKA CHAUHAN | | | 38 | | **Y** | | | |
|  | 22ETCCS117 | | NISHANT MENARIA | | | 50 | | **N** | | | |
|  | 22ETCCS118 | | MSPALAK KUMAWAT | | | AB | | **Y** | | | |
|  | 22ETCCS119 | | PARSHVI HARKAWAT | | | AB | | **Y** | | | |
|  | 22ETCCS120 | | PRAGYA BUJ | | | AB | | **Y** | | | |
|  | 22ETCCS121 | | PRATIBHA SINGH | | | 49 | | **Y** | | | |
|  | 22ETCCS122 | | PRINCE DANGI | | | AB | | **Y** | | | |
|  | 22ETCCS123 | | PRIYANSH JAIN | | | AB | | **Y** | | | |
|  | 22ETCCS124 | | PURVAM CHATURVEDI | | | 13 | | **Y** | | | |
|  | 22ETCCS125 | | PUSHKAR GAMETI | | | 51 | | **N** | | | |
|  | 22ETCCS126 | | PUSHPENDRA MENARIA | | | 70 | | **N** | | | |
|  | 22ETCCS127 | | QAIDJOHAR JUKKER | | | 45 | | **Y** | | | |
|  | 22ETCCS128 | | RAGHAVENDRA BAHETI | | | 42 | | **Y** | | | |
|  | 22ETCCS129 | | RAJ LAXKAR | | | AB | | **Y** | | | |
|  | 22ETCCS130 | | RAJ SHRIMALI | | | 32 | | **Y** | | | |
|  | 22ETCCS131 | | RAM MUNDRA | | | 26 | | **Y** | | | |
|  | 22ETCCS132 | | RAMMITH K R | | | 25 | | **Y** | | | |
|  | 22ETCCS133 | | RANITH BISWAS | | | 09 | | **Y** | | | |
|  | 22ETCCS134 | | RANJIT SINGH SHAKTAWAT | | | AB | | **Y** | | | |
|  | 22ETCCS135 | | MSRAUNAK TAK | | | AB | | **Y** | | | |
|  | 22ETCCS136 | | RAVI JOSHI | | | 15 | | **Y** | | | |
|  | 22ETCCS137 | | RAVI MENARIYA | | | AB | | **Y** | | | |
|  | 22ETCCS138 | | RITIK SHARMA | | | 53 | | **N** | | | |
|  | 22ETCCS139 | | RITISHA SEN | | | AB | | **Y** | | | |
|  | 22ETCCS140 | | ROHIT AGARWAL | | | 33 | | **Y** | | | |
|  | 22ETCCS141 | | ROSHAN SHARMA | | | 55 | | **N** | | | |
|  | 22ETCCS142 | | ROSHNI MENARIA | | | 51 | | **N** | | | |
|  | 22ETCCS143 | | RUDRA PUROHIT | | | 19 | | **Y** | | | |
|  | 22ETCCS144 | | RUDRAVEER SINGH PANWAR | | | 65 | | **N** | | | |
|  | 22ETCCS145 | | SHAAN SANADHYA | | | AB | | **Y** | | | |
|  | 22ETCCS146 | | SHACHI JAIN | | | 35 | | **Y** | | | |
|  | 22ETCCS147 | | SHAURYA KUNDAR | | | 27 | | **Y** | | | |
|  | 22ETCCS148 | | SHOURYA BORDIA | | | 23 | | **Y** | | | |
|  | 22ETCCS149 | | SHUBHAM YADAV | | | AB | | **Y** | | | |
|  | 22ETCCS150 | | SIDDHARTH KUMAR SINGH | | | AB | | **Y** | | | |
|  | 22ETCCS151 | | SIDDHARTH MENARIA | | | 35 | | **Y** | | | |
|  | 22ETCCS152 | | SRAJAN MENARIA | | | AB | | **Y** | | | |
|  | 22ETCCS154 | | SUMIT DANGI | | | 38 | | **Y** | | | |
|  | 22ETCCS155 | | SURBHI TAILOR | | | 29 | | **Y** | | | |
|  | 22ETCCS156 | | SURYANSH MADHUKAR | | | 24 | | **Y** | | | |
|  | 22ETCCS157 | | TALENT JAIN | | | 43 | | **Y** | | | |
|  | 22ETCCS158 | | TANISHK VYAS | | | AB | | **Y** | | | |
|  | 22ETCCS159 | | TANVI SHARMA | | | 34 | | **Y** | | | |
|  | 22ETCCS160 | | TOHEED AKHTAR | | | 38 | | **Y** | | | |
|  | 22ETCCS161 | | TUSHAR PRAJAPAT | | | 19 | | **Y** | | | |
|  | 22ETCCS162 | | TUSHAR SINGH RAWAT | | | 23 | | **Y** | | | |
|  | 22ETCCS163 | | UJJWAL SINGH CHOUHAN | | | 43 | | **Y** | | | |
|  | 22ETCCS164 | | USHIT SHARMA | | | 02 | | **Y** | | | |
|  | 22ETCCS165 | | UTKARSH BAJPAI | | | 14 | | **Y** | | | |
|  | 22ETCCS166 | | VAIBHAV GOYAL | | | AB | | **Y** | | | |
|  | 22ETCCS167 | | VANSH BHATNAGAR | | | 40 | | **Y** | | | |
|  | 22ETCCS168 | | VINAY VADERA | | | 25 | | **Y** | | | |
|  | 22ETCCS169 | | VINITA MENARIA | | | 68 | | **N** | | | |
|  | 22ETCCS170 | | VISHAL MENARIYA | | | 69 | | **N** | | | |
|  | 22ETCCS171 | | VISHAL SINGH RAO | | | 49 | | **Y** | | | |
|  | 22ETCCS172 | | VIVEK SHARMA | | | AB | | **Y** | | | |
|  | 22ETCCS173 | | VIVEK SHRIMALI | | | 22 | | **Y** | | | |
|  | 22ETCCS174 | | YANA OZHA | | | 56 | | **N** | | | |
|  | 22ETCCS175 | | YASH VAGHELA | | | AB | | **Y** | | | |
|  | 22ETCCS300 | | KEVALI ASHOK KANAGALE | | | 70 | | **N** | | | |
|  | 22ETCCS301 | | KARAN SUTHAR | | | 00 | | **Y** | | | |
|  | 22ETCCS302 | | VINEET SHARMA | | | 39 | | **Y** | | | |
|  | 23ETCCS200 | | GOPAL PALIWAL | | | 9 | | **Y** | | | |
|  | 23ETCCS201 | | MANISH VYAS | | | 09 | | **Y** | | | |
|  | 23ETCCS202 | | RAHUL RAJPUROHIT | | | 16 | | **Y** | | | |
|  | 23ETCCS203 | | VAISHALI H PUROHIT | | | AB | | **Y** | | | |
|  | 23ETCCS204 | | YASH SINGHATWADIA | | | 22 | | **Y** | | | |
|  | 20ETCSS095 | | ROUNAK JAIN | | | 56 | | **N** | | | |

