

**Duration: 3hrs**

**[Max Marks:80]**

- N.B. : (1) Question No 1 is Compulsory.  
(2) Attempt any three questions out of the remaining five.  
(3) All questions carry equal marks.  
(4) Assume suitable data, if required, and state it clearly.

- 1 Attempt any FOUR **[20]**
- a What is carrier aggregation ? Differentiate between 4G and 5G Carrier aggregation.
  - b Define different performance metrics used in 5G system.
  - c How cognitive radio helps to mitigate interference in macro or femto heterogeneous networks.
  - d State different types of transceivers used in Mm-Wave. Explain any One.
  - e What is AR in 5G.
- 2 a Explain power domain noma and code domain NOMA. **[10]**
- b Explain fundamentals of game theory. **[10]**
- 3 a Explain filtered-OFDM and filter bank multicarrier **[10]**
- b Explain different benefits of NOMA which can improve wireless communication. **[10]**
- 4 a How channel modelling is different in Mm-Wave? **[10]**
- b Discuss different use cases of 5G. **[10]**
- 5 a Draw and explain 5G network architecture **[10]**
- b What is precoding in 5G wireless communication. **[10]**
- 6 a What are the different advance applications in 5G. Explain Tactile Internet. **[10]**
- b Explain code domain and power domain NOMA. **[10]**
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