

Model Question Paper

For Kashmir Division 2010 Regular Exam Only

Roll No.....

Subject ELECTRONICS

Maximum Marks --- 60

Time Allowed – 3 Hours (Fifteen Minutes Extra to read the question paper)

Do questions from Part A or Part B or from both Part A and B Part of maximum 60 marks as per your preparation.

Part A
(Long Answer Type Questions)

1. What do you understand by Frequency Modulation ? Give its advantages over Amplitude Modulation.

Or

What is Modulation ? Why is modulation necessary in Communication systems ? 5

2. Explain the demodulation of an AM wave using Envelop detector.

Or

Draw the block diagram of a Superheterodyne radio receiver. Explain the function of its each block. 5

3. Describe PCM. Give the advantages of PCM over Amplitude modulation technique.

Or

Draw the circuit of a Square Law Modulator and explain its operation. 5

4. Define Gauge factor and obtain its mathematical expression.

Or

Explain the construction and workings of a Strain Gauge. 5

5. Describe, with the help of a labelled diagram, the basic CRO circuit.

Or

With the help of a diagram, explain the working of a PMMC galvanometer. 5

(Short Answer Type Questions)

6. What is Modulation Index ? Give its significance. 3
7. Give various advantages of a Superheterodyne receiver. 3
8. What is Interlaced Scanning ? 3
9. Give the definition of Systematic and Random Errors. 3
10. What is a Thermocouple ? Give its applications. 3
11. Compare and contrast a Voltmeter and an Ammeter. 3
12. What are the basic controls of a CRO ? 3

(Very Short Answer Type Questions)

13. The following very short answer type questions of two marks, each may be answered in a few words or few sentences or as may be required.
- (a) Give the definition of Analog and Digital signals. 2
- (b) Give any two limitations of Amplitude Modulation. 2
- (c) Define a Passive transducer with examples. 2
- (d) Define a Shunt and a Universal Shunt. 2

(Objective Type Questions)

14. Choose the correct/most appropriate answer and write it in your Answer-book :

(i) Strain gauge is basically a device for measuring

- A. Electrical resistance
- B. Mechanical surface strain
- C. Force
- D. None of the above.

1

(ii) Conformity to true value is

- A. Accuracy
- B. Precision
- C. Resolution
- D. Sensitivity.

1

(iii) A C.R.O. is used to measure

- A. Voltage
- B. Frequency
- C. Phase
- D. All of the above.

1

(iv) An aquadag is used in a C.R.O. to collect

- A. Primary electrons
- B. Secondary emission electrons
- C. Both A and B
- D. None of the above.

1

(v) In an AM wave for audio frequency of 500 Hz, the appropriate carrier frequency will be

- A. 50 Hz
- B. 100 Hz
- C. 500 Hz
- D. 5000 Hz.

1

(vi) The number of sidebands and the signal strength of each sideband is determined by

- A. Modulation index
- B. Carrier frequency
- C. Modulating frequency
- D. None of the above.

1

Part B

(Long Answer Type Questions)

1. State and explain Commutative law and Associative of Boolean algebra.

Or

State and explain DeMorgan's Second theorem.

2. State and explain AND and Ex-OR gates with the help of truth tables.

Or

State and explain DeMorgan's First theorem.

3. Explain Full Adder by giving its logic diagram and truth table.

Or

What is Demultiplexer ? Explain with the help of diagram.

4. Define and explain a Decoder.

Or

Define and explain Full subtractor.

(2)

5. Give the classification of Computers on the basis of their types.

Or

Explain ALU, CPU, Memory and Control unit of a Computer.

5

(Short Answer Type Questions)

6. Convert $(99)_{10}$ into binary number by repeated division by 2.

3

7. Explain 3-Input NAND Gate.

3

8. Define Half-adder and give its logic diagram.

3

9. Explain 4-Input Ex-NOR Gate.

3

10. Define Software. List some important Softwares.

3

11. Explain 2's complement using a suitable example.

3

12. What is Truth table ? Explain with the help of an example.

3

(Very Short Answer Type Questions)

13. The following very short answer type questions of two marks, each may be answered in a few words or few sentences or as may be required.

(a) Define Octal number.

2

(b) Define 1's complement of a number.

2

(c) What is Parity check bit ?

2

(d) Define Non-volatile memory.

2

(Objective Type Questions)

14. Choose the correct/most appropriate answer and write it in your Answer-book :

- (i) The Universal gate is 1
- (ii) The NAND and AND gates followed by gate. 1
- (iii) $\overline{A \cdot B} = \dots\dots\dots$
- A. $\overline{A} + \overline{B}$
- B. $\overline{A} \cdot \overline{B}$
- C. $\overline{A} - \overline{B}$
- D. None of these. 1
- (iv) $\overline{A+B} = \overline{A} \cdot \overline{B}$. (True/False) 1
- (v) ROM stands for Random only memory. (True/False) 1
- (vi) EPROM stand for 1