

Scheme – I

Sample Question Paper

Program Name : Computer and Electronics Engineering Program Group

Program Code : CO/CM/CW/DE/EJ/ET/EN/EX/IE/IS/IC/MU

Semester : Third

Course Title : Applied Electronics

Marks : 70

22329

Time: 3 Hrs.

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.

Q.1) Attempt any FIVE of the following :-

10 Marks

- (a) Define the terms related to an amplifier
 - i. Voltage Gain
 - ii. Bandwidth
- (b) State need for multistage transistor amplifier.
- (c) State the functions of power amplifier.
- (d) State the necessity of positive feedback in oscillator.
- (e) Define the term feedback.
- (f) Sketch the labeled block diagram of series voltage feedback amplifier.
- (g) Define line and load regulation.

Q.2) Attempt any THREE of the following :-

12 Marks

- (a) Classify Amplifiers on the basis of coupling technique, operating frequency, number of stages and bandwidth.
- (b) Explain the effect of negative feedback on the input impedance of an amplifier.
- (c) Sketch the circuit diagram of Dual Voltage regulator using IC 78XX and 79XX to obtaining +/- 5Volt output.
- (d) Justify that Crystal oscillator is preferred over RC phase shift oscillator in microcontroller applications.

Q.3) Attempt any THREE of the following.

12 Marks

- (a) Explain the term crossover distortion. State methods to overcome it.
- (b) Describe with the help of circuit diagram and load line, working of class C power amplifier.
- (c) Calculate output frequency of RC phase oscillator if $R_1=R_2=R_3=2K\Omega$ and $C_1=C_2=C_3=0.1\mu f$.

- (d) State the effect of low load regulation factor and higher load regulation factor on power supply. State the significance of low line regulation factor.

Q.4) Attempt any THREE of the following.

12 Marks

- (a) Explain with circuit diagram operation of Class AB push pull power amplifier.
 (b) Sketch frequency response of single stage Common Emitter(CE) amplifier and label the following:
 i. 3dB lower cutoff frequency
 ii. 3 dB Upper cutoff frequency
 iii. Mid frequency region
 iv. 3 dB Bandwidth
 (c) Draw labeled block diagram of current series feedback and voltage shunt feedback amplifier.
 (d) Justify the use of time base generator in CRT display.
 (e) Identify the block diagram given as figure No.1. Name the block “A” and Sate its function.

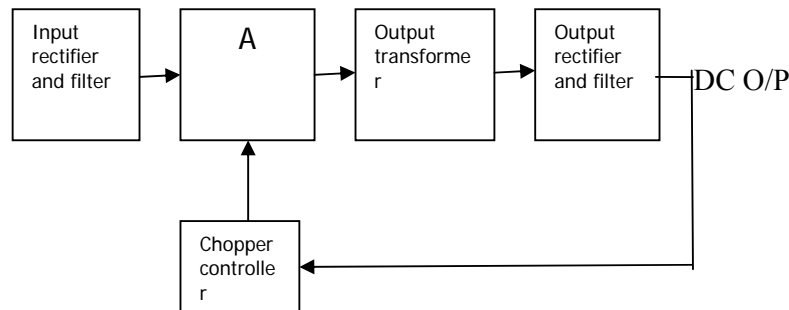


Figure No.- 1

Q.5) Attempt any TWO of the following.

12 Marks

- (a) Explain with circuit diagram , the working of RC phase shift oscillator.
 (b) Compare class A, class B, class C and class AB power amplifiers on the basis of angle of conduction, efficiency, position of operating point power dissipation, distortion and application.
 (c) Sketch the neat-labeled diagram and frequency response of two-stage RC coupled amplifier and two-stage transformer coupled amplifier.

Q.6) Attempt any TWO of the following.

12 Marks

- a) Calculate bandwidth of a Direct coupled amplifier, having frequency response with upper 3 db cutoff frequency as 4KHz .Sketch the frequency response.
 b) An amplifier has gain ‘A’ of 300 without feedback, output impedance is 1K Ω . If negative feedback with feedback factor 0.03 is introduced in the circuit then calculate the gain with feedback and output impedance of this feedback amplifier.
 c) A complementary symmetry push pull amplifier is operated using +/- 10 volt and deliver power to load $R_L = 5 \Omega$. calculate
 i. Maximum power output
 ii. Power rating of transistor
 iii. D.C. input at maximum power output

Scheme – I

Sample Test Paper - I

Program Name : Computer and Electronics Engineering Program Group

Program Code : CO/CM/CW/DE/EJ/ET/EN/EX/IE/IS/IC/MU

Semester : Third

Course Title : Applied Electronics

Marks : 20

22329

Time: 1 Hour

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.

Q.1 Attempt any FOUR.

08 Marks

- a) Classify tuned amplifiers on the basis of tuned circuit.
- b) Calculate gain of two stage amplifier if stage 1 has gain 20 and stage 2 has gain 5.
- c) State two advantages of class B push-pull amplifier.
- d) State classification of power amplifier.
- e) Sketch circuit diagram of class C power amplifier.

Q.2 Attempt any THREE.

12 Marks

- a) Describe working principle of Single tuned amplifier with the help of frequency response.
- b) Determine the value of collector current and collector to emitter voltage at the point of saturation and cutoff under a.c signal operation ,Draw A.C. load line, assume silicon NPN transistor with $\beta = 100$. Values of $R_{B1} = 10K\Omega$, $R_{B2} = 5 K\Omega$, $R_E = 500 \Omega$, $R_C = 1 K\Omega$, $R_L = 1.5 K\Omega$, transistor is operated in CE configuration with $V_{CC} = 10$ volt.
- c) State the need of stagger tuned amplifier and explain its operation.
- d) State the difference between voltage amplifier and power amplifier with respect to given parameters.
 - iv. Current gain
 - v. Input resistance
 - vi. Inter stage coupling component
 - vii. Physical size of transistor

Scheme – I

Sample Test Paper - II

Program Name : **Computer and Electronics Engineering Program Group**

Program Code : **CO/CM/CW/DE/EJ/ET/EN/EX/IE/IS/IC/MU**

Semester : **Third**

Course Title : **Applied Electronics**

Marks : **20**

22329

Time: 1 Hour

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.

Q.1 Attempt any FOUR.

08 Marks

- a) List features of IC 723 Voltage Regulator.
- a) Write the type of feedback used in oscillator.
- b) Name IC's suitable for fixed and variable voltage regulator.
- c) List four advantages of negative feedback amplifier.
- d) List the types of sinusoidal oscillator based on feedback component used.

Q.2 Attempt any THREE.

12 Marks

- a) Sketch the block diagram of a series voltage feedback amplifier and describe its working.
- b) Sketch the circuit diagram of Miller Sweep generator and describe its working.
- c) Sketch the circuit diagram of voltage regulator using LM 723 to obtain dc regulated +6 volt
- d) Describe the working principle of Crystal oscillator.