

No Preview  
Available

Total No. of Question : [4]

Registration No. : 

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**Programme Name : Bachelor of Electronics and Telecommunication Engineering**  
**Regular S.Y.B.Tech.Sem.IV ESE May / June 2023**  
**IV SEMESTER ( 2021 BATCH)**  
**201ETL211-Electronics Circuits Analysis & Design - II**

Duration : 2 Hours

Marks : 50

Instructions :

(Q1) All Questions are Compulsory

[20.0]

**CO :- 1**  
**Blooms Taxonomy :- Analyze**

(1.1) Draw hybrid pi model of CE configuration for high frequency response hence derive  $f_2(f?)$  for short circuited output. [6.0]

**CO :- 1**  
**Blooms Taxonomy :- Analyze**

(1.2) Derive expression for lower 3 dB frequency due to  $C_c$ . Calculate size of  $C_c$  to provide 3 dB point of 100Hz when  $R_c = 1k?$ ,  $h_{fe} = 50$ ,  $h_{ie} = 1k?$ ,  $R_s = 600?$ ,  $(R_1 // R_2) = 1k?$ . [7.0]

**CO :- 2**  
**Blooms Taxonomy :- Analyze**

(1.3) Design single stage RC coupled CE amplifier for given data  $V_{cc} = 9V$ ,  $S = 10$ ,  $A_v = 90$ ,  $f = 20Hz$  to  $20kHz$ , Transistor Data :  $h_{fe} = 220$   $h_{ie} = 2.7k?$  [7.0]

(Q2) All Questions are Compulsory

[10.0]

(2.1) What are the different types of negative feedbacks? Explain current series feedback in detail with circuit diagram [4.0]

**CO :- 3**  
**Blooms Taxonomy :- Analyze**

**OR [ 2.1 / 2.2 ]**

(2.2) Draw and explain Darlington pair with circuit diagram and comment on current gain [4.0]

**CO :- 3**  
**Blooms Taxonomy :- Analyze**

(2.3) Derive the parameter equations such as  $R_i$ ,  $R_o$ ,  $A_v$  and  $A_i$  for voltage series negative feedback [6.0]

**CO :- 3**  
**Blooms Taxonomy :- Analyze**

- (Q3) All Questions are Compulsory** [10.0]  
(3.1) Explain in detail method of calculating harmonic distortion of power amplifier. [3.0]

**CO :- 3**  
**Blooms Taxonomy :- Analyze**

- (3.2) Explain class A single ended transformer coupled amplifier with circuit diagram and waveforms, hence derive its% efficiency? [7.0]

**CO :- 3**  
**Blooms Taxonomy :- Analyze**

**OR [ 3.2 / 3.3 ]**

- (3.3) Explain Classification of Power Amplifiers in detail. [7.0]

**CO :- 3**  
**Blooms Taxonomy :- Analyze**

- (Q4) Attempt any two out of three** [10.0]  
(4.1) Explain with diagram self-bias for JFET. [5.0]

**CO :- 4**  
**Blooms Taxonomy :- Analyze**

- (4.2) Explain the construction, working and characteristics of enhancement type MOSFET [5.0]

**CO :- 4**  
**Blooms Taxonomy :- Analyze**

- (4.3) Draw and explain common source MOSFET amplifier and derive an expressions for a) [5.0]  
Voltage Gain( $A_v$ ) b) Output resistance( $R_o$ )

**CO :- 4**  
**Blooms Taxonomy :- Analyze**

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