

B. P. Mandal College of Engineering, Madhepura

B. Tech. 4th Semester Mid - Term Examination 2023

Branch: CSE

Time – 2 Hours

Subject: HRD&OB

Total Marks: 20

Instruction-

- Question Number one is compulsory and answer remaining three questions have equal value of 5 marks.

Q1. Fill up the blanks.

[1x5=5 Marks]

(i) Managing involves functions.

- | | |
|-----------|----------|
| (a) Five | (b) Four |
| (c) Three | (d) None |

(ii) Human Resource Management is:

- | | |
|-------------------|---------------------|
| (a) Important | (b) Un Important |
| (c) Not Necessary | (d) To all Managers |

(iii) Recruitment, Placement and talent management are:

- | | |
|-------------------|--------------------|
| (a) Inter linked | (b) Interdependent |
| (c) Supplementary | (d) None |

(iv) Performance Management and performance appraisal are quite

- | | |
|----------------|------------|
| (a) Different | (b) Linked |
| (c) Dependable | (d) None |

(v) Job analysis is the procedure through which you determine:

- | | |
|---------------|---------------|
| (a) Duties | (b) Salary |
| (c) Increment | (d) Promotion |

Q2. What are the basics of Job analysis, describe? [5 Marks]

Q3. What is talent Management, define? [5 Marks]

Q4. How can you face an interview? Write preparation before facing an Interview. [5 Marks]

Q5. Define performance Management and performance appraisal. [5 Marks]

[Best of Luck!!!]

Roll No - 21415

B.P.MANDAL COLLEGE OF ENGINEERING
B. Tech. Second Year (CSE IV Semester) Mid-Semester Examination-2023
DIGITAL ELECTRONICS

Time: 2 Hour

Maxim. Marks: 20

Each Question carries 2 marks
All Question are compulsory

Q1. Convert these into its equivalent

- i. $(3287.510098)_{10} = (\dots\dots\dots)_8$
- ii. $(1336.6246)_8 = (\dots\dots\dots)_2$

Q2.

- i. Convert the given gray code (1011011) to binary code.
- ii. Convert the given binary code (10011001) to gray code

Q3. Minimize the function $f(A, B, C, D) = \bar{A}\bar{B}\bar{C} + \bar{B}C\bar{D} + \bar{A}BC\bar{D} + A\bar{B}\bar{C}$ using k-map.

Q4. Minimize the function $f(A, B, C, D) = \prod M(5, 7, 13, 15)$

Q5. Given, $f_1 = \sum m(0, 1, 3, 5)$, $f_2 = \sum m(6, 7)$ and $f = \sum m(1, 4, 5)$. Find the value of f_3 .

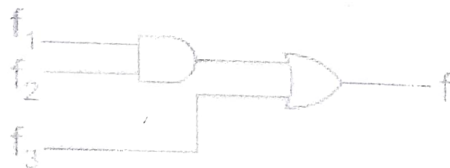


Fig. for Q no. 5

$$\bar{A}\bar{B}\bar{C}(\bar{D} + D) + (A + \bar{A})\bar{B}C\bar{D} + \bar{A}BC\bar{D} + A\bar{B}\bar{C}(\bar{D} + D)$$

Q6. Minimize the function $f(A, B, C) = \sum m(0, 1, 6, 7) + \sum d(3, 4, 5)$.

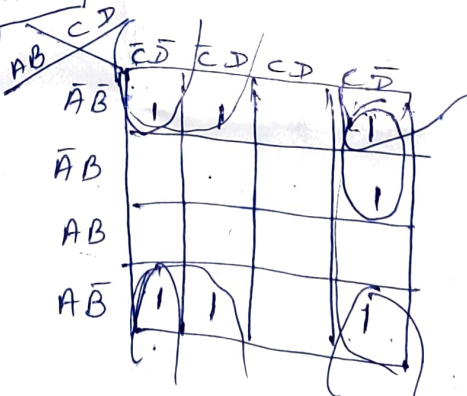
Q7. Draw the switch equivalent of NAND gate.

Q8. Find the value of $A \oplus A \oplus A \oplus A$.

