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. 5

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

Or

What is Demultiplexer ? Explain with the help of diagram. 5

4. Define and explain a Decoder.

Or

Define and explain Full subtractor. 5

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) $\overline{A \cdot B}$ = ...

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