**\***(Y, if obtained marks are <50%)

**Signature of Faculty: Signature of HOD**

**Remedial Action Taken to Remove the Gaps (After Mid- Term II)**

| S.no. | University Roll no. | Name of Student | Topics to be discussed in Remedial Class | Schedule Date of Remedial Class | Outcome  Achieved |
| --- | --- | --- | --- | --- | --- |
| 1 | 22ETCCS001 | AADARSH SONI | Conversion NFA to DFA |  | C01 |
| 2 | 22ETCCS002 | ABDUL ATTIF | Conversion to Mealy to Moore machine |  | C01 |
| 3 | 22ETCCS003 | ABHIJEET GARG | Conversion Moore to Mealy Machine |  | C01 |
| 4 | 22ETCCS004 | ADITYA CHHIPA | What is Context free Grammer |  | C01 |
| 5 | 22ETCCS005 | ADITYA GIRI GOSWAMI | Conversion to CFG to CNF |  | C01 |
| 6 | 22ETCCS007 | AJIT KUMAR | Conversion to CFG to GNF |  | C01 |
| 7 | 22ETCCS008 | AKASH SONI | Discuss about LMD and RMD Derivation tree with Context free Grammer |  | C02 |
| 8 | 22ETCCS010 | AKSHAT KUMAR SAINI | Wha is Hamiltonian path problem |  | C02 |
| 9 | 22ETCCS011 | AKSHI BARGURJAR | Travelling salesman problems |  | C02 |
| 10 | 22ETCCS012 | AKSHIT NALWAYA | Kruskal algorithms |  | C02 |
| 11 | 22ETCCS013 | AKSHITA KUMAWAT | Recursive and Recursive enumerable language with examples |  | C02 |
| 12 | 22ETCCS014 | AKSHITA PANCHAL | Conversion R.E To F.A. with examples |  | C02 |
| 13 | 22ETCCS015 | ALI ASGAR ORA WALA | What is Minimization with DFA with examples |  | C02 |
| 14 | 22ETCCS017 | ANGHA VARANGAONKAR | Conversion NFA to DFA |  | C02 |
| 15 | 22ETCCS018 | ANKIT DHANAWAT | Conversion to Mealy to Moore machine |  | C01 |
| 16 | 22ETCCS020 | ARCHIT JAIN | Conversion Moore to Mealy Machine |  | C01 |
| 17 | 22ETCCS021 | ARIN UPADHAYAY | What is Context free Grammer |  | C01 |
| 18 | 22ETCCS024 | AVIKA SURANA | Conversion to CFG to CNF |  | C01 |
| 19 | 22ETCCS025 | BHAWANA KUMARI | Conversion to CFG to GNF |  | C01 |
| 20 | 22ETCCS027 | BHUWAN SUTHAR | Discuss about LMD and RMD Derivation tree with Context free Grammer |  | C01 |
| 21 | 22ETCCS028 | CHETAN NAGDA | Wha is Hamiltonian path problem |  | C01 |
| 22 | 22ETCCS029 | CHIRAG SHARMA | Travelling salesman problems |  | C01 |
| 23 | 22ETCCS030 | MS. CIA SHARMMA | Kruskal algorithms |  | C03 |
| 24 | 22ETCCS031 | DAIVIK SHARMA | Recursive and Recursive enumerable language with examples |  | C03 |
| 25 | 22ETCCS033 | DAKSH MENARIA | Conversion R.E To F.A. with examples |  | C03 |
| 26 | 22ETCCS034 | DEV PARAKH | What is Minimization with DFA with examples |  | C03 |
| 27 | 22ETCCS035 | DHANESH JOSHI | Discuss about LMD and RMD Derivation tree with Context free Grammer |  | C03 |
| 28 | 22ETCCS036 | DHEERAJ SINGH THAPA | Wha is Hamiltonian path problem |  | C03 |
| 29 | 22ETCCS038 | DIKSHIT DARJI | Travelling salesman problems |  | C03 |
| 30 | 22ETCCS039 | MSDIKSHITA SHARMA | Kruskal algorithms |  | C03 |
| 31 | 22ETCCS040 | DIVYA BAGORA | Recursive and Recursive enumerable language with examples |  | C03 |
| 32 | 22ETCCS041 | DIVYANSHU SHARMA | Conversion R.E To F.A. with examples |  | C04 |
| 33 | 22ETCCS042 | DIVYASHAKTI PAL | What is Minimization with DFA with examples |  | C04 |
| 34 | 22ETCCS043 | DIYA JAIN | Conversion NFA to DFA |  | C04 |
| 35 | 22ETCCS044 | DIYA PALIWAL | Conversion to Mealy to Moore machine |  | C04 |
| 36 | 22ETCCS046 | GARGI SHARMA | Conversion Moore to Mealy Machine |  | C04 |
| 37 | 22ETCCS047 | GARV BAKLIWAL | What is Context free Grammer |  | C04 |
| 38 | 22ETCCS048 | GARVIT NANDAWAT | Conversion to CFG to CNF |  | C04 |
| 39 | 22ETCCS049 | GAURAV JAIN | Conversion to CFG to GNF |  | C04 |
| 40 | 22ETCCS050 | GAURAVI NEGI | Discuss about LMD and RMD Derivation tree with Context free Grammer |  | C04 |
| 41 | 22ETCCS053 | GOURAV POKHARNA | Wha is Hamiltonian path problem |  | C04 |
| 42 | 22ETCCS054 | HARDIK BATWAL | Travelling salesman problems |  | C04 |
| 43 | 22ETCCS056 | HARSH KAWADIA | Kruskal algorithms |  | C04 |
| 44 | 22ETCCS057 | HARSH TAMBOLI | Recursive and Recursive enumerable language with examples |  | C04 |
| 45 | 22ETCCS058 | HARSHAL JAIN | Conversion R.E To F.A. with examples |  | C04 |
| 46 | 22ETCCS060 | HARSHVARDHAN SINGH CHAUHAN | What is Minimization with DFA with examples |  | C04 |
| 47 | 22ETCCS061 | HARSHVARDHAN SINGH KITAWAT | Conversion NFA to DFA |  | C04 |
| 48 | 22ETCCS062 | HEMANT AHUJA | Conversion to Mealy to Moore machine |  | C04 |