Q9. Prove that $A \oplus B \oplus AB = A + B$

Q10. Value of

- i. $M \odot 0$
- ii. $M \odot 1$
- iii. $M \odot M$
- iv. $M \odot \bar{M}$



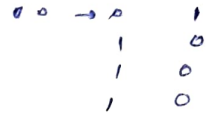
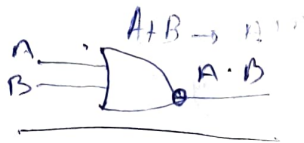
$$= \bar{B}\bar{C} + \bar{B}\bar{D} + \bar{A}C\bar{D}$$

OR

CLASS TEST: DIGITAL ELECTRONICS 4TH SEM, MAXM MARKS: 10 TIME: 1H

EACH QUESTION CARRIES 1 MARK

1. Prove that $AB + \bar{A}C + BCD = AB + \bar{A}C$
2. Find the dual of logical expression $AB + \bar{A}CD + A\bar{B}CD$
3. Find the compliment of logical expression $AB\bar{C}D + \bar{A}C\bar{D} + \bar{A}\bar{B}CD$
4. Draw the switch equivalent of **NOR GATE**.
5. Value of $C \oplus C \oplus C \oplus C \oplus C \oplus C \oplus C \oplus C$
6. Value of $B \odot B \odot B \odot B \odot B \odot B \odot B \odot B \odot B \odot B \odot B \odot B$
7. Prove that $X \oplus Y \oplus XY = X + Y$
8. find the value of i) $A \odot 0$ ii) $A \odot 1$ iii) $A \odot A$ iv) $A \odot \bar{A}$
9. find the value of i) $A \oplus 0$ ii) $A \oplus 1$ iii) $A \oplus A$ iv) $A \oplus \bar{A}$
10. Prove that $A \oplus B \oplus C \oplus D = \overline{A \odot B \odot C \odot D}$



0	0	0
0	1	0
1	0	0
1	1	1

CLASS TEST: DIGITAL ELECTRONICS 4TH SEM, MAX MARKS: 10 TIME: 1H

EACH QUESTION CARRIES 1 MARK

1. Prove that $AB + \bar{A}C + BCD = AB + \bar{A}C$
2. Find the dual of logical expression $AB + \bar{A}CD + \bar{A}\bar{B}CD$
3. Find the complement of logical expression $AB\bar{C}D + \bar{A}C\bar{D} + \bar{A}\bar{B}CD$

4. Draw the switch equivalent of NOR GATE.



5. Value of $C \oplus C \oplus C \oplus C \oplus C \oplus C \oplus C \oplus C$ — $E=0, A=1$

6. Value of $B \odot B \odot B \odot B \odot B \odot B \odot B \odot B \odot B \odot B \odot B \odot B \odot B$ — $E=1, A=0$

7. Prove that $X \oplus Y \oplus XY = X + Y$

8. find the value of i) $A \odot 0$ ii) $A \odot 1$ iii) $A \odot A$ iv) $A \odot \bar{A}$

9. find the value of i) $A \oplus 0$ ii) $A \oplus 1$ iii) $A \oplus A$ iv) $A \oplus \bar{A}$

10. Prove that $A \oplus B \oplus C \oplus D = \overline{A \odot B \odot C \odot D}$



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Madhepura, Bihar
DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Total No. of Question: 7

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Roll No. _____

Reg. No. _____

MID-SEMESTER EXAMINATION (October - 2023)

Branch: **COMPUTER SCIENCE & ENGINEERING**

Semester: **IV**

Subject: **DISCRETE MATHEMATICS**

Time: **2 Hours**

Maximum Marks: **20**

Note: Question 1 is compulsory. Attempt any four questions out of remaining six questions.

