S.Y. Diploma : Sem. III
[DE/EJ/ET/EN/EX/EQ/IE/IS/IC]

Applied Electronics

Time: 3 Hrs.] Prelim Question Paper **[Marks : 70**

Instructions : (1) All questions are compulsory.
(2) Illustrate your answers with neat sketches wherever necessary.
(3) Figures to the right indicate full marks.
(4) Assume suitable data if necessary.
(5) Preferably, write the answers in sequential order.

1. Attempt any **FIVE** of the following : **[10]**
(a) Define amplifier with block diagram.
(b) State the need of multistage transistor amp
(c) Define feedback what are their types.
(d) Define oscillator.
(e) Draw block diagram of regulated dc voltage power supply.
(f) Define (i) Line Regulation (ii) Load regulation
(g) Classify power amplifiers.

2. Attempt any **THREE** of the following : **[12]**
(a) Explain the term cross over distortion and state the method to overcome it.
(b) Draw single stage CE amp and explain the function of each component.
(c) Compare class A, class B, class AB and class c amplifier.
(d) Draw and explain class AB push-pull power amplifier.

3. Attempt any **THREE** of the following : **[12]**
(a) Draw block diagram of –ve feedback amplifier and define:
(i) Open loop voltage gain A_v
(ii) feedback factor β
(iii) closed loop or feedback voltage gain A_{fb}.
(b) Draw neat circuit of two stage RC coupled amplifier and also draw it's frequency response.
(c) Draw labeled circuit of RC phase shift oscillator. State the formula for frequency of oscillation.
(d) Draw and explain miller sweep circuit.

4. Attempt any **THREE** of the following : **[12]**
(a) Calculate bandwidth of direct coupled amplifier having frequency response with upper 3dB cut of frequency as 4kHz. Sketch the frequency response.
(b) Calculate output frequency of RC phase shift oscillator if $R_1 = R_2 = R_3 = 2k\Omega$ and $C_1 = C_2 = C_3 = 0.1$ frequency.
(c) Derive an expression for the closed loop gain of –ve feedback amplifier.
(d) Draw $\pm$15V dual regulated power supply.

5. Attempt any **TWO** of the following : **[12]**
(a) Draw and explain Bootstrap sweep circuit.
(b) Explain Barkhausen's criteria in detail.
(c) Complementary symmetry push-pall amplifier is operated using $\pm$ 10V and deliver power to load RL = 5Ω calculate :
(i) Max power output (ii) Power rating of transistor
(iii) DC input at max power output

6. Attempt any **TWO** of the following : **[12]**

(a) In amplifier has a gain 'A' at 300 without feedback output impedance is 1kΩ. If negative feedback with feedback factor of 0.03 is introduced in the circuit then calculate the gain with feedback and output impedance at this feedback amplifier.

(b) State advantages and disadvantages at negative feedback.

(c) State the effect of low load regulation factor and higher load regulation factor on power supply. Also state the significance at how line regulation factor.

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S.Y. Diploma Sem-III: Paper Discussion Schedule

Branches	Date	Day	Timing	Centres
Electronics Group	8 Nov. 2018	Thursday	9 a.m. to 11 a.m.	Dadar