M.E. First Semester (Digital Electronics) (Part Time / Full Time) (C.G.S.- New)

13203 : Elective-I : Modern Electronic Design Techniques : 1 UMEF 3

P. Pages : 2
Time : Three Hours

* 0 8 6 3 *

AX - 3486
Max. Marks : 80

Notes : 1. Answer **three** question from Section A and **three** question from Section B.
2. Assume suitable data wherever necessary.
3. Illustrate your answer necessary with the help of neat sketches.
4. Use of pen Blue/Black ink/refill only for writing the answer book.

SECTION - A

1. a) What is PGA? How the gain is programmable. Explain it's working with circuit diagram. **7**

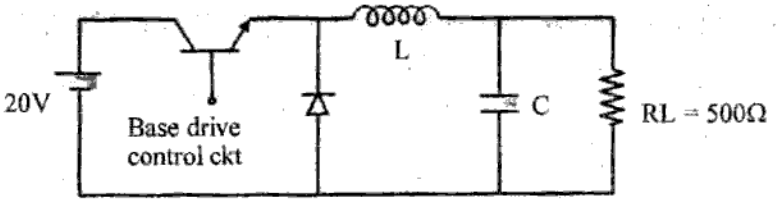
b) Explain digital isolation Techniques? **6**

OR

2. a) Design Low noise PGA for gain 2, 4, 8 and 16 using suitable circuit. **7**

b) Draw and explain AD8037 clamp amplifier circuit with the help of block diagram. **6**

3. a) For the circuit shown in figure find values of L, C for ripple voltage 20mV, $V_0 = 12V$ (Assume suitable data). **7**



b) What is switch mode power converters? Explain working Buck converter with waveforms and design concept. **7**

OR

4. a) Describe the factors for selection of proper semiconductor switches in switching Regulators. **7**

b) Draw and Explain pulse frequency modulation circuit for switching Regulators. **7**

5. a) What is phase Lock loop? Explain with block diagram the working of PLL. **6**

b) Explain with block diagram the working of moving target detector system. **7**

OR

6. a) Explain propagation of sound in water. Hence explain speed of sound, attenuation of sound reverberation of sound in under water sound system. **7**

b) Explain working of Radar with basic range equations. **6**

SECTION - B

7. a) Draw and explain the block diagram of components of electronically controlled engine for automotive control system 7

   b) Explain various basic flight instrumentation systems. 6

OR

8. a) Draw and explain typical cruise control system for automobiles, Hence explain digital cruise control system for vehicle motion control. 7

   b) Draw and explain electrical starting system of turbine engine starter circuit for aircraft. 6

9. a) Explain the working of portable bar code scanner. 7

   b) Explain common portable applications and type of battery selection with specification for portable devices. 7

OR

10. a) Explain the principle of VOIP phone why dedicated VOIP phone models not popular in India? 7

    b) Explain the concept of smart Battery. 7

11. a) Explain the role of Bypass or decoupling capacitor in the layout for analog & digital circuit. 7

    b) What is EMC? Discuss EMC issues & design of enclosure for electronic product. 6

OR

12. a) Explain testability techniques, hence explain in circuit testing, functional testing by ATE & boundary scan JTAG. 7

    b) Explain the performance parameters used for evaluating reliability of electronic system. 6

****