# 22329

| 118            | 19   |   |        |  |                                       |             |               |                |              |         |       |
|----------------|--|---|--------|--|---------------------------------------|-------------|---------------|----------------|--------------|---------|-------|
| 3 H            | [ours  | s /   | 70     | Marks  | Seat 1                                | No.         |               |                |              |         |       |
| Instructions – |  |   | (1)    | All Questions are Compulsory.                                  |                                       |             |               |                |              |         |       |
|                |  |   | (2)    | Answer each  | next main                             | Questi      | on on         | a ne           | ew           | pag     | e.    |
| (              |  |   | (3)    | Illustrate your answers with neat sketches wherever necessary. |                                       |             |               |                |              |         |       |
|                |  | (4) Figures to the right indicate full marks.       |        |  |                                       |             |               |                |              |         |       |
|                |  |   | (5)    | (5) Assume suitable data, if necessary.                        |                                       |             |               |                |              |         |       |
|                | <ul><li>(6) Use of Non-programmable Electronic Po<br/>Calculator is permissible.</li></ul> |   |        |  |                                       |             |               | Poc            | ket          |         |       |
|                |  |   | (7)    | Mobile Phone<br>Communication<br>Examination                   | e, Pager and<br>on devices a<br>Hall. | any one not | other<br>perm | Elect<br>issib | roni<br>le i | ic<br>n |       |
|                |  |   |        |  |                                       |             |               |                |              | ]       | Marks |
| 1.             | Atte   | emp   | t any  | <u>FIVE</u> of the   | following:                            |             |               |                |              |         | 10    |
| a              | ) Def  | Define the term related to power amplifier.         |        |  |                                       |             |               |                |              |         |       |
|                | (i)  | (i) Efficiency                                      |        |  |                                       |             |               |                |              |         |       |
|                | (ii)   | (ii) Voltage gain                                   |        |  |                                       |             |               |                |              |         |       |
| b              | ) List   | List any four applications of RC coupled amplifier. |        |  |                                       |             |               |                |              |         |       |
| c              | ) Stat   | e th  | e role | e of tuned LC  | circuit in t                          | uned a      | mplifi        | er.            |              |         |       |
| d              | ) List   | diff  | erent  | types of feed  | back amplifi                          | iers.       |               |                |              |         |       |

- e) List the advantages of negative feedback over positive feedback.
- f) Compare amplifier and oscillator.
- g) State use of heat sink.

## 2. Attempt any THREE of the following: a) Explain with the help of waveforms, the working principle of single stage CE amplifier. b) Compare positive and negative feedback. c) Define oscillator and state the Barkhausen criterion for the generation of sustained oscillations. d) Explain the working of SMPS with neat block diagram. 3. Attempt any THREE of the following: 12 a) Explain with sketch the working of class B push pull amplifier. b) Compare different types of power amplifier on basis of -(i) Efficiency (ii) Power dissipation in transistor.

- (iii) Conduction angle of collector current
- (iv) Position of Q.
- c) Draw miller sweep generation and give its applications.
- d) Sketch the circuit diagram for dual voltage regulator using IC 78XX and 79XX to obtain  $\pm 12V$  output.

#### 4. Attempt any THREE of the following:

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- a) State the necessity of regulated power supply. Define load and line regulation.
- b) Explain the working principle of crystal oscillator with diagram.
- c) Compare the performance of current series and current shunt feedback amplifier.
- d) Describe with help of circuit diagram working of class A power amplifier.
- e) Compare single tuned and double tuned amplifier with respect to operating principle, frequency response, efficiency and applications.

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- a) Explain with diagram the working of phase shift oscillator. Also a phase shift oscillator has  $R = 220 \text{ k}\Omega$  and C = 500 pf.Calculate the frequency of sine wave generated by the oscillator.
- b) Explain operation of FET common source amplifier with applications.
- c) Explain with circuit diagram and waveform the operation of class AB push pull power amplifier.

## 6. Attempt any TWO of the following:

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- a) Explain stagger tuned amplifier with the help of waveforms.
- b) Draw the circuit of complementary, symmetry push pull amplifier and explain its working.
- c) In voltage amplifier output voltage without negative feedback is 10 V. If 25% of output voltage is feedback in series with input voltage. Find feedback voltage, also give value of the feedback factor.

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