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PRESIDENCY UNIVERSITY BENGALURU

SCHOOL OF ENGINEERING

MAKE UP EXAMINATION - JULY 2024

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| **Semester : 3** | **Date : 04/07/2024** |
| **Course Code : CSE2011** | **Time : 09:30 AM - 12:30 PM** |
| **Course Name : Data Communication and Computer Networks** | **Max Marks : 100** |
| **Program : B.Tech** | **Weightage : 50%** |

**Instructions:**

1. *Read all questions carefully and answer accordingly.*
2. *Question paper consists of 3 parts.*
3. *Scientific and non-programmable calculator are permitted.*
4. *Do not write any information on the question paper other than Roll Number.*

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| **PART A** | | | |
| **ANSWER ANY 5 QUESTIONS 5Q X 2M=10M** | | | |
| 1 | List all the layers of TCP/IP model. | (CO 1) | [Knowledge] |
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| 2 | Explain UDP segment structure. | (CO 1) | [Knowledge] |
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| 3 | List some services of network layer. | (CO 2) | [Knowledge] |
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| 4 | Illustrate the format of MAC address. | (CO 3) | [Knowledge] |
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| 5 | What are the benefits of Dynamic Host Configuration Protocol? | (CO 3) | [Knowledge] |
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| 6 | Define the different types of data flows. | (CO 4) | [Knowledge] |
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| 7 | Differentiate between periodic and non-periodic signals. | (CO 4) | [Knowledge] |
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| **PART B** | | | |
| **ANSWER ANY 5 QUESTIONS 5Q X 10M=50M** | | | |
| 8 | List the characteristics of TCP protocol and also explain TCP segment structure with a neat diagram. | (CO 1) | [Comprehension] |
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| 9 | Explain the working of Selective Repeat ARQ. | (CO 1) | [Comprehension] |
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| 10 | Change the following IP addresses from dotted-decimal notation to binary and identify to which class it belongs to:   1. 192.163.5.11 2. 12.11.206.16 3. 246.220.230.41 4. 182.155.165.15 5. 238.19.115.25 | (CO2) | [Application] |
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| 11 | Illustrate and explain the components of Dynamic Host Configuration Protocol | (CO 3) | [Comprehension] |
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| 12 | Explain Address Resolution Protocol with advantages and disadvantages. Differentiate between switch and router. | (CO 3) | [Comprehension] |
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| 13 | Define Data Communication. Explain the characteristics and components of data communication in detail. | (CO 4) | [Comprehension] |
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| 14 | Illustrate and explain the different data representation in Data Communication Networks. | (CO 4) | [Comprehension] |
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| **PART C** | | | |
| **ANSWER ANY 2 QUESTIONS 2Q X 20M=40M** | | | |
| 14 | Calculate the shortest path using Distance vector algorithm for all the nodes. | (CO2) | [Application] |
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| 15 | A bit stream 100100 is transmitted using the standard CRC method. The generator polynomial is x3+x2+1.  a. What is the actual bit string transmitted?  b. Suppose the second bit from the left is inverted during transmission. How will receiver detect this error? | (CO3) | [Application] |
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| 16 | Compare and contrast the IPv4 and IPv6 header formats. Provide a detailed analysis including a clear diagram for each format to illustrate their structures and differences. | (CO2) | [Application] |
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