**POORNIMA UNIVERSITY, JAIPUR**

**END SEMESTER EXAMINATION, November 2022**

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|  | **4BT7189** | Roll No. | Total Printed Pages: 2 |
| **4BT7189** |  |
| B. Tech. IV Year VII- Semester (Main/Back) End Semester Examination, November 2022  **(EC)** | |
| **BEC07103 : Wireless Communication** | | | |

# Time: **3** Hours. Total Marks: **60**

Min. Passing Marks: **21**

Attempt **five** questions selecting one question from each Unit. There is internal choice from Unit I to Unit V. Marks of each question or its parts are indicated against each question / parts. Draw neat sketches wherever necessary to illustrate the answer. Assume missing data suitably (if any) and clearly indicate the same in the answer.

Use of following supporting material is permitted during examination for this subject.

# **1.--------------------------Nil--------------------** **2.------------------Nil-----------------------**

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|  |  | **UNIT-I (CO1)** | **Marks** | **Bloom Level** |
| **Q.1** | **(a)** | Explain different Propagation Mechanisms. | **(6)** | **Analyze** |
|  |  |  |  |  |
|  | **(b)** | What do you understand by Propagation Modes? Classify different modes of Propagation. (Ground wave, Sky Wave, Space Wave, Tropospheric Scatter Propagation) | **(6)** | **Understand** |
|  |  |  |  |  |
|  |  | **OR** |  |  |
|  |  |  |  |  |
| **Q.2** | **(a)** | Explain the term fading. Why it is harmful? Also classify fading. | **(6)** | **Analyze** |
|  |  |  |  |  |
|  | **(b)** | A user (receiver) is moving with a velocity of 60 Km/Hr. The signal of 900 MHz. frequency arrives at an angle of 30 degrees. Assuming no reflected waves arriving at receiver. Calculate the received frequency and doppler shift frequency. What would be the Doppler shift frequency and received frequency if the user moves at the same speed but in exactly opposite direction? | **(6)** | **Evaluate** |
|  |  |  |  |  |
|  |  | **UNIT-II (CO2)** |  |  |
|  |  |  |  |  |
| **Q.3** | **(a)** | Describe link engineering with its classifications. | **(6)** | **Understand** |
|  |  |  |  |  |
|  | **(b)** | Explain the frequency bands for communication in tabular form. | **(6)** | **Analyze** |
|  |  |  |  |  |
|  |  | **OR** |  |  |
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| **Q.4** | **(a)** | Explain Fresnel Zone Clearance. | **(6)** | **Analyze** |
|  |  |  |  |  |
|  | **(b)** | Draw the microwave link Transmitter and receiver block diagrams. | **(6)** | **Apply** |
|  |  |  |  |  |
|  |  | **UNIT-III (CO3)** |  |  |
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| **Q.5** | **(a)** | Explain the working, advantage and disadvantage of CDMA system. | **(6)** | **Analyze** |
|  |  |  |  |  |
|  | **(b)** | Compare the FDMA, TDMA and CDMA. | **(6)** | **Analyze** |
|  |  |  |  |  |
|  |  | **OR** |  |  |
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| **Q.6** | **(a)** | Describe the concept of ALOHA system. Why we shift towards slotted aloha system? | **(6)** | **Understand** |
|  |  |  |  |  |
|  | **(b)** | What do you mean by multiple accesses in wireless communication? | **(6)** | **Analyze** |
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|  |  | **UNIT-IV (CO4)** |  |  |
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| **Q.7** | **(a)** | Make a critical comparison between CDMA and GSM technologies used in mobile communication. | **(6)** | **Analyze** |
|  |  |  |  |  |
|  | **(b)** | Explain the 2G, 2.5G, 3G, and 4G technologies for cellular mobile communication. | **(6)** | **Understand** |
|  |  |  |  |  |
|  |  | **OR** |  |  |
|  |  |  |  |  |
| **Q.8** | **(a)** | For a GSM network, explain the following:  (i) Home Location Register (ii) Visitor Location Register. | **(6)** | **Analyze** |
|  |  |  |  |  |
|  | **(b)** | Describe GSM cellular architecture and its various features. What are various standards used in GSM cellular telephony. | **(6)** | **Understand** |
|  |  |  |  |  |
|  |  | **UNIT V (CO5)** |  |  |
|  |  |  |  |  |
| **Q.9** | **(a)** | Differentiate FAMA-FDMA and DAMA-FDMA. | **(6)** | **Analyze** |
|  |  |  |  |  |
|  | **(b)** | Explain Satellite Orbital Description with orbital parameters. | **(6)** | **Analyze** |
|  |  |  |  |  |
|  |  | **OR** |  |  |
|  |  |  |  |  |
| **Q.10** | **(a)** | Explain different types of orbital Satellites. | **(6)** | **Analyze** |
|  |  |  |  |  |
|  | **(b)** | Describe the general configuration of an earth station. | **(6)** | **Understand** |