

5. Identify the output expression at Y that gets implemented for the circuit shown in Fig. 2 with P and Q as inputs.

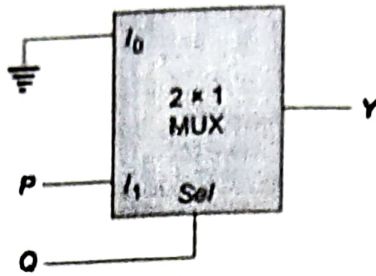


Fig.2

6. Do the following:

- Write the binary equivalent of the decimal number $(368.52)_{10}$.
- Write the 1's complement of the number $(1101101)_2$.
- Perform the operation $01000 - 01001$ using 2's complement method.
- Simplify the function $Y = (A + B)(A' + C)(B + C)$ by using Boolean algebra.
- Draw the timing waveform for the circuit shown in Fig. 3 for the four possible combinations of the input A and B.

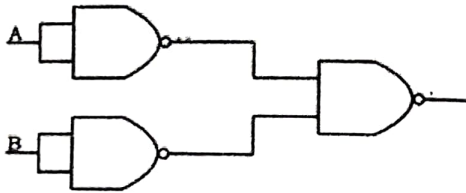


Fig. 3

Course Outcome / Bloom's Taxonomy Level (BTL) Mark Distribution Table

CO	Marks	BTL	Marks
CO01	20	BTL 1	00
CO02	10	BTL 2	08
CO03	20	BTL 3	24
CO04	00	BTL 4	18

Amrita Vishwa Vidyapeetham, Bengaluru Campus
B.Tech. Degree Examination – Missed Mid-Term Exam
 Semester III B.Tech. - All Branches
 22ADM201 – Strategic Lessons from Mahābhārata

Time: 2 Hours

Maximum marks: 50

CO1	Understand the foundational concepts of the Mahabharata, an overall idea of the its contents, the multifarious lessons and possibilities of the text.
CO2	Comprehend insights on various strategic lessons insinuated in the Mahabharata and possibility of implementing the tactical and political ideas discussed in the epic.
CO3	Gain a positive appreciation of female characterization and an appreciation of regional tales, traditions and the spirit of living in harmony.
CO4	Deep analysis of the epic, its contemporary relevance, and application in day-to-day life.

Note: Answer all questions

- a. 1) Name the son of Satyavati and Parāśara. [2] CO2
BTL1
- b. Write down the four commanders-in-chief of Kaurava army. [2] CO1
BTL1
- a. Explain the role of Ambā in the Mahābhārata [2] CO1
BTL1
- b. Elucidate with an example- The Mahābhārata- A text of Dharmaśāstra [2] CO2
BTL2
- Vyāsa says in the end of the Mahābhārata- [4] CO1
BTL2
- Ūrdhvaabāhur viraumy eṣa na ca kaścic chr̥ṇoti me |
 dharmād arthaś ca kāmāś ca sa kimarthaṃ na sevyate || (18.5.49)*

Meaning- I scream with raised arms: Dharma is the source of Artha and Kāma. But nobody listens to me! Why do people not adhere to dharma while performing Artha and Kāma?

Why Artha and Kāma should be in accordance with Dharma? Comprehend in light of the Mahābhārata.

There are always two sides of a coin: Analyze this statement with respect to the Mahābhārata [5] CO2
BTL4

During the final battle between Bhima and Duryodhana, the latter became invincible for the former. Krishna whispered in Arjuna's ear, then Arjuna stood and patted his thigh which was quite suggestive for Bhima. After this, Bhima hit the thighs of Duryodhana that was a final deathblow for the latter. Although, this hitting on the thighs was against the Dharmic practice, Krishna supported and recommended this. He also stopped Balarama from punishing Bhima for this act. Investigate this incident and throw light on its Dharmic relevance. [5] CO1
BTL3

State the subject matter of the pre-battle parvan-s. [6] CO1
BTL2

Read and write the gist of the passage

In these verses Vyāsa has succinctly described the central focus of his poem and the nature of its characters. This is the way of great poets: they present the essence of the story upfront and then go on to narrate how it evolves. Lesser poets present the story in bits and pieces, intending to keep the readers hooked till the end. They sometimes stretch this technique to extreme limits, thus stripping the story of suggestive value and rendering it less enjoyable. A work bereft of poetic suggestion does not invite readers to revisit it.

Vyāsa here tells us the best way to develop characters. The poet should introduce their seminal traits at the outset and later weave the story in a manner that reveals how these traits play out – through various *sandhis*, *avasthās* and *arthaprakrtis*. Character development entails an effective, suggestive narration of how a person's cardinal traits reveal themselves in various circumstances, both conducive and adverse.

Two exalted metaphors encapsulate this truth:

"Duryodhana is a mighty tree of fury. Karna is its stem, Śakuni its branch, Duśśāsana its flower and fruit. The unwise Dhṛtarāṣṭra is its root.

