School of Aeronautics (Neemrana)
I-04, RIICO Industrial Area, Neemrana, Dist. Alwar, Rajasthan
Approved by Director General of Civil Aviation, Govt. of India, All India Council for Technical Education
Ministry of HRD, Govt of India & Affiliated to Rajasthan Technical University, Kota & BTU, Bikaner Rajasthan

Question Paper For Internal Assessment Examination (Theory) - Credit 2 / 111

Instructions for Students / Faculty

Mid Term I (Total 40 Marks, 1.5 HRS., Syllabus from Unit-1)

- Part A: Total number of questions to be given are four (2 from CO1 and 2 from CO2), each carrying 2 marks and are compulsory to attend. There is no choice. They are short answer type questions (**Not More Than 25 Words for Both Question & Answer)**, no objective type or fill in the blanks. Total 8 marks.
- Part B: Total number of questions to be given are six (3 from CO1 and 3 from CO2), out of which student has to answer four (2 from CO1 and 2 from CO2). They are long answer type **(Not More Than 50 Words for Question Only)**, each carrying 4 marks. Total 16 marks.
- Part C: Total number of questions to be given are four (2 from CO1 and 2 from CO2), out of which student has to answer two (1 from CO1 and 1 from CO2). They are numerical answer type / fully elaborative type* **(Not More Than 70 Words for Question Only)**, each carrying 8 marks. Total 16 marks.

Mid Term II (Total 60 Marks, 2 HRS., Syllabus from Unit- 2)

- Part A: Total number of questions to be given are ten (5 from CO3 and 5 from CO4), each carrying 2 marks and are compulsory to attend. There is no choice. They are short answer type questions **(Not More Than 25 Words for Both Question & Answer)**, no objective type or fill in the blanks. Total 20 marks.
- Part B: Total number of questions to be given are six (3 from CO3 and 3 from CO4), out of which student has to answer four (2 from CO3 and 2 from CO4). They are long answer type **(Not More Than 50 Words for Question Only)**, each carrying 4 marks. Total 16 marks.
- Part C: Total number of questions to be given are four (2 from CO3 and 2 from CO4), out of which student has to answer any two (1 from CO3 and 1 from CO4). They are numerical answer type / fully elaborative type **(Not More Than 70 Words For Question Only)** *, each carrying 12 marks. Total 24 marks.

Mid Term III (Total 60 Marks, 2 HRS., Syllabus from Unit- 3)

- Part A: Total number of questions to be given are ten (5 from CO5 and 5 from CO6), each carrying 2 marks and are compulsory to attend. There is no choice. They are short answer type questions **(Not More Than 25 Words for Both Question & Answer)**, no objective type or fill in the blanks. Total 20 marks.
- Part B: Total number of questions to be given are six (3 from CO5 and 3 from CO6), out of which student has to answer four (2 from CO5 and 2 from CO6). They are long answer type **(Not More Than 50 Words for Question Only)**, each carrying 4 marks. Total 16 marks.
- Part C: Total number of questions to be given are four (2 from CO5 and 2 from CO6), out of which student has to answer any two (1 from CO5 and 1 from CO6). They are numerical answer type / fully elaborative type **(Not More Than 70 Words For Question Only)** *, each carrying 12 marks. Total 24 marks.

*** LIST OF ELABORATIVE THEORY QUESTION SUBJECTS**: 1 FY1 - 04 Communication Skills (Cr 2), 1 FY1 - 05 Human Values (Cr 2), 2 FY1 - 04 Communication Skills (Cr 2), 2 FY1 - 05 Human Values (Cr 2), 3 AN1 - 02 Technical Communication (Cr 2), 4 MH1 - 02 Technical Communications (Cr 2), 4 MH1 - 03 Economics and Financial Accounting (Cr 2), 5 AN5 - 12 Aircraft Maintenance Practices (Cr 2), 6 AN3 - 01 Mechanics of Composite Materials (Cr 2), 6 AN5 - 12 Aircraft Rules and Regulation (Cr 2), 6 MH3 - 01 Automobile Engineering (Cr 2).

Instructions For Faculties:

There should be total 6 Course Outcomes (COs) for each subject.