| 49 | 22ETCCS064 | HIMANK LOHAR | Conversion Moore to Mealy Machine |  | C04 |
| 50 | 22ETCCS067 | HONHAR RAWAL | What is Context free Grammer |  | C04 |
| 51 | 22ETCCS068 | HUSAIN BOHRA TIDIWALA | Conversion to CFG to CNF |  | C04 |
| 52 | 22ETCCS069 | JAINISH JAIN | Conversion to CFG to GNF |  | C04 |
| 53 | 22ETCCS070 | JAYESH JOSHI | Discuss about LMD and RMD Derivation tree with Context free Grammer |  | C04 |
| 54 | 22ETCCS071 | JAYESH MANDAWAT | Wha is Hamiltonian path problem |  | C04 |
| 55 | 22ETCCS072 | JINENDRA SINGH DODIYA | Travelling salesman problems |  | C04 |
| 56 | 22ETCCS073 | KANIKA GUPTA | Kruskal algorithms |  | C04 |
| 57 | 22ETCCS074 | KANISHK GUPTA | Recursive and Recursive enumerable language with examples |  | C04 |
| 58 | 22ETCCS075 | KAPIL KALAL | Conversion R.E To F.A. with examples |  | C04 |
| 59 | 22ETCCS076 | KARAN SWAMI | What is Minimization with DFA with examples |  | C04 |
| 60 | 22ETCCS078 | KARTIK KRISHNA KALE | Discuss about LMD and RMD Derivation tree with Context free Grammer |  | C04 |
| 61 | 22ETCCS079 | KAVYA PALIWAL | Wha is Hamiltonian path problem |  | C04 |
| 62 | 22ETCCS080 | KETAN OJHA | Travelling salesman problems |  | C03 |
| 63 | 22ETCCS082 | KHUSHI SHARMA | Kruskal algorithms |  | C03 |
| 64 | 22ETCCS083 | KIRTAN TAMBOLI | Recursive and Recursive enumerable language with examples |  | C03 |
| 65 | 22ETCCS085 | KONPAL SHARMA | Conversion R.E To F.A. with examples |  | C03 |
| 66 | 22ETCCS086 | KRITI PATWA | What is Minimization with DFA with examples |  | C03 |
| 67 | 22ETCCS087 | KUSH PARSAI | Recursive and Recursive enumerable language with examples |  | C03 |
| 68 | 22ETCCS088 | KUSHAL MEENA | Conversion R.E To F.A. with examples |  | C03 |
| 69 | 22ETCCS089 | LAKSHIT PALIWAL | What is Minimization with DFA with examples |  | C03 |
| 70 | 22ETCCS090 | LAKSHY JAIN | Conversion NFA to DFA |  | C03 |
| 71 | 22ETCCS091 | LAKSHYARAJ CHOUDHARY | Conversion to Mealy to Moore machine |  | C03 |
| 72 | 22ETCCS092 | LAL SINGH JHALA | Conversion Moore to Mealy Machine |  | C03 |
| 73 | 22ETCCS093 | LUCKY LOHAR | What is Context free Grammer |  | C03 |
| 74 | 22ETCCS094 | MAHATV BHATNAGAR | Conversion to CFG to CNF |  | C03 |
| 75 | 22ETCCS096 | MSMAHIMA CHOUHAN | Conversion to CFG to GNF |  | C03 |
| 76 | 22ETCCS097 | MAHIPAL SINGH JHALA | Discuss about LMD and RMD Derivation tree with Context free Grammer |  | C03 |
| 77 | 22ETCCS098 | MAHIRAJ SINGH SANKHLA | What is Hamiltonian path problem |  | C03 |
| 78 | 22ETCCS099 | MANAS PARWANI | Travelling salesman problems |  | C03 |
| 79 | 22ETCCS100 | MANASVI SHARMA | Kruskal algorithms |  | C03 |
| 80 | 22ETCCS101 | MANASWINI SHARMA | Recursive and Recursive enumerable language with examples |  | C03 |
| 81 | 22ETCCS103 | MAYANK KASERA | Conversion R.E To F.A. with examples |  | C03 |
| 82 | 22ETCCS104 | MAYANK TRIVEDI | What is Minimization with DFA with examples |  | C03 |
| 83 | 22ETCCS105 | MEDHAVI KAUSHIK | Conversion NFA to DFA |  | C03 |
| 84 | 22ETCCS106 | MEETRAJ SINGH | Conversion to Mealy to Moore machine |  | C03 |
| 85 | 22ETCCS107 | MITALI PALIWAL | Conversion Moore to Mealy Machine |  | C03 |
| 86 | 22ETCCS108 | MITVESH AMETA | What is Context free Grammer |  | C03 |
| 87 | 22ETCCS109 | MOHAMMED YASAR | Conversion to CFG to CNF |  | C03 |
| 88 | 22ETCCS110 | MOHIT KALAL | Conversion to CFG to GNF |  | C03 |
| 89 | 22ETCCS111 | MOHIT KUMAWAT | Discuss about LMD and RMD Derivation tree with Context free Grammer |  | C03 |
| 90 | 22ETCCS112 | MONIL SETH | What is Hamiltonian path problem |  | C03 |
| 91 | 22ETCCS113 | NAKUL PANDYA | What is Minimization with DFA with examples |  | C03 |
| 92 | 22ETCCS114 | NEERAJ DANGI | Discuss about LMD and RMD Derivation tree with Context free Grammer |  | C03 |
| 93 | 22ETCCS115 | NIKHIL RAJ MALI | Wha is Hamiltonian path problem |  | C03 |
| 94 | 22ETCCS116 | NIMISHKA CHAUHAN | Travelling salesman problems |  | C03 |
| 95 | 22ETCCS118 | MSPALAK KUMAWAT | Kruskal algorithms |  | C03 |
| 96 | 22ETCCS119 | PARSHVI HARKAWAT | Recursive and Recursive enumerable language with examples |  | C03 |
| 97 | 22ETCCS120 | PRAGYA BUJ | Conversion R.E To F.A. with examples |  | C03 |
| 98 | 22ETCCS121 | PRATIBHA SINGH | What is Minimization with DFA with examples |  | C03 |
| 99 | 22ETCCS122 | PRINCE DANGI | Recursive and Recursive enumerable language with examples |  | C03 |