Yudhiṣṭhira is a mighty tree of *dharma*. Arjuna is its stem, Bhīma its branch, Nakula-Sahadeva its flower and fruit. The roots of this tree are Kṛṣṇa, Vedic wisdom and the wise."

The poet has wonderfully embedded the entire epic within these metaphors. Through these, he has given us the correct perspective to view his work. Anandavardhana, the great literary critic, opines that a true figure of speech is that which bolsters the absolute suggestion (*prabandha-dhvani*) of a composition. His observation has been rendered true at the very beginning of the *Mahābhārata*.

(- Shatavadhani Dr. R. Ganesh)

- 10 List the genealogy of the Kuru clan from Shantanu to the sons of Pandu and Dhritarashtra, along with any two Dharmic challenges faced while making efforts to continue the thread of the lineage. [10]

Course Outcome / Bloom's Taxonomy Level (BTL) Mark Distribution Table

CO	Marks	BTL	Marks
CO1	26	BTL 1	12
CO2	24	BTL 2	12
CO3	-	BTL 3	5
CO4	-	BTL 4	11
		BTL 5	10
		BTL 6	-

Amrita Vishwa Vidyapeetham
School of Computing & Engineering, Bengaluru
B. Tech. Mid Term Test - November 2023
Third Semester
Common to CSE, ECE & EAC
19EAC111 Digital Circuits and Systems
19ECE204 Digital Electronics and System

Duration: Two Hours

Maximum: 50

Marks

CO	Course Outcome
CO1	Able to frame Boolean equations for solving a simple real-life engineering problem and realize them using gate-level building blocks.
CO2	Able to apply minimization techniques for efficient Boolean logic implementation.
CO3	Able to realize digital blocks using combinational and sequential subsystems.
CO4	Able to design using state machine descriptions for practical real-life engineering problems.

- Evaluate the function $G(A, B, C, D) = \sum m(2, 3, 6, 7, 8, 9, 12, 13, 15)$ by using tabulation method to find the prime implicant and essential prime implicant. 10 CO2/
BTL2
 - Draw the circuit diagram for the optimized function
 - Find the Cost of the simplified Boolean expression
- Write down the truth table for the full subtractor and also draw the circuit diagram using basic gates. 5 CO2/
BTL1
- For all possible combination of the following circuit shown in Fig.1. What will be the output O. Write in truth table format. 5 CO1/
BTL3

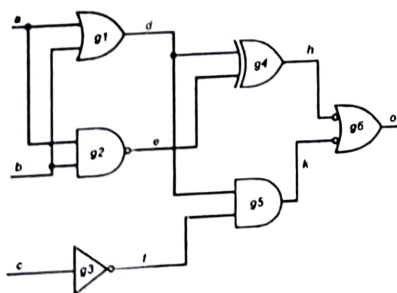


Fig.1

- Perform the following conversion for the Number 5 CO1/
BTL1
 - $A = (256.80)_{10} = (\quad)_2$
 - $B = (2AC3)_{16} = (\quad)_8$
 - $C = (1010101)_2 = (\quad)_{10}$
 - $D = (745.23)_8 = (\quad)_{10}$
 - $E = (745.23)_8 = (\quad)_{16}$

5. a) Write down the Boolean expression for the first three stage of carry look ahead adder
 b) Draw the block diagram for 4bit ripple carry adder
6. Convert the following circuit diagram shown in Fig.2 by using NAND gates

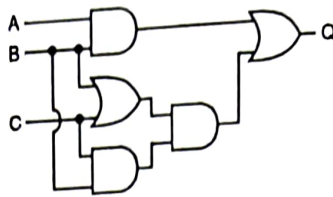


Fig.2

7. Design EXNOR gate using minimum NOR gate
8. Write down the simplified Boolean expression for five variable SOP function $f(a,b,c,d,e) = \sum m(0,1,2,3,6,8,9,10,11,17,20,21,23,25,28,30,31)$
9. Write Boolean Expression for the circuit shown in Fig. 3. Draw the Timing diagram for inputs A and B (10,11,01,10,00)

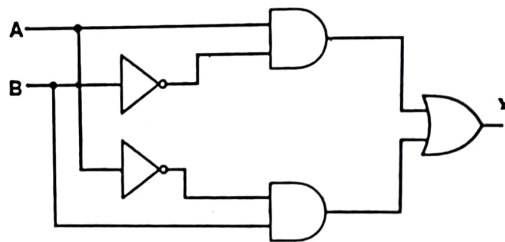


Fig.3

Course Outcome / Bloom's Taxonomy Level (BTL) Mark Distribution Table

CO	Marks	BTL	Marks
CO01	15	BTL 1	10
CO02	35	BTL 2	25
CO03		BTL 3	15
CO04		BTL 4	
CO05		BTL 5	
CO06		BTL 6	