Reg.No. \_\_\_\_\_\_\_\_\_\_\_\_



**UNIVERSITY**

(Karunya Institute of Technology & Sciences)

(Declared as Deemed-to-be University under Sec.3 of the UGC Act, 1956)

**End Semester Examination – Nov/Dec – 2017**

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| **Code :** | **14MT2021** | **Duration :** | **3hrs** |
| **Sub. Name :** | **SATELLITE BROADCASTING** | **Max. marks :** | **100** |

**ANSWER ALL QUESTIONS (5 x 20 = 100 Marks)**

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| **Q. No.** | **Sub Div.** | **Questions** | **Course**  **Outcome** | **Marks** |
| 1. | a. | Name the person who sent the first long distance telegraphic message. | CO2 | 1 |
| b. | Give examples of early information transfer types before the use of radio waves and telegraphs. | CO2 | 4 |
| c. | List and explain the various types of orbits possible for satellites to be launched into with their applications. | CO2 | 15 |
| (OR) | | | | |
| 2. | a. | If the moon orbits around the earth in an ellipse shaped orbit, State the location of the earth in relation to the moon. | CO2 | 1 |
| b. | Name the advantages that FM brought over AM transmission for Radio. | CO2 | 2 |
| c. | Describe the Grave Orbit. | CO2 | 2 |
| d. | State and explain the kepler’s Laws of planetary motion with clear diagrams. | CO2 | 15 |
|  |  |  |  |
| 3. | a. | Define: Angle of Elevation. | CO2 | 2 |
|  | b. | Give the application of an Apogee Kick Motor. | CO2 | 2 |
|  | c. | Explain the importance of choosing appropriate launching spot location on earth for achieving different orbits for satellites. | CO2 | 2 |
|  | d. | Describe what happens to a satellite that does not get constant attitude adjustments while in orbit. | CO2 | 2 |
|  | e. | Name and explain the Radio wave propagation types used in radio, TV and satellite communication. | CO2 | 12 |
| (OR) | | | | |
| 4. | a. | Identify the person who was the first to propose the idea of space satellites for communication? | CO2 | 1 |
|  | b. | List and Explain the applications of the various parts of a Satellite. | CO3 | 16 |
|  | c. | State the significance of project TELSTAR. | CO2 | 3 |
|  |  |  |  |  |
| 5. | a. | State the application of a conditional access system in a set top box. | CO2 | 2 |
|  | b. | Justify the conversion from RGB to YIQ colour space for broadcast. | CO2 | 3 |
|  | c. | Calculate the required bitrate needed for a uncompressed SDTV broadcast of 640x480 at 30 frames/second having a colour depth of 16 bits/pixel. | CO3 | 3 |
|  | d. | List out the various parts of an LNB, Explaining their functions. | CO3 | 6 |
|  | e. | Based on your analysis, List down the features of C-Band and Ku Band with relevance to TV broadcast. | CO2 | 6 |
| (OR) | | | | |
| 6. | a. | Describe QPSK modulation with a simple diagram. | CO3 | 5 |
|  | b. | Explain the various parts of the indoor unit of a digital DTH system. | CO2 | 10 |
|  | c. | With examples defend the usage of FEC even when it increases the required data rate considerably for satellite communications. | CO3 | 5 |
|  |  |  |  |  |
| 7. | a. | With neat diagrams summarize the working of MPEG 2 Video compression. | CO3 | 15 |
|  | b. | Express your take on the future of video encoding codecs and its present state. | CO3 | 5 |
| (OR) | | | | |
| 8. | a. | Justify the use of a perforated large Dish for C Band reception. | CO3 | 2 |
|  | b. | Explain the various stages of MPEG 1 Audio encoding. | CO3 | 6 |
|  | c. | Explain how hamming code detects and corrects single bit errors. | CO2 | 12 |
|  | |  |  |  |  |
|  | | **Compulsory**: |  |  |  |
| 9. | a. | List and explain the stages involved in creation of content for radio broadcast. | CO3 | 8 |
|  | b. | Describe the working of internet TV and state how it is different from IPTV with real world examples. | CO3 | 12 |

ALL THE BEST