| 100 | 22ETCCS123 | PRIYANSH JAIN | Conversion R.E To F.A. with examples |  | C03 |
| 101 | 22ETCCS124 | PURVAM CHATURVEDI | What is Minimization with DFA with examples |  | C03 |
| 102 | 22ETCCS127 | QAIDJOHAR JUKKER | Conversion NFA to DFA |  | C03 |
| 103 | 22ETCCS128 | RAGHAVENDRA BAHETI | Conversion to Mealy to Moore machine |  | C03 |
| 104 | 22ETCCS129 | RAJ LAXKAR | Conversion Moore to Mealy Machine |  | C03 |
| 105 | 22ETCCS130 | RAJ SHRIMALI | What is Context free Grammer |  | C03 |
| 106 | 22ETCCS131 | RAM MUNDRA | Conversion to CFG to CNF |  | C03 |
| 107 | 22ETCCS132 | RAMMITH K R | Conversion to CFG to GNF |  | C03 |
| 108 | 22ETCCS133 | RANITH BISWAS | Discuss about LMD and RMD Derivation tree with Context free Grammer |  | C03 |
| 109 | 22ETCCS134 | RANJIT SINGH SHAKTAWAT | What is Hamiltonian path problem |  | C03 |
| 110 | 22ETCCS135 | MSRAUNAK TAK | Travelling salesman problems |  | C04 |
| 111 | 22ETCCS136 | RAVI JOSHI | Kruskal algorithms |  | C04 |
| 112 | 22ETCCS137 | RAVI MENARIYA | Recursive and Recursive enumerable language with examples |  | C04 |
| 113 | 22ETCCS139 | RITISHA SEN | What is Minimization with DFA with examples |  | C04 |
| 114 | 22ETCCS140 | ROHIT AGARWAL | Recursive and Recursive enumerable language with examples |  | C04 |
| 115 | 22ETCCS143 | RUDRA PUROHIT | Conversion R.E To F.A. with examples |  | C01 |
| 116 | 22ETCCS145 | SHAAN SANADHYA | What is Minimization with DFA with examples |  | C01 |
| 117 | 22ETCCS146 | SHACHI JAIN | Conversion NFA to DFA |  | C01 |
| 118 | 22ETCCS147 | SHAURYA KUNDAR | Conversion to Mealy to Moore machine |  | C01 |
| 119 | 22ETCCS148 | SHOURYA BORDIA | Conversion Moore to Mealy Machine |  | C02 |
| 120 | 22ETCCS149 | SHUBHAM YADAV | What is Context free Grammer |  | C02 |
| 121 | 22ETCCS150 | SIDDHARTH KUMAR SINGH | Conversion to CFG to CNF |  | C02 |
| 122 | 22ETCCS151 | SIDDHARTH MENARIA | Conversion to CFG to GNF |  | C02 |
| 123 | 22ETCCS152 | SRAJAN MENARIA | Discuss about LMD and RMD Derivation tree with Context free Grammer |  | C02 |
| 124 | 22ETCCS154 | SUMIT DANGI | Wha is Hamiltonian path problem |  | C02 |
| 125 | 22ETCCS155 | SURBHI TAILOR | Travelling salesman problems |  | C02 |
| 126 | 22ETCCS156 | SURYANSH MADHUKAR | Kruskal algorithms |  | C02 |
| 127 | 22ETCCS157 | TALENT JAIN | Recursive and Recursive enumerable language with examples |  | C01 |
| 128 | 22ETCCS158 | TANISHK VYAS | Conversion R.E To F.A. with examples |  | C01 |
| 129 | 22ETCCS159 | TANVI SHARMA | What is Minimization with DFA with examples |  | C01 |
| 130 | 22ETCCS160 | TOHEED AKHTAR | Recursive and Recursive enumerable language with examples |  | C01 |
| 131 | 22ETCCS161 | TUSHAR PRAJAPAT | Conversion R.E To F.A. with examples |  | C01 |
| 132 | 22ETCCS162 | TUSHAR SINGH RAWAT | What is Minimization with DFA with examples |  | C01 |
| 133 | 22ETCCS163 | UJJWAL SINGH CHOUHAN | Conversion NFA to DFA |  | C01 |
| 134 | 22ETCCS164 | USHIT SHARMA | Conversion to Mealy to Moore machine |  | C01 |
| 135 | 22ETCCS165 | UTKARSH BAJPAI | Conversion Moore to Mealy Machine |  | C03 |
| 136 | 22ETCCS166 | VAIBHAV GOYAL | What is Context free Grammer |  | C03 |
| 137 | 22ETCCS167 | VANSH BHATNAGAR | Conversion to CFG to CNF |  | C03 |
| 138 | 22ETCCS168 | VINAY VADERA | Conversion to CFG to GNF |  | C03 |
| 139 | 22ETCCS171 | VISHAL SINGH RAO | Discuss about LMD and RMD Derivation tree with Context free Grammer |  | C03 |
| 140 | 22ETCCS172 | VIVEK SHARMA | Conversion to CFG to CNF |  | C03 |
| 141 | 22ETCCS173 | VIVEK SHRIMALI | Conversion to CFG to GNF |  | C03 |
| 142 | 22ETCCS175 | YASH VAGHELA | Discuss about LMD and RMD Derivation tree with Context free Grammer |  | C03 |
| 145 | 22ETCCS301 | KARAN SUTHAR | What is Hamiltonian path problem |  | C03 |
| 146 | 22ETCCS302 | VINEET SHARMA | What is Minimization with DFA with examples |  | C04 |
| 147 | 23ETCCS200 | GOPAL PALIWAL | Discuss about LMD and RMD Derivation tree with Context free Grammer |  | C04 |
| 148 | 23ETCCS201 | MANISH VYAS | Wha is Hamiltonian path problem |  | C04 |
| 149 | 23ETCCS202 | RAHUL RAJPUROHIT | Travelling salesman problems |  | C04 |
| 150 | 23ETCCS203 | VAISHALI H PUROHIT | Kruskal algorithms |  | C04 |
| 151 | 23ETCCS204 | YASH SINGHATWADIA | Recursive and Recursive enumerable language with examples |  | C04 |

