UG/3rd Sem/ELEC/(H)/T/19

2019

B.Sc.

3rd Semester Examination

ELECTRONICS (Honours)

Paper - C 6-T

(Electronic circuits)

Full Marks : 40 Time : 2 Hours

The question are of equal value for any group/half. The figures in the margin indicate full Marks. Candidates are required to give their answers in their own words as far as parctiable. Illustrate the answers wherever necessary.

1. Answer any *five* questions : 5×2

a) Define Q point in case of a transistor. 2

b) Write down two advantages of full bridge rectifier circuit over fullwave centre-tap rectifier. 2

c) Define stabilization of a transistor. Mention two techniques of stabilization. 1+1

d) Compare performance of different power amplifier in terms of their efficiencies. 2

[Turn Over]

e) What is the main difference of depletion and enhancement type MOSFET in respect to their construction.? 2

f) Mention two criterion of a circuit being a oscillator. 2

g) Write down two advantages of CMOS amplifier curcuit. 2

h) What is Miller's effect ?

2. Answer any *four* questions : $4 \times 5 = 20$

a) Explain the operation of N-channel enhancement type MOSFET with suitable circuit diagram. 5

b) Explain the operation of full-wave bridge rectifier circuit using suitable circuit diagram. Give input-output waveform and calculate ripple factor. 2+3

c) How does BJT work as an amplifier and switch? Explain it using its Voltage transfer curve. 2+3

d) Define biasing of a transistor. What is stabilization? Why stabilization is required for a transistor. 1+1+3

e) Differentiate between positive and negative feedback. Mention different types of negative feedback circuit and compare between them. 2+3

f) Explain working principle of shunt regulated power supply using BJT. 5

2. Answer any *one* question : $1 \times 10 = 10$

a) Explain common source amplifier circuit using proper circuit diagram (use small signal equivalent circuit). Deduce input resistance, output resistance and voltage gain. $4+2\times3$

b) Explain principle of operation of class-C power amplifier and clculate its efficiency. $5+5$
