ITEMS PAST PAPER

TECHNICAL

SIR ARTHUR LEWIS COMMUNITY COLLEGE
DIVISION OF TECHNICAL EDUCATION AND MANAGEMENT STUDIES

EXAMINATION SESSION	:	May 2015 Final Examination
TUTOR	:	Lindsley Philbert
PROGRAMME CODE	:	3EE ESC-AD
COURSE TITLE	:	Electronics I
COURSE CODE	:	ELE 103
CLASSES	:	Electronics Engineering YR 1
DATE	:	**Thursday 7th May, 2015**
COMMENCEMENT TIME	:	**1:00 PM**
DURATION	:	2 ½ Hours
INVIGILTORS	:	**I. Lambert, M. Floyd**
ROOM	:	**TRA-R2**

#E90

INSTRUCTIONS

Answer all questions

Questions should be properly labeled.

Use diagram to help in your description

1. A). Draw the circuit of a full wave Doubler and briefly explain how it works. Convert your circuit to a Tripler unit. 7mks

B). Draw the circuit of a thermistor shunt regulator and briefly explain how it regulates a voltage. 7mks

C. Draw the circuit of a Bridge Diode circuit and explain its operation. 6mks

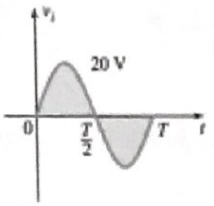
2. A. Explain how a PN junction diode is formed from extrinsic semiconductor materials. 5mks

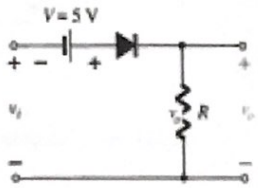
B. Explain how P-Type and N-type semiconductor are formed (6mks)

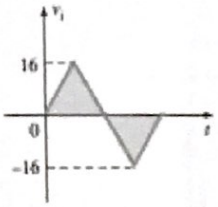
C. Describe the concepts of Forward and Reverse Bias in a semiconductor diode. Use diagrams to illustrate 6mks

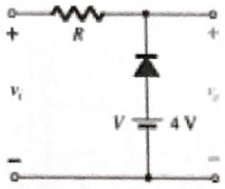
D. Explain how you would use an Ohm-Meter to test a Diode (3mks)

3 A. For the Circuits below find output voltage and the unknown currents. Sketch the waveforms where applicable. (20mks







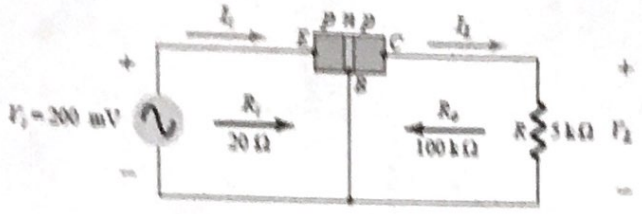


4. A. Draw circuits for the
i. Common collector
ii. Common Base and
iii. Common emitter circuits (6mks)

B.Define the terms
i.. Active Region
ii.Saturation region and
iii.Cut-Off region (3mks)

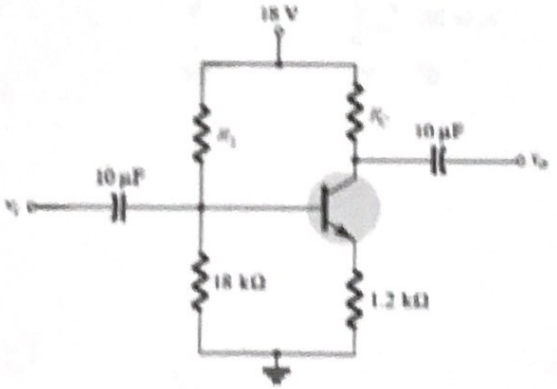
C. For the Circuit Below calculate the output voltage of the amplifier and the overall gain of the circuit. (6mks)

If the values of the components remain the same, what would be the output voltage range when the input voltage swings from100mV to 400mv? (4mks)

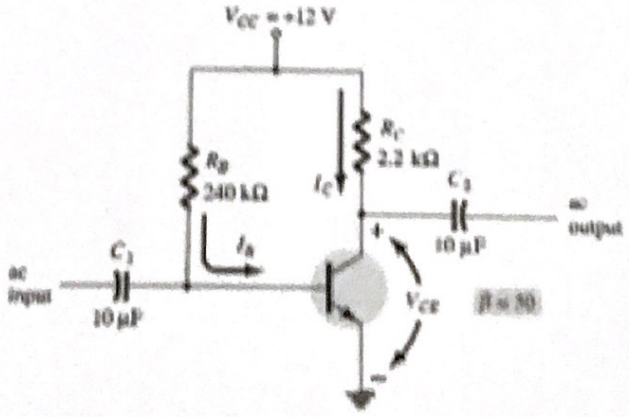


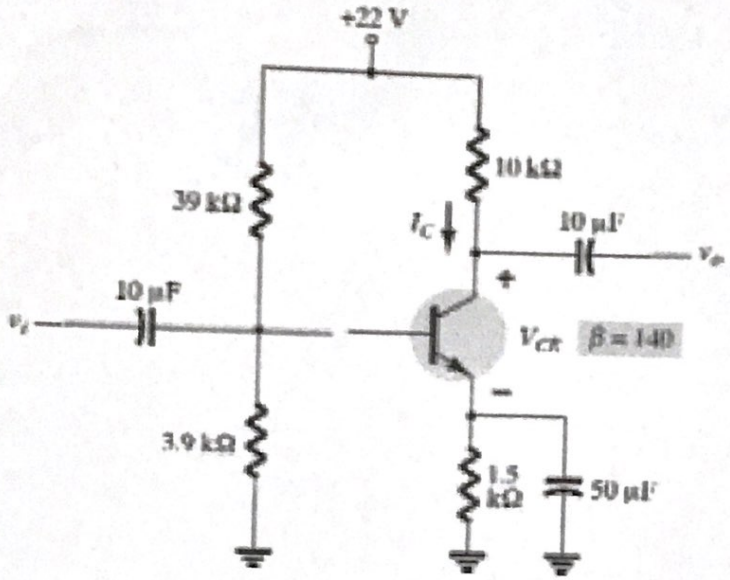
D. List 4 parameters that can be found in a transistor specification sheet 2mks

5. Given that Ic = 2mA and Vce = 10 V, determine R1 and Rc for the circuit below. (10mks)



6. Solve for all currents and voltages in the circuits given below





(20mks)

End of Examination!