Total No. of Questions: 4

Enrollment No.....

Faculty of Engineering

Mid Sem II Examination May- 2022

EN3ES16/SC3ES03 Basic Electronics Engineering

Programme: B.Tech./ B.Sc. (CS, AIML, CTIS, MAIS) Branch/Specialisation: All

Duration: 2 Hrs. **Maximum Marks: 40**

Q.1 i. Which of the following is the purpose of the transmitter? 1

a) Converts signals to electric form
b) Operating the received signal
c) Converting the signal into a suitable form
d) Reduces noise from signals

ii. In 100% AM, total sideband power is always_____.

a) Equal to b) Half of c) Higher than d) Less than

iii. Which of the communication channel types allows for information to flow in both directions at the same time? 1

a) Half-duplex b) Simplex
c)Full-duplex d) None of these are correct

iv. Name the device which converts energy from one form to another. 1

a) Transformer b) Modem c) Transducer d) Repeater

v. When two or more signals share a common channel, it is called _____. 1

a) Sub-channelling b) channelling
c) switching d) multiplexing

vi. Convert the following binary number to decimal - 01011_2 1

a) 11 b) 35 c)15 d)10

vii. According to Boolean law: A + 1 =? 1

a)1 b) A c) 0 d) A'

viii. The logical sum of two or more logical product terms is called _____. 1

a) SOP b) POS c) OR operation d) NAND operation

ix. There are _____ cells in a 4-variable K-map.
a) 12 b) 16 c) 18 d) 8

x. The code where all successive numbers differ from their preceding number by single bit is
a) Alphanumeric Code b) BCD c) Excess3 d) Gray Code

Q.2 i. Define modulation and frequency modulation 2

ii. Explain simplex and duplex systems with example of each. 3

iii. Explain the block schematic of communication system with neat diagram. Explain each block in detail. 5

OR iv. What is sampling. Derive the sampled output expression with suitable example. 5

Q.3 i. Define Minterms and Maxterms. 2

ii. a) Minimize the following Boolean function- 8

$F(A, B, C, D) = \Sigma m(1, 3, 4, 6, 8, 9, 11, 13, 15) + \Sigma d(0, 2, 14)$

b) Draw the minimized expression with required logic gates.

c) Write the standard canonical form expression for the given Boolean function.

OR iii. Design a full adder logic function with proper step by step procedure and explanation. 8

Q.4 i. a) Define PAM. 3

b) What are BCD codes.

ii. Explain amplitude modulation technique with proper wave forms and find the modulation efficiency, total power of modulated wave. Draw the power spectrums for the message signal and modulated signal. 7

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