**Model Question Paper**

**STUDENT PERFORMANCE REPORT**

| **ROLL NO.** | **NAME** | **I-MID** | **II-MID** | **AVG** | **Assignment** |
| --- | --- | --- | --- | --- | --- |
| 22ETCCS001 | AADARSH SONI | AB | 16 | 16 | B |
| 22ETCCS002 | ABDUL ATTIF | 26 | 00 | 13 | B |
| 22ETCCS003 | ABHIJEET GARG | 43 | AB | 43 | A |
| 22ETCCS004 | ADITYA CHHIPA | 42 | 48 | 45 | A |
| 22ETCCS005 | ADITYA GIRI GOSWAMI | 35 | 33 | 34 | A |
| 22ETCCS006 | ADITYA SHARMA | 67 | 64 | 65.5 | A++ |
| 22ETCCS007 | AJIT KUMAR | 31 | 39 | 35 | B |
| 22ETCCS008 | AKASH SONI | 49 | 31 | 40 | B |
| 22ETCCS009 | AKSHAT JANGID | 49 | 67 | 58 | A+ |
| 22ETCCS010 | AKSHAT KUMAR SAINI | 27 | 44 | 35.5 | B |
| 22ETCCS011 | AKSHI BARGURJAR | 30 | 38 | 34 | B |
| 22ETCCS012 | AKSHIT NALWAYA | 23 | 25 | 24 | C |
| 22ETCCS013 | AKSHITA KUMAWAT | 51 | AB | 51 | A |
| 22ETCCS014 | AKSHITA PANCHAL | 21 | AB | 21 | B |
| 22ETCCS015 | ALI ASGAR ORA WALA | 18 | 28 | 23 | B |
| 22ETCCS017 | ANGHA VARANGAONKAR | 59 | 44 | 51.5 | C |
| 22ETCCS018 | ANKIT DHANAWAT | 45 | 11 | 28 | B |
| 22ETCCS019 | ANSHIKA JAIN | 50 | 53 | 51.5 | B |
| 22ETCCS020 | ARCHIT JAIN | 15 | 00 | 7.5 | C |
| 22ETCCS021 | ARIN UPADHAYAY | 26 | AB | 26 | C |
| 22ETCCS022 | ARUSH MENARIA | 63 | 69 | 66 | B |
| 22ETCCS023 | ARYAN TALWAR | 37 | 52 | 44.5 | B |
| 22ETCCS024 | AVIKA SURANA | 23 | AB | 23 | B |
| 22ETCCS025 | BHAWANA KUMARI | 60 | AB | 60 | A |
| 22ETCCS026 | BHUMI JAIN | 50 | 51 | 50.5 | B+ |
| 22ETCCS027 | BHUWAN SUTHAR | AB | 00 | 0 | D |
| 22ETCCS028 | CHETAN NAGDA | AB | 14 | 14 | C |
| 22ETCCS029 | CHIRAG SHARMA | AB | 12 | 12 | C |
| 22ETCCS030 | MS. CIA SHARMMA | 57 | 28 | 42.5 | B |
| 22ETCCS031 | DAIVIK SHARMA | 28 | 12 | 20 | C |
| 22ETCCS032 | DAKSH JAIN | 36 | 51 | 43.5 | B |
| 22ETCCS033 | DAKSH MENARIA | 11 | AB | 11 | C |
| 22ETCCS034 | DEV PARAKH | 50 | AB | 50 | B+ |
| 22ETCCS035 | DHANESH JOSHI | 58 | AB | 58 | B+ |
| 22ETCCS036 | DHEERAJ SINGH THAPA | AB | AB | #DIV/0! | - |
| 22ETCCS037 | DHWANI KHUSHLANI | 60 | 70 | 65 | A+ |
| 22ETCCS038 | DIKSHIT DARJI | 33 | AB | 33 | C |
| 22ETCCS039 | MSDIKSHITA SHARMA | 29 | 45 | 37 | C |
| 22ETCCS040 | DIVYA BAGORA | 31 | AB | 31 | C |
| 22ETCCS041 | DIVYANSHU SHARMA | 11 | AB | 11 | D |
| 22ETCCS042 | DIVYASHAKTI PAL | 42 | AB | 42 | B |
| 22ETCCS043 | DIYA JAIN | 25 | AB | 25 | C |
| 22ETCCS044 | DIYA PALIWAL | 42 | 35 | 38.5 | C |
| 22ETCCS045 | FALGUN CHOUDHARY | 67 | 55 | 61 | A+ |
| 22ETCCS046 | GARGI SHARMA | 51 | AB | 51 | A |
| 22ETCCS047 | GARV BAKLIWAL | 31 | 29 | 30 | B |
| 22ETCCS048 | GARVIT NANDAWAT | AB | 29 | 29 | B |
| 22ETCCS049 | GAURAV JAIN | 5 | AB | 5 | D |
| 22ETCCS050 | GAURAVI NEGI | 33 | 30 | 31.5 | C |
| 22ETCCS051 | GAURI SUTHAR | 68 | 67 | 67.5 | A+ |
| 22ETCCS053 | GOURAV POKHARNA | 26 | 12 | 19 | C |
| 22ETCCS054 | HARDIK BATWAL | 64 | AB | 64 | A+ |
| 22ETCCS055 | HARSH DANGI | 55 | 52 | 53.5 | A |
| 22ETCCS056 | HARSH KAWADIA | 47 | AB | 47 | B |
| 22ETCCS057 | HARSH TAMBOLI | 46 | 39 | 42.5 | B |
| 22ETCCS058 | HARSHAL JAIN | 52 | 38 | 45 | B |
| 22ETCCS059 | HARSHIT POKHARNA | 49 | 54 | 51.5 | A |
| 22ETCCS060 | HARSHVARDHAN SINGH CHAUHAN | 29 | 29 | 29 | C |
