

1604-22N3 - 174e3

RND223SEX/E/MEE

J & K BOARD OF TECHNICAL EDUCATION

Semester: 3<sup>RD</sup>

Branch: Electronic & Communication Engg.\ Medical Eletx

**Subject: Electronic Devices and Circuits**

## Scheme: New

Time : 3 Hrs

Session: ND22

M.M.: 100

**Note:- Attempt any five Questions. All Questions carry equal marks.**

1604-22N3 - 17403

RND223SEXE/MEE

J & K BOARD OF TECHNICAL EDUCATION

Semester: 3<sup>RD</sup>

Branch: Electronic & Communication Engg. \ Medical Eletx

Subject: Electronics Instruments & Measurement

Scheme: New

Time : 3 Hrs

Session: ND22

M.M.: 100

Note:- Attempt any five Questions. All Questions carry equal marks.

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|--------------|--|------------|
| <b>Q1.</b>   | Write short notes on:  | <b>4x5</b> |
|              | (i) Accuracy      (ii) Precision      (iii) Sensitivity      (iv) Resolution                                       |            |
| <b>Q2.a)</b> | Draw and explain the construction and working of permanent magnet moving coil mechanism.                           | <b>10</b>  |
| <b>b)</b>    | Explain in detail the multirange voltmeter.  | <b>10</b>  |
| <b>Q3.</b>   | Draw and explain the block diagram of electronic millimetre. List its advantages over the conventional millimetre? | <b>20</b>  |
| <b>Q4</b>    | Define Ohm metre. Explain in detail series type Ohm metre?   | <b>20</b>  |
| <b>Q5.a)</b> | What do you mean by Time Base Operation of CRT.  | <b>10</b>  |
| <b>b)</b>    | Explain how time interval, time period and frequency is measured using Universal Counter.                          | <b>10</b>  |
| <b>Q6</b>    | Draw and explain the block diagram of Function Generator?  | <b>20</b>  |
| <b>Q7.</b>   | Draw and explain the block diagram of CRO. List its various specifications?  | <b>20</b>  |
| <b>Q8.</b>   | Give the block diagram description of digital voltmeter. Explain its working?                                      | <b>20</b>  |
| <b>Q9.</b>   | Define Wave Analyser. Draw and explain its block diagram. List its applications?                                   | <b>20</b>  |
| <b>Q10.</b>  | What is Q metre? Describe its block diagram and working principle?   | <b>20</b>  |

1604-22W3 1940S

RND223SEXE

J & K BOARD OF TECHNICAL EDUCATION

Semester: 3<sup>RD</sup>

Branch: Electronic & Communication Engineering

Subject: Principles of Communication Engineering

Scheme: New

Time : 3 Hrs

Session: ND22

M.M.: 100

Note:- Attempt any five Questions. All Questions carry equal marks.

- Q1. Draw the block diagram of a modern communication system and explain the function of each stage? 20
- Q2.a) Compare AM & FM systems. 10  
b) What is modulation? Also explain its need. 10
- Q3.a) What are the advantages and disadvantages of Delta modulation. 10  
b) Explain the working principle of Phase Locked Loop (PLL) FM demodulator. 10
- Q4. Define amplitude modulation. Derive an expression for amplitude modulated wave? 20
- Q5. Describe the working of Armstrong method of frequency modulation? 20
- Q6.a) Compare DSB-SC, SSB and VSB with at least five parameters. 10  
b) Briefly explain pre-emphasis and its uses. 10
- Q7. With the help of diagram explain the working of varactor diode modulator? 20
- Q8.a) State and explain sampling theorem. 10  
b) Write a short note any one of the following: 10  
i) Pulse code modulation      ii) Pulse position modulation.
- Q9. Explain the construction and working principle of a Balanced Ring Modulator? 20
- Q10. Draw the block diagram of Delta modulation and explain its advantages over PCM. List the limitations of delta modulation? 20

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J & K BOARD OF TECHNICAL EDUCATION

Semester: 3<sup>RD</sup>

Branch: Electronic & Communication Engg. \ Medical Eletx

Subject: Digital Electronics

Scheme: New

Time : 3 Hrs

Session: ND22

M.M.: 100

Note:- Attempt any five Questions. All Questions carry equal marks.

- Q1.a)** List the difference between Analog and Digital signals. 10
- b) What is parity, How can you detect errors using parity. 10
- Q2.a)** Convert the following: 10  
a)  $(110101)_2$ = Decimal equivalent    b)  $(101010)_2$ = Gray code  
c)  $(1AF)_{16}$ =Binary equivalent
- b) Define SSI, MSI, LSI and VLSI. 10
- Q3.** Draw and Describe Ring counter with timing diagram? 20
- Q4.a)** Draw a Karnaugh map to reduce the function and also realize the reduced function using gates. 10
- $F = \sum m(0, 1, 4, 5, 12, 13, 8, 9, 2, 5, 14)$
- b) Describe NOR gate as universal gate. 10
- Q5.** Draw and explain Full Adder circuit? 20
- Q6.** What is multiplexer? Draw and explain the logic diagram of 4:1 multiplexer? 20
- Q7.** Draw and Explain the operation of master slave JK Flip-Flop? 20
- Q8.qf** Discuss De Morgans theorems with suitable examples. 10  
b) Using 2's compliment method Subtract  $(011110)_2$  from  $(111001)_2$ . 10
- Q9.** Define shift register. Draw and describe the operation of SIPO shift register? 20
- Q10.** Draw and explain the working of successive approximation analog to digital converter circuit? 20

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**J & K BOARD OF TECHNICAL EDUCATION**

Semester: 3<sup>RD</sup>

Branch: Electronic & Communication Engg.\ Medical Eletx

Subject: Computer Programming & Applications

Scheme: New

Time : 3 Hrs

Session: ND22

M.M.: 100

**Note:- Attempt any five Questions. All Questions carry equal marks.**

- |              |   |             |
|--------------|---|-------------|
| <b>Q1.a)</b> | Explain structure of C programming?   | <b>10</b>   |
| <b>b)</b>    | Explain and differentiate between 'While' and 'Do While' statements in C language?  | <b>10</b>   |
| <b>Q2.</b>   | Write short notes on:<br>a) Interpreter      b) Compiler      c) High level language<br>d) Machine language      e) Assembly language | <b>20</b>   |
| <b>Q3.a)</b> | Write a short note on pointers with example?  | <b>10</b>   |
| <b>b)</b>    | Write a program to find factorial of a number using pointers?   | <b>10</b>   |
| <b>Q4.</b>   | Explain various one dimensional and multi-dimensional arrays with examples?   | <b>20</b>   |
| <b>Q5.</b>   | Explain flowchart and all its symbols. Draw a flowchart to add two numbers?   | <b>20</b>   |
| <b>Q6.</b>   | Write a program in c to find:<br>a) Area of circle      b) To swap two numbers  | <b>2x10</b> |
| <b>Q7.a)</b> | Explain various types of data-types available in C?   | <b>10</b>   |
| <b>b)</b>    | Write down the difference between structure and union?  | <b>10</b>   |
| <b>Q8.</b>   | Write down difference between call by value and call by reference methods of parameter passing?                                       | <b>20</b>   |
| <b>Q9.</b>   | What do you mean by formulated I/O ? Explain arithmetic and logical operators in C?   | <b>20</b>   |
| <b>Q10.</b>  | Explain any two of the following and their application in electronics engineering:<br>a) MATLAB      b) PSPICE      c) ORCAD          | <b>20</b>   |