Registration No :

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M.Sc.I
FPYC805

8th Semester Regular Examination 2018-19
ELECTRONICS
BRANCH : M.Sc.I(AP)
Time : 3 Hours
Max Marks : 70
Q.CODE : F544
Answer Question No.1 which is compulsory and any FIVE from the rest.
The figures in the right hand margin indicate marks.

Q1 **Answer the following questions :** (2 x 10)
a) How can NOR gate be used as a universal gate?
b) What is meant by frequency response and band width for coupled amplifier?
c) Determine the output voltage of an OPAMP for input voltages v_1= 150 µV and v_2 = 140 µV. The amplifier has a differential gain A_d = 4000 and the CMRR is 100.
d) Define Barkhausen condition. What is its significance?
e) What are the advantages of negative feedback in an oscillatory circuit?
f) Define acceptance angle and give its formulation for an optical fiber.
g) State the uses of the key elements of a radio communication system.
h) What is meant by boot strapping in FET?
i) Simplify the Boolean identity: $AB + AC + B\bar{C}$
j) What is meant by noise in amplifiers? How can this be dealt with effectively?

Q2 a) Describe the working of an OPAMP as an inverting comparator with a positive reference voltage of 1.5 V and with a negative reference voltage of -1.0 V using an input signal with amplitude of 3V. (5)
b) Describe the working of an OPAMP as logarithmic amplifier. (5)

Q3 a) Using basic logic gates create the XOR gate. Verify the truth table from the circuit. (5)
b) Discuss the working of JK flip flop. What are its advantages and disadvantages? (5)

Q4 a) With proper circuit diagram find the stability parameters for collector to base bias transistor. How is the Q-point established in this case? (5)
b) Discuss the working of an Astablemultivibrator. (5)

Q5 a) Derive the h-parameters of a transistor. (5)
b) Briefly describe the functioning of the Klystron oscillator. (5)

Q6 With the help of suitable circuit diagramsderive the expressions for the voltage gain and phase angle in mid, low and high frequency range for a RC coupled CE amplifier. (10)

Q7 Draw the circuit, discuss the working and derive the expression for frequency of a Wien bridge oscillator. (10)

Q8 **Write short answer on any TWO :** (5 x 2)
a) With necessary diagram explain the working of super heterodyne receiver used in radio communication.
b) Discuss the applications and advantages of optical fibers.
c) Describe current series feedback and current shunt feedback.