DE-1310
M. Sc. (Tech.) (Sem. I) (Instrumentation)
Examination
March / April - 2016
INS - 12 : General Electronics

Time : 3 Hours] [Total Marks : 70

Instruction :

1. A) Define Modulus of a counter.
   B) State the characteristics of digital ICs used for performance comparison.
   C) State all logic families.
   D) Differentiate between asynchronous counter and synchronous counter.
   E) State the disadvantage of RS flipflop.
   F) State different types of feedback in an amplifier.
   G) State all the parameters of an OP. Amp.

2. Attempt any TWO
   A) Explain the Principle of operation of Class – B Push Pull Amplifier
   B) Discuss the method of encoding and decoding of Binary to Gray and design the code converter using K-map and implement in suitable logic gates.
   C) Write a short note on Zener Diode as Voltage Regulator.
   D) Design half and full subtractor circuit using K-maps technique.

3. Attempt any TWO
   A) Explain the full wave bridge rectifier and describe advantages of π filters over choke input filter.
   B) Design half and full adder circuit using K-maps technique.
   C) Design decimal counter and explain the working of the counter with help of timing diagram.
   D) Discuss circuit operation and advantages of RC couple amplifier.

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4 Attempt any TWO

A) Discuss the method of encoding and decoding of Gray to Binary and design the code converter using K-map and implement in suitable logic gates.
B) Discuss the characteristics of an ideal Op. Amp. and explain the concept of virtual ground and summing point.
C) Convert \(56984_{10}\) and \(58964_{10}\) to Binary, Octal, Hexadecimal, and BCD code and Gray code.
D) Explain the function and working of Op. Amp. as Integrator and differentiator.

5 Attempt any TWO

A) Discuss the effect of negative feed-back on an impedance of an amplifier.
B) Discuss the importance of K-amp technique in reduction of the logic circuit.
C) Design and implement \(f = \sum m(2, 4, 5, 6, 11, 12, 14, 15)\) using 16:1 multiplexer.
D) Discuss push pull amplifier and explain the cross over distortion.