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SUBJECT CODE NO:- B-2046
FACULTY OF SCIENCE AND TECHNOLOGY
B.Sc. F.Y.(Sem-I) Examination Oct/Nov 2019
Electronics Paper-II
Digital Electronics-I

[Time: 1:30 Hours]

[Max. Marks: 50]

Please check whether you have got the right question paper.

N.B

- 1) Attempt all questions.
- 2) Illustrate your answer with suitable labeled diagram.

Q.1 Perform the following operations 20

- 1) $(165)_{10} = (?)_2$
- 2) $(6\text{ BEA})_{16} = (?)_2$
- 3) $(111011)_2 + (100111)_2 = (?)_2$
- 4) $(111011.0101)_2 = (?)_{10}$
- 5) $(34)_8 = (?)_{10}$

OR

Explain the working of EX OR gate and EX-NOR gate. 20

Q.2 What is k-map? Explain k-map for 2, 3 variables. 20

OR

Write short notes any four of the following 20

- a) Full adder
- b) NOR gate as a universal gate
- c) 4:1 multiplexer
- d) Sum-of-products form (SOP)
- e) Associative law
- f) Demorgan's 1st theorem

Q.3 Multiple choice questions 10

- 1) In digital systems the number system used has a radix -----
 - a) 0
 - b) 10
 - c) 8
 - d) 2
- 2) The Decimal number system has ten separate symbols 0, 1, 2, 3, ----- 9. These are called -
 ----- numerals.
 - a) Indian
 - b) Arabic
 - c) Binary
 - d) Decimal
- 3) Hexadecimal number system is used as a shorthand language for representing -----

number's

- a) Binary
b) Decimal
c) Octal
d) Gray
- 4) In negative logic, the logic state 1 corresponds to
a) Lower voltage level
b) More negative voltage
c) Negative voltage
d) Zero voltage
- 5) The only function of a ----- gate is to invert an input signal
a) AND
b) OR
c) NOT
d) EX-OR
- 6) The first person who used Boolean algebra for the design of relay switching ckt was
a) Ramanujun
b) Shunnon
c) Aristotle
d) Boole
- 7) When we demorganize \overline{AB} we get
a) \overline{AB}
b) $\overline{A \cdot B}$
c) $\overline{A} + \overline{B}$
d) $\overline{A + B}$
- 8) The inputs to a full adder are $A=1, B=1, C_{in}=0$ the output are $C_{out} = \text{Carry}$
a) $\sum = 1, C_{out} = 1$
b) $\sum = 1, C_{out} = 0$
c) $\sum = 0, C_{out} = 1$
d) $\sum = 0, C_{out} = 0$
- 9) Digital ckt can be made by repetitive use of
a) OR gate
b) NAND gate
c) NOT gate
d) AND gate
- 10) Which of the following rules state that if one input of AND gate is always 1 the output is equal to the other input
a) $A + 1 = 1$
b) $A + A = A$
c) $A \cdot A = A$
d) $A \cdot 1 = A$