- Mid Term Question Papers are to be submitted as per Course Outcomes (COs) which should be divided equally in Part A, Part B and Part C according to Mid Term Examination and Credit Point.
- In Mid Term-1, the questions are to be given from CO1 and CO2. In Mid Term-2, the questions are to be given from CO3 and CO4. Similarly, in Mid Term-3, the questions are to be given from CO5 and CO6.
- **FACULTY MEMBERS, PLEASE ENSURE EXCEPT ABOVE LISTED SUBJECTS, NO THEORITICAL ELABORATIVE QUESTION SHOULD BE GIVEN IN PART 'C' OF QUESTION PAPER**

INSTRUCTION FOR STUDENTS

- **STUDENT IS ALLOWED TO ENTER LATE NOT MORE THAN 15 MIN AFTER STARTING OF EXAM, AND MAY LEAVE THE EXAM HALL ON EXPIRY OF ATLEAST OF 1 Hr FROM THE STARTING TIME OF EXAMINATION.**

Question Paper & Student Details

Type of Exam	Mid Term 1	**Date of Submission**	21/06/2021
Name of Faculty	Tarun Thukral	**Date of Examination**	28/06/2021
Course	B.Tech (Aeronautical Engineering)	**Semester**	SEMESTER : 4
Batch	DS - 2019	**Subject**	4 AN2 - 01 Digital Science (Cr 2)

COURSE OUTCOMES FOR REFERENCE TO FRAME QUESTION PAPER
(Faculties are required to mention relevant Course Outcome number against the respective question in QP)

Course Outcome	CO1: Understand basic concepts of Number system, Logic Gates, and Boolean algebra techniques in real life problems. CO2: Apply the Minimization techniques and data buses for solving engineering problems. CO3: Appreciate the purpose of using combinational systems and sequential circuits to create a new domain in which it is easier to handle the problem that is being investigated in society. CO4: Obtain knowledge on sequential systems used in wide variety of situations in engineering domain. CO5: Design Electronic and Electrical Measuring Instruments which will perform the variety of task in field of aeronautical engineering. CO6: Summarize Electromagnetic Environment and its application that they would find useful in aeronautical engineering disciplines.

Email I'd	tarunthukral@soaneemrana.org	**Phone No.**	750-096-6580

Student Name		**Student Reg No.**	
Part A			
INSTRUCTIONS FOR PART A: ALL THE QUESTIONS ARE COMPULSORY TO ATTEND			
1. CHOOSE COURSE OUTCOME (CO) NUMBER ACCORDING TO THE TYPE OF MIDTERM, AS PER INSTRUCTIONS ABOVE.			1
Question : 1	Convert the following gray code to binary code: a. 101100		
Lesson Plan No. - 3	Topic - Number Systems, Basic Logic Gates & Boolean	Source - Switching Theory by P Raja	CO No. -
Question : 2	Convert as indicated: (1010.11)2 = (?)10 = (?)8 = (?)16		
Lesson Plan No. - 2	Topic - Number Systems, Basic Logic Gates & Boolean	Source - Switching Theory by P Raja	CO No. -
Question : 3			
Lesson Plan No. -	Topic -	Source -	CO No. -
Question : 4			
Lesson Plan No. -	Topic -	Source -	CO No. -
Question : 5			
Lesson Plan No. -	Topic -	Source -	CO No. -
2. CHOOSE COURSE OUTCOME (CO) NUMBER ACCORDING TO THE TYPE OF MIDTERM, AS PER INSTRUCTIONS ABOVE.			2
Question : 6	Define Minterm and Maxterm.		
Lesson Plan No. - 8	Topic - Minimization Techniques	Source - Switching Theory by P Raja	CO No. -
Question : 7	State Demorgan's Theorem.		
Lesson Plan No. - 7	Topic - Minimization Techniques	Source - Switching Theory by P Raja	CO No. -
Question : 8			
Lesson Plan No. -	Topic -	Source -	CO No. -
Question : 9			
Lesson Plan No. -	Topic -	Source -	CO No. -
Question : 10			
Lesson Plan No. -	Topic -	Source -	CO No. -
Part B			