- Q1. Answer any four of the following questions.** (1×4=4)
- a. Define equivalence relation?
 - b. Define POSET?
 - c. What is contingency, contradiction and tautology?
 - d. Write any two rules of inference?
 - e. Write statement of Principle of Mathematical Induction?
 - f. What is Monoid?
- Q2.** How many people among 200,000 people are born at the same time (hour, minute, seconds)? 4
- Q3.** (a.) Write composition table of $(\mathbb{Z}, +)$ and (\mathbb{Z}, \cdot) . (2x2 = 4)
(b.) Is propositional logic $(p \vee q) \wedge (p \rightarrow q) \wedge (q \rightarrow r) \rightarrow r$ a tautology?
- Q4.** Consider the following argument for validity. 4
- If I study, then I will not fail in Mathematics.
If I don't play basketball, then I will study.
But I failed in Mathematics.
 \therefore I must have played basketball.
- Q5.** Let (\mathbb{Z}, \cdot) be the semigroup of integers. Consider the relation R defined on \mathbb{Z} by $a R b$ if and only if $a \equiv b \pmod{m}$. Show that R is a congruence relation. 4
- Q6.** (a.) Write Euclidean Algorithm for finding GCD. (2x2 = 4)
(b.) Solve GCD (135,40) using Euclidean Algorithm.
- Q7.** (a.) "If n is odd, then n^2 is odd". Prove this using direct proof method. (2x2 = 4)
(b.) "If $3n+2$ is odd, then n is odd". Prove this using proof by contrapositive.

ALL THE BEST.



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MID-SEMESTER EXAMINATION (October - 2023)

Branch: COMPUTER SCIENCE & ENGINEERING

Semester: IV

Subject: OPERATING SYSTEM

Time: 2 Hours

Maximum Marks: 20

Note: All questions are compulsory.

Q1. Attempts all questions.

(0.5×4=2)

(i) Which of the following instruction is allowed only in Kernel Mode?

- A. Switch user mode to kernel mode.
- B. Read the time.
- C. Disable all interrupts
- D. None of these.

(ii) Identify one of the following which need not be part of the OS.

- A. CPU Scheduling
- B. Pager replacement
- C. Demand paging & virtual memory.
- D. Compiler

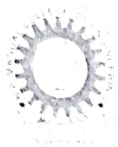
(iii) Match the following groups?

G ₁ (Scheduler)	G ₂ (Transition of process)
a. LTS	1. New to Ready state
b. MTS	2. Ready to Running state
c. STS	3. Suspended to blocked

	a.	b.	c.
A.	1	2	3
B.	1	3	2
C.	3	1	2
D.	2	3	1

(iv) Which of the following controls the manner of interaction between the user & OS?

- A. Language Translator
- B. Platform
- C. User Interface
- D. None of these.



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Q2. What is process & its types?

5

OR

What is OS & its function?

3

Q3. Consider the following table

Process	AT	BT(ST)
P ₁	0	3
P ₂	1	5
P ₃	3	2
P ₄	9	4

Compute the following metrics using FCFS Scheduling.

1) WT

3) TAT

2) Average WT

4) Average TAT

Q4. Briefly explain process state model with diag. of 6 state model?

10

OR

Briefly explain thread model with diagram?



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MID-SEMESTER EXAMINATION (October - 2023)

Branch: COMPUTER SCIENCE & ENGINEERING

Semester: IV

Subject: DESIGN AND ANALYSIS OF ALGORITHMS

Time: 2 Hours

Maximum Marks: 20

Note: Attempt any four questions out of six questions. All questions carry equal marks i.e., 5.

- Q1. Give the definition of an algorithm and discuss the characteristics of an algorithm.
- Q2. Consider an algorithm that is assumed to run the time $O(n^2)$ and that takes only 5 seconds to compute the result for an instance of size 30. How long the algorithm takes to compute the result if the instance size is increased to 50.
- Q3. Calculate the time complexity for the following snippet of C language code.
- ```
for (i = 1; i <= n; i++)
{
 for (j = i; j <= 3*i; j++)
 printf("%d", i);
}
```
- Q4. Sort the following keyword "ALGORITHM" by applying the quick sort algorithm. Show stepwise method.
- Q5. Write merge sort algorithm for sorting using divide and conquer.
- Q6. Solve the recurrence relation by substitute method.

$$T(n) = \begin{cases} 1 & n = 2 \\ T(\sqrt{n}) + 1 & n > 2 \end{cases}$$

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