

**SHRI SHIVAJI EDUCATION SOCIETY AMRAVATI'S
SCIENCE COLLEGE, CONGRESS NAGAR, NAGPUR.**

**Department of Computer Science
BCA II Semester-III (2023-24)
DIGITAL ELECTRONICS—I Paper—VI**

Result of Unit Test held on 06/09/2023 on Unit I & Unit II

Name of the teacher: Amruta J. Thakur

S.N.	Name of Students	Marks out of 30
1.	AACHAL RAJNAND ARVERKAR	17
2.	AISHWARYA NAMDEV LATKAR	12
3.	AKANKSHA AJAYKUMAR SHENDE	16
4.	ANSHU GUNWANT YEKUDE	15
5.	ANUJA VILAS ZADE	13
6.	ARCHANA TEJRAM SHARNAGATE	17
7.	CHETANA SUNIL HEDAU	11
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114.	YASH PRAVIN KHARABE	11



Signature of the Teacher



**Head
Department of Computer Science**



Professor & Head
Department of Computer Science
S. S. E. S. Ami's Science College,
Congress Nagar, Nagpur

**SHRI SHIVAJI EDUCATION SOCIETY AMRAVATI'S
SCIENCE COLLEGE, CONGRESS NAGAR, NAGPUR.**

**Department of Computer Science
BCA II Semester-III (2023-24)
DIGITAL ELECTRONICS—I Paper—VI
Name of the teacher: Amruta J. Thakur**

Time : 45 min

[Maximum Marks : 30]

1. Solve any three questions:

(a) What is base or radix of number system ? Explain hexadecimal number system with examples.

(b) Do as directed :

(i) $(1FA2)_{16} = (?)_2$

(ii) $(341)_8 = (?)_{16}$

(c) What is Excess-3 Code ? What are its advantages ? Perform the following addition using Excess-3 Code : $41 + 38$

(d) What is Parity ? What are its types ? Explain how it can be used for error checking.

2. Solve any three questions:

(a) Explain how negative numbers are represented in binary with suitable example.

(b) Perform the following subtraction using 1's complement method : (i) $(10101)_2 - (10010)_2$

(ii) $(10110)_2 - (1111)_2$

(c) What do you mean by underflow and overflow ? Explain it with example.

(d) What is 2's complement of a number ? Perform the following subtraction using 2's complement method : $(11000)_2 - (11100)_2$



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**Department of Computer Science
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DIGITAL ELECTRONICS—I Paper—VI
Result of Unit Test held on 2/11/2023 on Unit III & Unit IV
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UNIT TEST on Unit III & Unit IV**

Time: 45 min

[Maximum Marks: 30]

1. Solve any three questions:

- Explain AND gate, OR and NOT gate using logic symbol and truth table.
- Explain the construction and working of Ex-OR gate using basic gate. Give its logical symbol also.
- Construct the following gate using NOR gate exclusively : (i) NAND (ii) OR (iii) Ex-NOR
- What is positive and negative logic ? Explain AND gate and OR gate and give their symbol and logical expression.

2. Solve any three questions:

- State and prove : (i) Associative law (ii) Distributive law.
- What is K-map ? Simplify the following equation using K-map : $f(A, B, C) = \sum m(1, 4, 5, 6)$

(c) State and prove the De-Morgan's theorem for three variables.

(d) Simplify the following expression using K-map and draw the logical circuit for the simplified expression : $f(A, B, C, D) = ABCD + A BCD + ABCD + ABCD + ABCD + ABCD$.



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