| 22ETCCS061 | HARSHVARDHAN SINGH KITAWAT | 20 | 16 | 18 | C |
| 22ETCCS062 | HEMANT AHUJA | 54 | 47 | 50.5 | A |
| 22ETCCS064 | HIMANK LOHAR | AB | 16 | 16 | C |
| 22ETCCS065 | HIMANSHI PRAJAPAT | 35 | 60 | 47.5 | B |
| 22ETCCS066 | HIMANSHU KALAL | 35 | 50 | 42.5 | B |
| 22ETCCS067 | HONHAR RAWAL | AB | AB | #DIV/0! | - |
| 22ETCCS068 | HUSAIN BOHRA TIDIWALA | 28 | 45 | 36.5 | C |
| 22ETCCS069 | JAINISH JAIN | 12 | 21 | 16.5 | D |
| 22ETCCS070 | JAYESH JOSHI | 36 | 44 | 40 | B |
| 22ETCCS071 | JAYESH MANDAWAT | AB | AB | #DIV/0! | - |
| 22ETCCS072 | JINENDRA SINGH DODIYA | 34 | 24 | 29 | D |
| 22ETCCS073 | KANIKA GUPTA | 17 | AB | 17 | D |
| 22ETCCS074 | KANISHK GUPTA | 49 | 33 | 41 | C |
| 22ETCCS075 | KAPIL KALAL | AB | 15 | 15 | D |
| 22ETCCS076 | KARAN SWAMI | 50 | AB | 50 | A |
| 22ETCCS077 | KARTIK JAIN | 45 | 63 | 54 | A |
| 22ETCCS078 | KARTIK KRISHNA KALE | 38 | AB | 38 | C |
| 22ETCCS079 | KAVYA PALIWAL | AB | 12 | 12 | C |
| 22ETCCS080 | KETAN OJHA | 21 | AB | 21 | B |
| 22ETCCS081 | KHUSH JAIN | 59 | 62 | 60.5 | D |
| 22ETCCS082 | KHUSHI SHARMA | 37 | AB | 37 | D |
| 22ETCCS083 | KIRTAN TAMBOLI | 26 | 43 | 34.5 | C |
| 22ETCCS085 | KONPAL SHARMA | 63 | AB | 63 | D |
| 22ETCCS086 | KRITI PATWA | 62 | AB | 62 | A |
| 22ETCCS087 | KUSH PARSAI | 40 | 41 | 40.5 | A |
| 22ETCCS088 | KUSHAL MEENA | 27 | AB | 27 | C |
| 22ETCCS089 | LAKSHIT PALIWAL | AB | AB | #DIV/0! | C |
| 22ETCCS090 | LAKSHY JAIN | 11 | 28 | 19.5 | B |
| 22ETCCS091 | LAKSHYARAJ CHOUDHARY | 28 | AB | 28 | D |
| 22ETCCS092 | LAL SINGH JHALA | 7 | 00 | 3.5 | D |
| 22ETCCS093 | LUCKY LOHAR | 25 | AB | 25 | C |
| 22ETCCS094 | MAHATV BHATNAGAR | 18 | 33 | 25.5 | D |
| 22ETCCS095 | MAHENDRA SINGH SISODIYA | AB | 62 | 62 | A |
| 22ETCCS096 | MSMAHIMA CHOUHAN | 44 | AB | 44 | A |
| 22ETCCS097 | MAHIPAL SINGH JHALA | 31 | 33 | 32 | C |
| 22ETCCS098 | MAHIRAJ SINGH SANKHLA | 31 | 46 | 38.5 | C |
| 22ETCCS099 | MANAS PARWANI | 24 | 11 | 17.5 | B |
| 22ETCCS100 | MANASVI SHARMA | 44 | 48 | 46 | D |
| 22ETCCS101 | MANASWINI SHARMA | 36 | 22 | 29 | D |
| 22ETCCS102 | MANSI DUBE | 63 | 69 | 66 | C |
| 22ETCCS103 | MAYANK KASERA | 8 | 05 | 6.5 | D |
| 22ETCCS104 | MAYANK TRIVEDI | 8 | AB | 8 | A |
| 22ETCCS105 | MEDHAVI KAUSHIK | 31 | 35 | 33 | A |
| 22ETCCS106 | MEETRAJ SINGH | 29 | 33 | 31 | C |
| 22ETCCS107 | MITALI PALIWAL | 37 | 18 | 27.5 | C |
| 22ETCCS108 | MITVESH AMETA | AB | 6 | 6 | B |
| 22ETCCS109 | MOHAMMED YASAR | 9 | 9 | 9 | D |
| 22ETCCS110 | MOHIT KALAL | 19 | 23 | 21 | D |
| 22ETCCS111 | MOHIT KUMAWAT | 17 | 18 | 17.5 | C |
| 22ETCCS112 | MONIL SETH | 65 | AB | 65 | D |
| 22ETCCS113 | NAKUL PANDYA | 20 | 13 | 16.5 | A |
| 22ETCCS114 | NEERAJ DANGI | 23 | AB | 23 | A |
| 22ETCCS115 | NIKHIL RAJ MALI | 42 | AB | 42 | C |
| 22ETCCS116 | NIMISHKA CHAUHAN | 46 | 38 | 42 | C |
| 22ETCCS117 | NISHANT MENARIA | 47 | 50 | 48.5 | B |
| 22ETCCS118 | MSPALAK KUMAWAT | 48 | AB | 48 | D |
| 22ETCCS119 | PARSHVI HARKAWAT | 41 | AB | 41 | D |
| 22ETCCS120 | PRAGYA BUJ | 58 | AB | 58 | C |
| 22ETCCS121 | PRATIBHA SINGH | 53 | 49 | 51 | D |
| 22ETCCS122 | PRINCE DANGI | 15 | AB | 15 | A |
