

Total No. of Questions : 8]

SEAT No. :

P1499

[Total No. of Pages : 2

[6002]-127

S.E. (Electrical)

ANALOG AND DIGITAL ELECTRONICS

(2019 Pattern) (Semester - III) (203143)

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) Solve Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6, Q.7 or Q.8.
- 2) Neat diagrams must be drawn wherever necessary.
- 3) Figures to the right indicate full marks.
- 4) Use of Calculator is allowed.
- 5) Assume suitable data if necessary.

- Q1) a)** What is PAL? Explain in detail with suitable diagram. [6]
- b) Write a short note on FPGA. [6]
- c) What is RAM? Explain SRAM & DRAM in detail. [5]

OR

- Q2) a)** Write a short note on PLA. [6]
- b) Explain CPLD with the help of neat logic diagram. [6]
- c) What is ROM? Explain PROM and EPROM in detail. [5]

- Q3) a)** Explain the working of OP-AMP as zero-crossing detector with circuit diagram and waveforms. [6]
- b) Write a short note on V to I converter with grounded type load. [6]
- c) Explain working of OP-AMP as instrumentation amplifier. [6]

OR

- Q4) a)** Explain operation of OP-AMP as peak detector. Draw circuit diagram and waveforms. [6]
- b) Explain sine wave generator with neat circuit diagram and waveforms. [6]
- c) With the help of circuit diagram and waveforms explain application of OP-AMP as comparator. [6]

P.T.O.

- Q5)** a) Draw and explain frequency response characteristics of low pass & high pass filters. [6]
b) Explain working of IC 555 as astable multivibrator. [6]
c) Draw a neat circuit diagram of LM-317 and derive formula for variable voltage available at the output in terms of circuit parameters. [5]

OR

- Q6)** a) Explain high pass filter using OP-AMP with its frequency response. [6]
b) Explain working of IC 555 as monostable multivibrator. [6]
c) Explain the function of 78XX and 79XX voltage regulator. [5]

- Q7)** a) Draw neat diagram and waveforms of single phase half wave rectifier with resistive load. Define: [6]
i) Efficiency.
ii) Form factor.
iii) Ripple factor.
iv) Peak inverse voltage.

- b) Explain full wave centre tapped rectifier supplying resistive load with circuit diagram and waveforms. [6]
c) Draw and explain the operation of single phase bridge rectifier supplying RL load. [6]

OR

- Q8)** a) Explain the working of single phase full wave bridge rectifier with RL load. [6]
b) A voltage of $200 \sin(100\pi t)$ is applied to a half wave rectifier with a load resistance of $10 \text{ k}\Omega$. Calculate the maximum current, RMS current, average current, AC input power and ripple factor. [6]
c) Draw neat diagram of three phase full wave bridge rectifier with R load and explain its working. [6]

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