FOR MIDTERM 1 - Part B: Total number of questions to be given are six (3 from CO1 and 3 from CO2), out of which student has to answer four (2 from CO1 and 2 from CO2). **FOR MIDTERM 2 - Part B: Total number of questions to be given are six (3 from CO3 and 3 from CO4), out of which student has to answer four (2 from CO3 and 2 from CO4).** **FOR MIDTERM 3 - Part B: Total number of questions to be given are six (3 from CO5 and 3 from CO6), out of which student has to answer four (2 from CO5 and 2 from CO6)**			
3. CHOOSE COURSE OUTCOME (CO) NUMBER ACCORDING TO THE TYPE OF MIDTERM, AS PER INSTRUCTIONS ABOVE.			1
Question : 1	Write short note on the following: a. Excess 3 code b. Gray code		
Lesson Plan No. - 3	Topic - Number Systems, Basic Logic Gates & Boolean	Source - Switching theory by P Raja	CO No. -
Question : 2	Apply Demorgan's theorem and simplify: {(A+BC')' + D((E+F')')}'		
Lesson Plan No. - 4	Topic - Number Systems, Basic Logic Gates & Boolean	Source - Switching theory by P Raja	CO No. -
Question : 3	Write the definition, truth table and symbol of AND, OR, NOT, NAND, NOR.		
Lesson Plan No. - 5	Topic - Number Systems, Basic Logic Gates & Boolean	Source - Switching theory by P Raja	CO No. -
4. CHOOSE COURSE OUTCOME (CO) NUMBER ACCORDING TO THE TYPE OF MIDTERM, AS PER INSTRUCTIONS ABOVE.			2
Question : 4	Implement the Boolean expression using only NAND gate: Y=(((A+B)C)')D		
Lesson Plan No. - 6	Topic - Minimization Techniques	Source - Switching theory by P Raja	CO No. -
Question : 5	Explain two types of D/A converters.		
Lesson Plan No. - 7	Topic - Minimization Techniques	Source - Switching theory by P Raja	CO No. -
Question : 6	Explain the role of ARINC in aircraft system.		
Lesson Plan No. - 11	Topic - Minimization Techniques	Source - Switching theory by P Raja	CO No. -
Part C			
FOR MIDTERM 1 - Part C: Total number of questions to be given are four (2 from CO1 and 2 from CO2), out of which student has to answer two (1 from CO1 and 1 from CO2). **FOR MIDTERM 2 - Part C: Total number of questions to be given are four (2 from CO3 and 2 from CO4), out of which student has to answer any two (1 from CO3 and 1 from CO4).** **FOR MIDTERM 3 - Part C: Total number of questions to be given are four (2 from CO5 and 2 from CO6), out of which student has to answer any two (1 from CO5 and 1 from CO6).**			
5. CHOOSE COURSE OUTCOME (CO) NUMBER ACCORDING TO THE TYPE OF MIDTERM, AS PER INSTRUCTIONS ABOVE.			1
Question : 1	Implement the Boolean expression using only NAND gate: Y=((A+B)'C') D.		
Lesson Plan No. - 6	Topic - Number Systems, Basic Logic Gates & Boolean	Source - Switching theory by P Raja	CO No. -
Question : 2	Simplify the expression: Y = m (0 , 2 , 3 , 4 , 5 , 6) using K-map and implement it using NAND logic.		
Lesson Plan No. - 8	Topic - Number Systems, Basic Logic Gates & Boolean	Source - Switching theory by P Raja	CO No. -
6. CHOOSE COURSE OUTCOME (CO) NUMBER ACCORDING TO THE TYPE OF MIDTERM, AS PER INSTRUCTIONS ABOVE.			2

Question : 3	Minimize the following function and express it in POS minimal form using K-Maps: F(A, B, C, D) = m(0, 1, 2, 3, 4, 5) + d(10, 11, 12, 13, 14, 15)		
Lesson Plan No. - 10	Topic - Minimization Techniques	Source - Switching theory by P Raja	CO No. -
Question : 4	Simplify using k map: F(A, B, C, D) = ACD + A'B + D'		
Lesson Plan No. - 9	Topic - Minimization Techniques	Source - Switching theory by P Raja	CO No. -
Upload Scanned Document In Case of Numerical or Diagram For Any of The Above Questions. *(Mention question number with relevant fig / numerical / equations. Max 150 KB)*			
I have scrutinized the question paper. There is no spelling mistake or any type of irrelevant question.