POKHARA UNIVERSITY

Level: Bachelor Semester:Spring Year : 2019
Programme:BE Full Marks: 100
Course: Electronic Devices and Circuits Pass Marks: 45
Time : 3hrs.

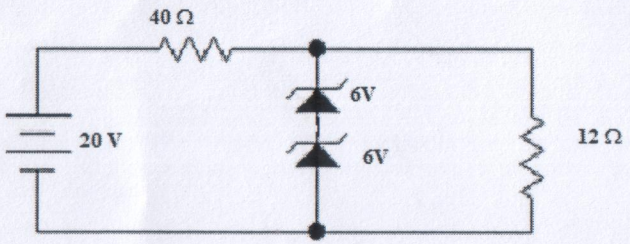
Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Attempt all the questions.

1. a) What do you mean by dynamic resistance of a diode? Derive an expression for dynamic resistance of a diode. 8

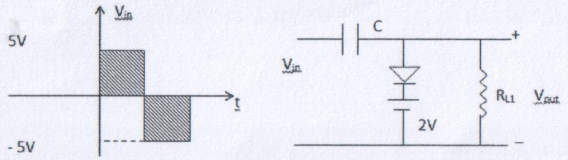
   b) Calculate the current through load resistor and Zener diodes. 7



2. a) What is bipolar junction transistor? and what are their applications. Explain the operation of NPN transistor with its current direction 8

   b) Find Q-point or operating point for the circuit given below. Assume β=100 and draw the dc load line. 7

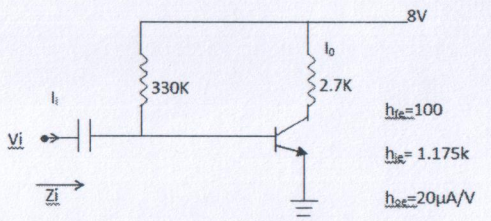
3. a) Sketch the output waveform for the circuit shown below. 7



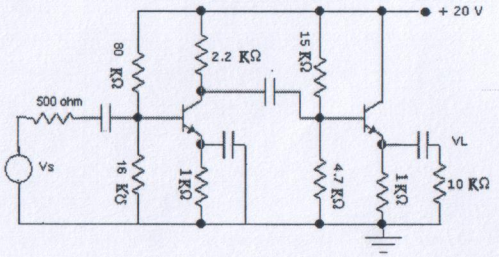
   b) FETs are superior to BJTs Justify. 4

   c) Advantages of lower values of V_T (threshold voltage) in E-MOSFET Explain . 4

4. a) Find A_{vs}, A_v, Z_0, Z_{in} of following Ckt. Diagram using h- parameter. 8



   b) Find V_L/V_S in the circuit below: ($\beta 1 = \beta 2 = 100$, $r_{e1} = r_{e2} = 20\ \Omega$). 7



5. a) Show that the maximum possible efficiency of Direct coupled load class A amplifier is 25% with necessary circuit diagram and derivation 7

   b) Calculate overall gain of a negative feedback amplifier. Also list out advantages of negative feedback. 8

6. a) Find out the output voltage expression for inverting and summing circuit with circuit diagram and Explain the characteristics of practical operational amplifier 8

   b) What is Barkhausen criterion for Oscillator? Design a RC phase shift shift oscillator to operate at a frequency of 5KHz. 7

7. Write short notes on: (**Any two**) 2×5

   a) Clamper and Clamping circuits

   b) Emitter follower

   c) JFET