

NOVEMBER/DECEMBER 2018

MPH14A — ELECTRONIC DEVICES AND APPLICATIONS

Time : Three hours

Maximum : 75 marks

SECTION A — (5 × 6 = 30 marks)

Answer ALL the questions.

1. (a) Explain the fabrication of pressure transducers by monolithic technology.

Or

- (b) Explain the fabrication of voltage regulators by using monolithic technology.

2. (a) Discuss the different types of LEDs and their actions.

Or

- (b) What is a PIN diode? Discuss its characteristics.

3. (a) What is a voltage controlled oscillator? Explain the working of such a circuit using IC 555 timer.

Or

- (b) Describe the working of a PLL circuit constructed using IC 565.

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4. (a) Construct a logarithmic amplifier circuit with an op-amp and describe its functioning.

Or

- (b) With a neat circuit diagram, explain how op-amps can be used to solve a set of simultaneous equations.
5. (a) Discuss the effects of noise on pulses.

Or

- (b) What is meant by frequency shift keying? Explain.

SECTION B — ($3 \times 15 = 45$ marks)

Answer any THREE questions.

6. Write short notes on the logic families (a) Schottky TTL (b) CMOS and (c) tristate.
7. Write short notes on photodiodes and phototransistors.
8. Using IC 555 timer, construct the following circuits and explain their operations;
- (a) Monostable multivibrators
- (b) Schmitt trigger.

9. What is meant by an active filter? With neat circuit diagrams, explain the action of low pass, high pass and band pass filter circuits.
10. (a) What is meant by quantizing noise? Explain.
- (b) Describe the generation and demodulation of PCM.

