

Instructions to candidates

Duration: 01 hour

Number of questions: 02

Answer **all** questions

Mark allocation: 80

Consider diode voltage (knee voltage) as 0.7 V for all the diodes.

1.
 - a. What are the two major applications of a transistor?
(04 marks)
 - b. Write down the most appropriate biased circuit (emitter biased or base biased) which you will use for each application you mentioned in part (a).
(06 marks)
 - c. Calculate the saturation and cutoff values for the following circuit given in Figure 01.
(10 marks)

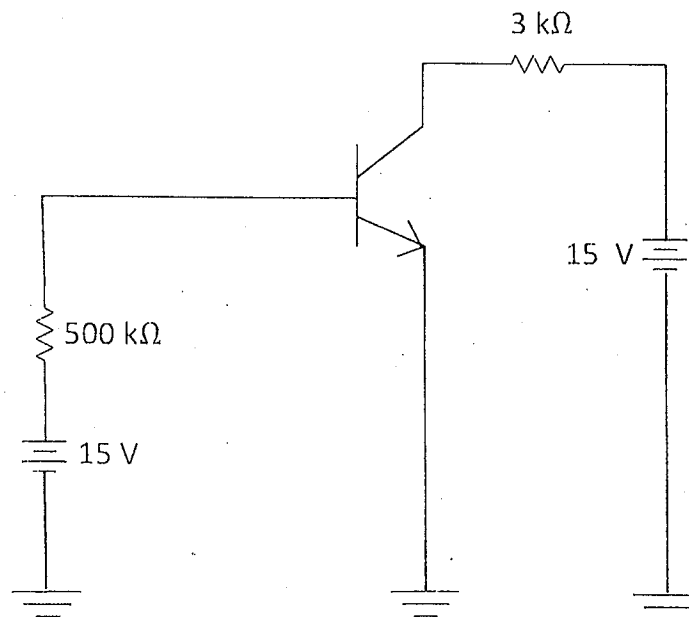
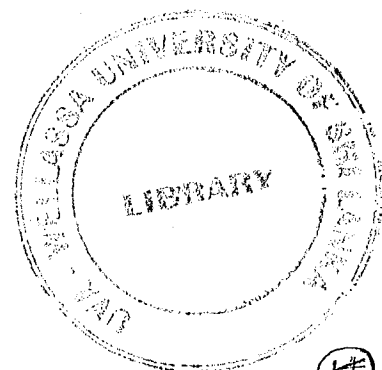


Figure 01



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2.

- a. Find the operating point in the following circuit shown in Figure 02. Write down any assumptions you make.

(25 marks)

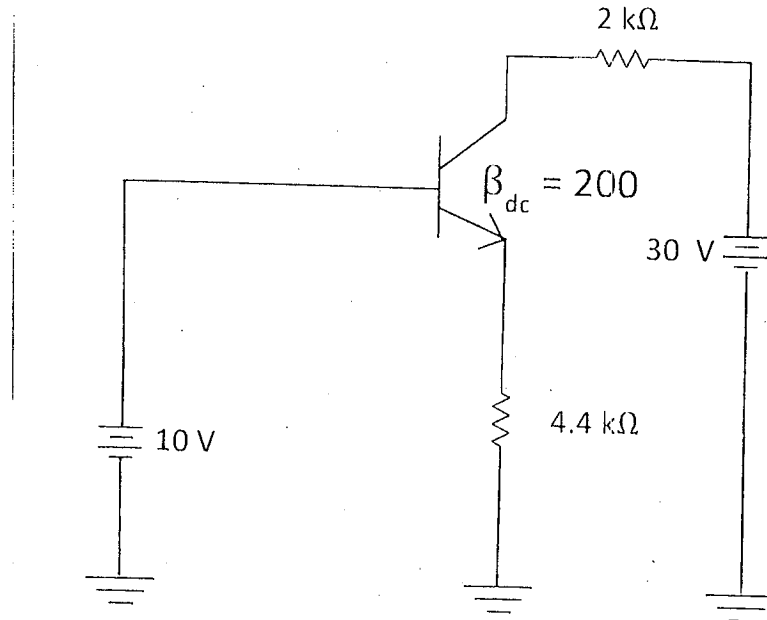


Figure 02

- b. Calculate the dc component of the voltage at each point A, B, C, D and E in the following circuit shown in Figure 03 and draw the wave forms at each point showing both ac and dc components of the voltages. Note that the current gain β of the transistor is 100.

(35 marks)

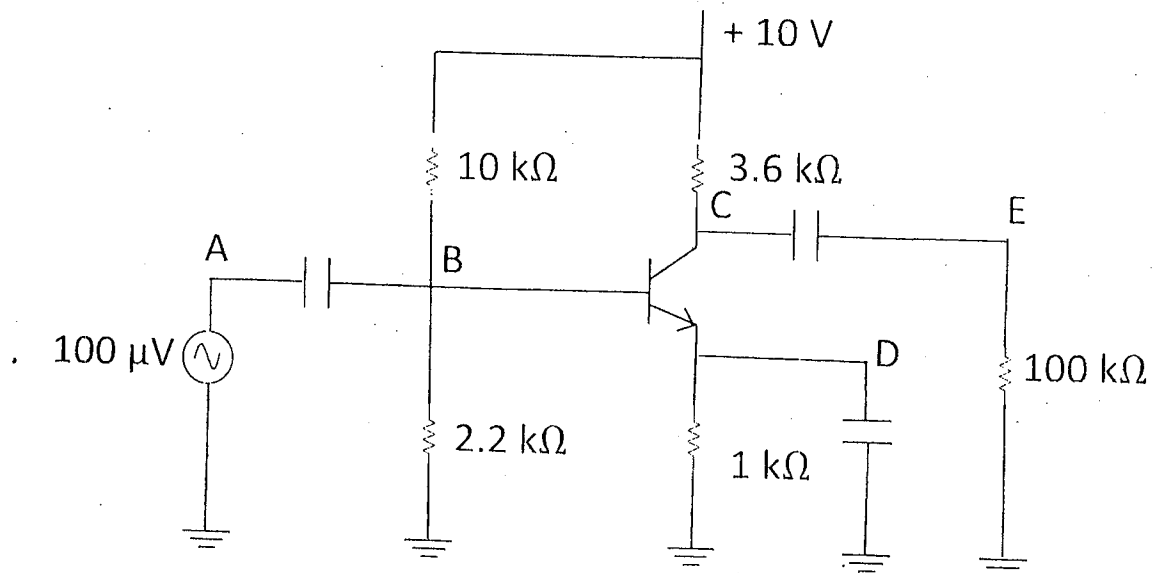


Figure 03