| 22ETCCS123 | PRIYANSH JAIN | 63 | AB | 63 | A |
| 22ETCCS124 | PURVAM CHATURVEDI | 9 | 13 | 11 | C |
| 22ETCCS125 | PUSHKAR GAMETI | 23 | 51 | 37 | C |
| 22ETCCS126 | PUSHPENDRA MENARIA | 56 | 70 | 63 | B |
| 22ETCCS127 | QAIDJOHAR JUKKER | 45 | 45 | 45 | D |
| 22ETCCS128 | RAGHAVENDRA BAHETI | 15 | 42 | 28.5 | D |
| 22ETCCS129 | RAJ LAXKAR | 7 | AB | 7 | C |
| 22ETCCS130 | RAJ SHRIMALI | 30 | 32 | 31 | D |
| 22ETCCS131 | RAM MUNDRA | 22 | 26 | 24 | A |
| 22ETCCS132 | RAMMITH K R | 43 | 25 | 34 | A |
| 22ETCCS133 | RANITH BISWAS | 4 | 09 | 6.5 | C |
| 22ETCCS134 | RANJIT SINGH SHAKTAWAT | 50 | AB | 50 | C |
| 22ETCCS135 | MSRAUNAK TAK | 52 | AB | 52 | B |
| 22ETCCS136 | RAVI JOSHI | 14 | 15 | 14.5 | D |
| 22ETCCS137 | RAVI MENARIYA | 36 | AB | 36 | D |
| 22ETCCS138 | RITIK SHARMA | 44 | 53 | 48.5 | C |
| 22ETCCS139 | RITISHA SEN | 38 | AB | 38 | D |
| 22ETCCS140 | ROHIT AGARWAL | 46 | 33 | 39.5 | A |
| 22ETCCS141 | ROSHAN SHARMA | 26 | 55 | 40.5 | A |
| 22ETCCS142 | ROSHNI MENARIA | 23 | 51 | 37 | C |
| 22ETCCS143 | RUDRA PUROHIT | 34 | 19 | 26.5 | C |
| 22ETCCS144 | RUDRAVEER SINGH PANWAR | 51 | 65 | 58 | B |
| 22ETCCS145 | SHAAN SANADHYA | 9 | AB | 9 | D |
| 22ETCCS146 | SHACHI JAIN | 18 | 35 | 26.5 | D |
| 22ETCCS147 | SHAURYA KUNDAR | 18 | 27 | 22.5 | C |
| 22ETCCS148 | SHOURYA BORDIA | 30 | 23 | 26.5 | D |
| 22ETCCS149 | SHUBHAM YADAV | AB | AB | #DIV/0! | A |
| 22ETCCS150 | SIDDHARTH KUMAR SINGH | AB | AB | #DIV/0! | A |
| 22ETCCS151 | SIDDHARTH MENARIA | 32 | 35 | 33.5 | C |
| 22ETCCS152 | SRAJAN MENARIA | 11 | AB | 11 | C |
| 22ETCCS154 | SUMIT DANGI | 27 | 38 | 32.5 | B |
| 22ETCCS155 | SURBHI TAILOR | 23 | 29 | 26 | D |
| 22ETCCS156 | SURYANSH MADHUKAR | 29 | 24 | 26.5 | D |
| 22ETCCS157 | TALENT JAIN | 33 | 43 | 38 | C |
| 22ETCCS158 | TANISHK VYAS | 28 | AB | 28 | D |
| 22ETCCS159 | TANVI SHARMA | 28 | 34 | 31 | A |
| 22ETCCS160 | TOHEED AKHTAR | AB | 38 | 38 | A |
| 22ETCCS161 | TUSHAR PRAJAPAT | AB | 19 | 19 | C |
| 22ETCCS162 | TUSHAR SINGH RAWAT | 15 | 23 | 19 | C |
| 22ETCCS163 | UJJWAL SINGH CHOUHAN | 25 | 43 | 34 | B |
| 22ETCCS164 | USHIT SHARMA | 35 | 02 | 18.5 | D |
| 22ETCCS165 | UTKARSH BAJPAI | 29 | 14 | 21.5 | D |
| 22ETCCS166 | VAIBHAV GOYAL | 52 | AB | 52 | C |
| 22ETCCS167 | VANSH BHATNAGAR | 39 | 40 | 39.5 | D |
| 22ETCCS168 | VINAY VADERA | 11 | 25 | 18 | A |
| 22ETCCS169 | VINITA MENARIA | 60 | 68 | 64 | A |
| 22ETCCS170 | VISHAL MENARIYA | 58 | 69 | 63.5 | C |
| 22ETCCS171 | VISHAL SINGH RAO | 37 | 49 | 43 | C |
| 22ETCCS172 | VIVEK SHARMA | 66 | AB | 66 | B |
| 22ETCCS173 | VIVEK SHRIMALI | 25 | 22 | 23.5 | D |
| 22ETCCS174 | YANA OZHA | 62 | 56 | 59 | D |
| 22ETCCS175 | YASH VAGHELA | 40 | AB | 40 | C |
| 22ETCCS300 | KEVALI ASHOK KANAGALE | 68 | 70 | 69 | D |
| 22ETCCS301 | KARAN SUTHAR | 0 | 00 | 0 | A |
| 22ETCCS302 | VINEET SHARMA | 18 | 39 | 28.5 | A |
| 23ETCCS200 | GOPAL PALIWAL | 14 | 9 | 11.5 | C |
| 23ETCCS201 | MANISH VYAS | 4 | 09 | 6.5 | D |
| 23ETCCS202 | RAHUL RAJPUROHIT | AB | 16 | 16 | A |
| 23ETCCS203 | VAISHALI H PUROHIT | 31 | AB | 31 | A |
| 23ETCCS204 | YASH SINGHATWADIA | 18 | 22 | 20 | C |
| 20ETCSS095 | ROUNAK JAIN | AB | 56 | 56 | A |

