

Duration: 2:30 Hrs.

Marks:-60

- N.B:** (1) All questions are compulsory.
(2) Figures to the right indicate maximum marks.
(3) Use of non-programmable calculators is permitted.
(4) Symbols used have their usual meaning

- Q1. A) Attempt any ONE (08)**
1. Explain the internal memory organization of 8051 microcontroller.
2. Explain the different types of addressing mode supported by 8051 with suitable examples.
- B) Attempt any ONE (04)**
1. Write the features of 8051 microcontroller.
2. Write the difference between CISC and RISC architecture.
- Q2. A) Attempt any ONE (08)**
1. Explain Linear Power supply with block diagram.
2. With the help of block diagram explain the working of SMPS.
- B) Attempt any ONE (04)**
1. Define filters and their types.
2. Determine the cutoff frequency second order active Low pass filter having components $R_1=R_2= 2.1k\Omega$; $C_1=C_2= 0.05\mu F$; $R_1=20k\Omega$ and $R_2=60k\Omega$.
- Q3. A) Attempt any ONE (08)**
1. Derive the Acceptance angle in optical fiber with the help of diagram.
2. What is step index fiber? Explain transmission of signal in step index fiber.
- B) Attempt any ONE (04)**
1. Explain classification of modulation.
2. Distinguish between Single mode and Multimode Optical fiber.

Q4. A) Attempt any ONE

(08)

1. How electronic balance work? Explain working of load cell in Electronic balance.
2. Explain any two types of strain gauges with appropriate diagram.

B) Attempt any ONE

(04)

1. What are applications of the IR Remote Control Switch?
2. What are the different shapes of load cell? Give the details.

Q5. Attempt any FOUR

(12)

1. Draw the pin diagram of 8051 microcontroller.
2. Define the following instructions of 8051 Microcontroller:
 - (a) MOV 30H, R5
 - (b) ADD A, @R0
 - (c) DEC R5
3. What are Advantages and Disadvantages of UPS?
4. What are the applications of Instrumentation Amplifier?
5. Define Pulse Width Modulation in Data transmission.
6. What are advantages of fiber optic transmission?
7. What does the Electronic balance mean?
8. Write any three advantages and disadvantages of semiconductor strain gauge?
