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| **Department of Electrical Engineering**  **Final-Assignment**  **Date: 22/06/2020**  **Course Details** | | | |
| **Course Title:** | Advance Computer Networks | **Module:** |  |
| **Instructor:** |  | **Total Marks:** | 50 |
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**Student Details**

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| **Name:** |  | **Student ID:** |  |

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| Q1. | (a) | The Advanced Mobile Phone System (AMPS) uses two bands. The first band, 800 to 850 MHz, is used for sending; and 860 to 910 MHz is used for receiving. Each user has a bandwidth of 60 KHz in each direction. The 3-KHz voice is modulated using FM, creating 60 KHz of modulated signal. How many people can use their cellular phones simultaneously? | Marks 6 |
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| (b) | Express a period of 1 ms in microseconds, and express the corresponding frequency in kilohertz and A sine wave is offset one-fourth of a cycle with respect to time zero. What is its phase in degrees and radians? | Marks 4 |
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| Q2. | (a) | Explain wave division multiplexing and it’s applications? | Marks 5 |
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| (b) | Nine channels, each with a 99-KHz bandwidth, are to be multiplexed together. What is the minimum bandwidth of the link if there is a need for a guard band of 13 KHz between the channels to prevent interference? | Marks 5 |
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| Q3. | (a) | A constellation diagram consists of sixteen equally spaced points on a circle. If the bit rate is 4800 bps, what is the baud rate? | Marks 5 |
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| (b) | Given a bandwidth of 7000 Hz for a 128-PSK signal, what are the baud rate and bit rate? | Marks 5 |
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| Q4. |  | Explain wireless propagation methods & wireless transmission waves? We need to send 265kbps over a noiseless channel with a bandwidth of 20KHz. How many signal levels do we need? | Marks 10 |
| Q5. |  | What is the difference between Shannon & Nyquist Capacity? Consider a noiseless channel with a bandwidth of 3000 Hz transmitting a signal with 4 signal levels, the maximum bit rate can be ? | Marks 10 |