

26.4.19

Register Number:

--	--	--	--	--	--	--	--

B.E/B.TECH DEGREE EXAMINATION APRIL 2019
COMMON TO ELECTRICAL AND ELECTRONICS ENGINEERING AND BIO-MEDICAL ENGINEERING
SECOND SEMESTER
EC7252 ELECTRONIC DEVICES AND CIRCUITS
REGULATION (R-2015)

Time: 3 Hours

Max. 100 Marks

Answer All Questions

PART A (10X2=20Marks)

1. what is the value of ripple factor of HWR and FWR.
- 2 In the circuit shown find the value of line current I_s , zener current I_z and load current I_L .
Given V_z the zener breakdown voltage is 9.1 V (refer fig 1)
3. Draw the Transfer curve of JFET and mark I_{DSS} and cut-off voltage .
- 4 Draw the Transistor equivalent circuit of SCR
- 5 . Compare CC and CB with respect to voltage gain expressions
6. Define CMRR
7. Define Class C operation of Power Amplifiers
8. Draw the High frequency equivalent circuit of CE amplifier circuit .
9. Draw the electrical equivalent circuit of crystal and write its series and parallel resonant frequencies
10. Identify the type of feedback shown in fig 2. and find the feedback factor.

Part – B (5 x 13 = 65marks)

- 11.(a) Describe the function of PN Junction diode in forward bias and reverse bias conditions. using V-I characteristics and structural diagram.
(OR)
- (b)(i) Explain how the output voltage is regulated against line and load variations using Zener diode (7)
- (ii) Compare Avalanche and Zener Break down (6)
- 12.(a)) Explain the input and output V-I characteristics of CE BJT using structural diagram
(OR)
- (b) Explain the V-I characteristics of Enhancement MOSFET using structural diagram. Also derive for drain current.
- 13.(a) Draw CE Amplifier (without feedback) and its equivalent circuit. Derive for A_{vs} , A_{is} , R_{IN} and R_O
(OR)
- (b) Draw Source follower (Common Drain) circuit and its equivalent circuit. Derive for A_{vs} , A_{is} , R_{IN} and R_O
- 14.(a) Explain single tuned amplifier and derive for $A(f)$ and its cut-off frequencies.
(OR)
- (b) Draw a differential amplifier circuit and its equivalent circuit. Derive for A_d and A_c for double ended input and single ended output . Write the expression for CMRR.



15.(a). Explain HARTLEY oscillator and derive for the frequency of oscillation and minimum voltage gain for the Amplifier in the Oscillator circuit.

(OR)

(b(i)) Draw the topological diagram of voltage shunt feedback and derive for, (9+4) transfer gain with feedback R_{mf} , R_{if} , and R_{of} for the above topology.

(ii) Draw example amplifier circuits for voltage shunt and current series feedback.

PART C

(1X15=15 Marks)

16.(i) Explain the working of RC Phase Shift oscillator using CE BJT amplifier and derive for the frequency of oscillation and minimum voltage gain for the Amplifier in the Oscillator circuit. (8)

(ii) Describe the working of CLASS B Power amplifier and derive for its efficiency (7)

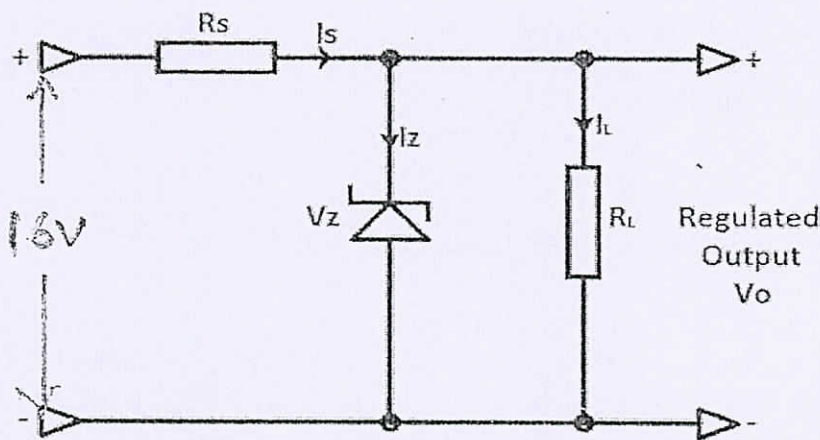


FIG 1

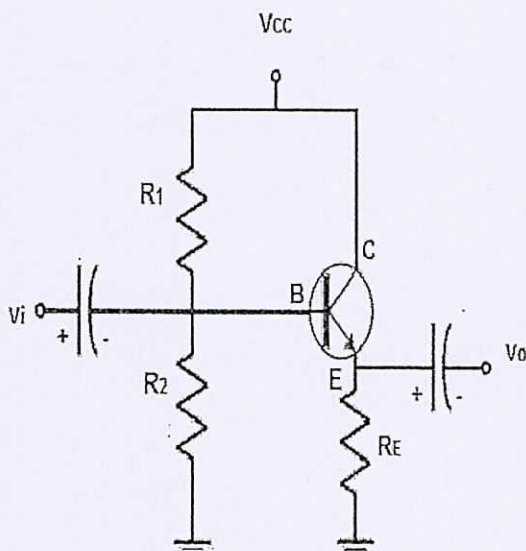


FIG 2