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**Signature of Faculty: Signature of HOD**

**RESULT ANALYSIS**

**Indirect Assessment:**

**Overall Teacher Self Assessment (at the completion of course) in terms of course objective and outcomes**

**Course Objectives:**

To understand the fundamental of Finite Automata and regular Grammar.

To learn about convert to NFA to DFA state diagram.

To implement Final state of DFA and DPDA.

To design the algorithms of Finite Automata and Non deterministic finite automata.

**Course Outcomes**:

Students can explain the theory and principles of Theory of computation.

Students can design and implement of final state diagram.

Students can implement a basic computational techniques and regular grammar .

Students can design algorithms and state diagram using mathematical computational theorum.

**Methodology to identify bright student**

Considered a range of criteria, including academic performance, creativity, critical thinking, problem-solving skills, and enthusiasm for learning. Bright students often excel in multiple areas. Observed how students perform in the classroom. In terms of active participation, engagement in discussions, leadership, and the ability to grasp complex concepts.

**Efforts to keep students engaged**

1. **Active Learning:**
   * Incorporate active learning strategies, such as group discussions, problem-solving activities, and hands-on projects. Active participation keeps students engaged and encourages critical thinking.
2. **Varied Teaching Methods:**
   * Use a variety of teaching methods, including lectures, group work, multimedia presentations, and interactive activities to cater to different learning preferences.
3. **Technology Integration:**
   * Leverage technology, such as online platforms, educational apps, and interactive software, to make lessons more engaging and interactive.

**Some extra learning for bright students**

1. <https://www.geeksforgeeks.org/static-and-dynamic-scoping/?ref=lbp>

2. <https://www.javatpoint.com/lex>

3. <https://www.javatpoint.com/bnf-notation>.

**Methodology to identify weak student**

Considered a range of criteria, including classroom observation, formative assessment, summative assessment, assignment review e.t.c. Weak students are struggling students with sensitivity and a desire to support their learning. Some measures, such as additional tutoring, personalized assignments, or alternative assessment methods, to help students succeed.

**Targeted inventions for weak student**

**1. Additional Resources**

Offer supplementary learning materials, such as textbooks, online resources, or multimedia content, to provide alternative explanations and reinforce key concepts.

**2. Remedial classes**

Establish a tutoring program where students can receive extra help from teachers.

**3. Flipped classroom**

Students are assigned pre-class learning materials, often in the form of videos, readings, or online modules, to cover the foundational concepts before coming to class.

Some additional resources or links for student to improve their understanding for topic

1. Cohen, Introduction to Computer Theory, Addison Wesley.
2. Papadimitriou, Introduction to Theory of Computing, Prentice Hall.
3. Theory of Computer Science Automata ,Language and Computation K.L.P. Mishra N. Chandrasekhar

4**.** <https://nptel.ac.in/courses/106/104/106104148/>