

[Total No. of Questions - 9] [Total No. of Printed Pages - 3]
(2123)

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B. Tech 3rd Semester Examination

Analog Electronic Circuits (O.S.)

EC-3003

Time : 3 Hours

Max. Marks : 100

The candidates shall limit their answers precisely within the answer-book (40 pages) issued to them and no supplementary/continuation sheet will be issued.

Note : Attempt five questions in all, select one question from each sections A, B, C and D. Section E (Question-9) is compulsory.

SECTION - A

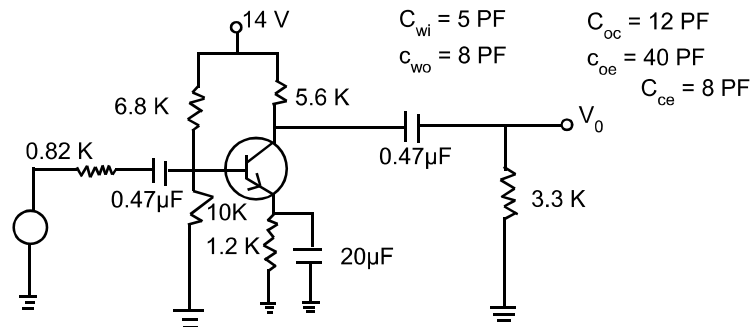
1. (a) Classify the amplifiers based on the configurations used and discuss R-C coupled amplifier in detail. (15)
- (b) Explain the need for cascoding. What is the effect of cascoding on band width? (5)
2. (a) Draw a complete circuit diagram of a DC amplifier and explain its working. What are its basic limitations? Write its applications. (15)
- (b) Define tilt or sag and how sag is related to lower 3-dB frequency. (5)

SECTION - B

3. (a) For the given circuit calculate the values of f_{Hi} , f_{Ho} , f_B and f_r . Also sketch the frequency response for the high-frequency region using a Bode plot and determine the cut off frequency. (20)

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4. (a) A class B push-pull amplifier gives cross over distortion. Explain and suggest a circuit to eliminate it. **(10)**
- (b) Explain how two complementary transistors in a class B push pull amplifier act simultaneously as phase inverter and on output push pull pair. **(10)**

SECTION - C

5. (a) Differentiate between a tuned voltage amplifier and a basic voltage amplifier. Draw circuit of a tuned voltage amplifier and explain its working. **(15)**
- (b) Explain the reasons for potential instability in tuned amplifiers. **(5)**
6. (a) What do you understand by a wideband amplifier? Explain its working in detail. Also explain high frequency and low frequency compensation techniques. **(15)**
- (b) Tuned-class C amplifiers are used for applications involving larger RF powers. Why? **(5)**

SECTION - D

7. (a) List five characteristics of an amplifier which are modified by negative feedback. Explain them in brief. **(15)**
- (b) Explain the term series voltage Regulation. **(5)**

8. (a) How will the input impedance of an amplifier be affected by introduction of (i) Voltage series feedback (ii) Current Shunt feedback. **(15)**
- (b) Explain SMPS briefly. **(5)**

SECTION - E

9. (a) Why R-C coupling give constant gain over mid frequency range?
- (b) Characteristics of cascade amplifier?
- (c) Explain how h_{fe} is frequency dependant in high frequency response of an BJT amplifiers?
- (d) What are the drawback of complimentary symmetry push pull class B power amplifier?
- (e) Define Stogger tuning.
- (f) Why an emitter follower is called so?
- (g) Why is negative feedback employed in high gain amplifiers?
- (h) What are various application of SMPS?
- (i) Why the overall gain of a multistage amplifier is less than the product of gain of individual stages?
- (j) Why coupling capacitor is not required in transformer coupled amplifier? **(10×2=20)**