

Department of Computer Science & Engineering
School of Engineering Sciences & Technology
Jamia Hamdard

Odd Semester Examination 2024

Subject Name: Analog and Digital Electronics

**Subject Code: BTCSE 304/
BTCSE 304 (LE)**

Time 2.5 Hrs

Maximum Marks: 60 Marks

Section A

Note: All questions are compulsory

(4 x 5 = 20)

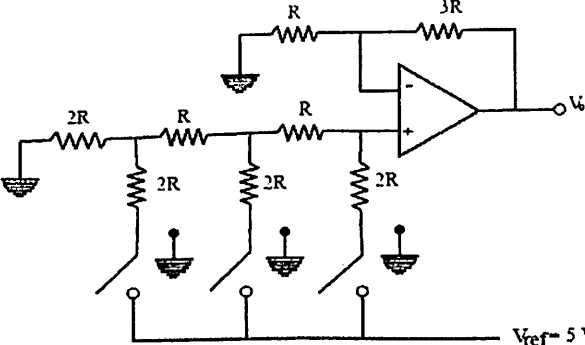
Q.No	Question	CO	BL
Q.1	Perform the following conversion: a) $(7754)_{10} \rightarrow$ Binary b) $(101011)_2 \rightarrow$ Hexadecimal c) $(8A96)_{16} \rightarrow$ Octal	1	3
Q.2	Use a multiplexer with 16 input lines. Use this multiplexer to generate the following logic function: $Y = \bar{A}\bar{B}\bar{C}D + BCD + A\bar{B}\bar{C} + AB\bar{C}D$	3	6
Q.3	For a two bit comparator, draw the truth table and determine the expression Boolean expression for the following different cases: a) $A > B$ b) $A = B$ c) $A < B$	2	3
Q.4	Write a short note on any two of the following: a) RAM and ROM b) Classification and Characterizations of memories c) Content Addressable Memory (CAM)	5	2

Section B

Note: Attempt any four questions.

(4 x 10 = 40)

Q.No	Question	CO	BL
Q.1	Using the Quine-McClusky Method, determine the Boolean expression for the following function: $Y = \Sigma(0,2,3,6,7,8,10,11,12,15)$ Verify your answer using the K-map simplification.	2	6
Q.2	What are the different error detecting and error correction codes? Explain each with the help of suitable examples?	2	2
Q.3	Explain the working of a J-K Flip Flop with the help of a proper labeled circuit diagram. Also, draw its timing diagram? What are the issues related to the J-K flip flop and what are the methods to solve these issues. Explain each method in detail?	3	3
Q.4	Draw the block diagram of counter type Analog to Digital Converter and explain its working.	4	5

	 In the above circuit, if the value of $R = 10k\Omega$, the what will be output if the binary input is 010		
Q.5	What are the universal gates and why are they called so. Draw the circuit diagram showing the functionality of 'OR' and 'AND' gate using both the universal gates	1	3
Q.6	What is the difference between SISO and PISO registers. Explain each with the help of suitable block diagram for a 4-bit register.	5	2

BL- Bloom's Taxonomy Levels (1-Remembereing, 2-Understanding, 3-Applying, 4-Analysing, 5-Evaluating, 6-Creating)

CO- Course Outcomes

***** End of Paper *****