Registration No : | | | | | | | | | | |

Total Number of Pages : 02 **M.Sc.I**

FPYC402

4th Semester Regular / Back Examination 2017-18

ELECTRONICS

BRANCH : M.Sc.I(AP)

Time: 3 Hours

Max Marks : 70

Q.CODE : C694

Answer Question No.1 which is compulsory and any five from the rest.

The figures in the right hand margin indicate marks.

Answer all parts of a question at a place.

Q1 **Answer the following questions:** **(2 x 10)**

a) Define operating point of transistor.

b) Distinguish between analog and digital signals.

c) Show that $\beta = \frac{\alpha}{1-\alpha}$.

d) Which feedback is used in an oscillator?

e) What do you understand by hybrid parameters? What are their dimensions?

f) Define the difference between a voltage and a power amplifier.

g) What is modulation factor?

h) What is the function of filter in rectifier circuit?

i) What is Barkhausen criterion?

j) Define NOR gate.

Q2 **a)** Explain the working of a full wave centre tap rectifier and derive expressions for efficiency and ripple factor. **(6)**

b) Derive the expression for efficiency of half wave rectifier with resistive load. **(4)**

Q3 **a)** Draw a circuit diagram of a π – section filter used in a full wave rectifier and calculate its ripple factor. **(6)**

b) In a full-wave rectifier circuit, the voltage across the secondary of transformer is 300 V (r.m.s.). Other parameter of rectifier and LC filter connected with it are given below : L=10H,C=4μF and f= 50Hz, Calculate voltage d.c. and ripple factor. **(4)**

Q4 **a)** Draw the equivalent circuit of an ideal zener in the breakdown region. And explain how zener diode maintains constant voltage across the load. **(5)**

b) Explain with a neat diagram the operation of push – pull amplifier circuit. **(5)**

Q5 **a)** Find out the different h- parameters for a linear circuit and draw its equivalent circuit. **(5)**

b) What do you understand by class A, class B and class C amplifier? **(5)**

Q6 **a)** Hartley and Colpitt's oscillators work on the same principle. Justify. **(3)**

b) Draw a neat diagram to explain operation of Colpitt oscillator and find out its frequency of oscillation. **(7)**

Q7 **a)** Draw the circuit diagram of two stages R-C coupled amplifier. Explain about its frequency response curve. **(8)**

b) Write the difference between negative and positive feedback. **(2)**

Q8 **a)** Define amplitude modulation. Derive the voltage equation of an AM modulation. **(6)**

b) Explain AND function with a 2- input AND gate. **(4)**