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DCEL501



Reg. No.

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V Semester B.Sc. Degree Examination, February/March - 2024

**ELECTRONICS**  
**COMMUNICATION - II**  
**(NEP 2020 Scheme)**



**Paper : V**

**Time : 2½ Hours**

**Maximum Marks : 60**

**Instructions to Candidates:**

**Answer ALL the questions from Part-A, any FOUR questions from Part-B and any FOUR questions from Part-C.**

**Note: It is required to answer all the questions of Part-A in any one page and to be answered only one. In this Part, answering the same question multiple times will not be considered for evaluation.**

**PART-A**

**Answer All the Subdivisions.**

**(12×1=12)**

1. i) A waveguide is a
  - a) Device to guide light waves
  - b) Structure that guides electromagnetic waves
  - c) Tool for measuring seismic waves
  - d) Device to amplify microwaves
- ii) The function of isolation port in a directional coupler to
  - a) Provide a matched termination
  - b) Minimize interference between the input and output ports
  - c) Amplifies the coupled signal
  - d) Adjusts the coupling factor
- iii) The semiconductor material commonly used in the fabrication of GUNN diode.
  - a) Silicon (Si)
  - b) Germanium (Ge)
  - c) Gallium arsenide (GaAs)
  - d) Silicon carbide (SiC)

**[P.T.O.]**

- iv) The simplest form of PSK, where the phase can be either 0 or 180 degrees:
- a) BPSK
  - b) QPSK
  - c) APSK and
  - d) None of the above
- v) In 16-QAM, each symbol represents
- a) 1 bit
  - b) 2 bits
  - c) 4 bits
  - d) 16 bits
- vi) The cross talk in a communication systems refers to
- a) Efficient data transmission
  - b) Unwanted interference between channels
  - c) Maximum data rate
  - d) Signal amplification
- vii) The full form of SIM card in mobile phone
- a) Set Interrupt Mask
  - b) Subscriber Identity Module
  - c) Super Indium Mobile
  - d) None
- viii) In cellular networks, the abbreviation of ARFCN is
- a) Absolute Radio Frequency Channel Number
  - b) Absolute RF Cable Number
  - c) American Radio Frequency Channel Number
  - d) AM Radio Channel Number
- ix) Bluetooth operates at
- a) 2.4 GHz
  - b) 5 GHz
  - c) 1 GHz
  - d) 3 GHz
- x) Identify the largest computer network?
- a) Metropolitan Area Network (MAN)
  - b) Wide Area Network (WAN)
  - c) Local Area Network (LAN)
  - d) Personal Area Network (PAN)

- xi) In a mobile communication system MTSO stands for
- Mobile Telephone Switching Office
  - Master Telephone Switching Office
  - Modern Telephone Satellite Organization
  - None of the above
- xii) In IEEE standard, the Wi-Fi protocol is
- IEEE 802.11
  - IEEE 802.3
  - IEEE 803.1X
  - IEEE 1394

**PART-B**

Answer any FOUR questions.

(4×7=28)

- Mention the names of microwave hybrid circuits.
  - Explain the construction and working of IMPATT diode. (2+5)
- Explain the construction and working of a two-cavity klystron amplifier.
- Define Bit Rate and Baud Rate.
  - Define ASK,FSK,PSK and draw their input and output waveforms. (2+5)
- With a block diagram, explain cellular phone handset.
- Write a note on
    - Wi-Fi and
    - Zigbee
  - Mention different types of computer networks and their applications. (4+3)
- Draw and explain 7 layer OSI Model.

**PART-C**

Answer any FOUR questions.

(4×5=20)

- Mention the name and frequency bands of microwaves.
- Write a note on circulators and isolators in microwave communication system.

[P.T.O.]



10. A radio channel has a bandwidth of 10 KHz. Calculate the information carrying capacity of the channel when the S/N ratio is
    - a) 20dB and
    - b) 30dB
  11. Distinguish between FDMA and TDMA in a communication system.
  12. Draw the block diagram of cellular mobile communication network.
  13. Write a note on IEEE standards.
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