**Indian Maritime University**

**(A Central University, Govt of India)**

**End Semester Examinations – December 2022**

**Programme Name: B Sc (NS)**

**Semester: 1**

**Subject Code: UG21T5104**

**Subject Name: ELECTRONICS**

Date: 28.12.2022 Max Marks: 70

Duration: 03 Hrs Pass Marks: 35

General Instructions

(i) All Sections (A, B & C) are to be attempted.

(ii) Options, if any, are specified in respective section.

(iii) Scientific Calculator is permitted.

**Section A**

Ten MCQs/Fill in the Blanks of 01 Mark each – Choose the correct answer. Objective Questions [MCQ / True -False/Fill up the blanks/Match the following] Covering from All Units--no units to be missed.

1. The Barrier Voltage at a pn junction for germanium is about [ ]
   a) 3.5V b) 3V C) Zero d) 0.3 V
2. Zener Diodes are used primarily as [ ]
   a) Amplifiers b) Voltage regulators C) Rectifiers d)Oscillators
3. The Element that has biggest size in transistor is [ ]
   a) Collector b) Base C) Emitter d) Collector base
4. It is generally desired that that a transistor should have_____ input impedance. [ ]
   a) Low b) very low C) High d) very high
5. In an LC Transistor oscillator, the active device is _____ [ ]
   a) LC tank circuit b) Biasing circuit C) Transistor d) None of the above.
6. Demodulation is done in _____ [ ]
   a) Receiving antenna b) Transmitter C) radio receiver d)transmitting antenna
7. Which logic gate is known as Universal gate [ ]
   a) NAND b) NOT C) AND d) EX-OR
8. Three essential elements of a communication system are [ ]
   a) a transmitter b) a channel C) a receiver d) all of the above
9. The circuit that convers decimal form to digital form(binary form is called)[ ]
   a) decoder b) encoder C) Boolean d) none of the above

10. Identify True or False: [ ]
The down link frequency is lower than the upper link frequency in a satellite communication
a) False b) True

## Section B

Five Questions of 02 Marks each. SHORT ANSWER TYPE QUESTIONS

11. Explain Zener diode operation and its applications?
12 Write conditions for Transistor biasing Define transistor biasing?
13"Negative Voltage feed-back" mention its advantages?
14."Modualtion" and explain need for modulation?
15. Explain the principle of radio detection and finding?

## Section C

Answer five out of seven questions. (Each 10M)

16. (a)Conduction in crystals at absolute zero temperature and conduction band
(b) With the help of a diagram explain full wave rectifier
17. Explain the working principle of A stable and mono stable Multivibrator
18. (a) Explain DC load line and operating point?
(b) Explain Alpha and base current amplification factor Beta?
19. Explain NAND gate, NOR gate and EX-OR gate with truth tables and Define Flip Flop?
20. Explain demodulation of AM wave and Diode detector circuit
21. Explain elements of RADAR system- radar range, radar altimeters and radio beacons
22. Explain address and data bus, control and status signal and applications of microprocessors

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