



**NATIONAL OPEN UNIVERSITY OF NIGERIA,  
PLOT 91, CADASTRAL ZONE, UNIVERSITY VILLAGE, JABI – ABUJA  
FACULTY OF SCIENCES  
2021\_1 EXAMINATION ...**

**COURSE CODE: CIT 303**

**COURSE TITLE: PRINCIPLES OF COMMUNICATION TECHNOLOGY**

**TIME: 2 HOURS 30 MINUTES**

**CREDIT: 3 UNITS**

**INSTRUCTION: ATTEMPT 5 QUESTIONS. QUESTION1 IS COMPULSORY AND ANY OTHER FOUR (4) QUESTIONS**

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**QUESTION 1**

- (a) State three fundamental characteristics that guarantees effectiveness of data communication (6 Marks)
- (b) Highlight any three of the components of data communication system (6 marks)
- (c) What are the three most important criteria of a network (6 marks)
- (d) List four hardware equipment (network node) examples (2 marks)
- (e) Enumerate four layers of TCP/IP Model (2 marks)

**QUESTION 2**

- a) State the functions of these networking devices:
  - (i) Repeater (*2 marks*)
  - (ii) Router (*2 marks*)
  - (iii) Hub (*2 marks*)
- b) Discuss on any three hybrid network devices (*6 marks*)

**QUESTION 3**

- a) Differentiate between the following hardware devices:
  - (i) Network card and Multiplexer (*4 marks*)
  - (ii) MODEM and Firewall (*4 marks*)
- b) Differentiate between logical and physical topology (*4 marks*)

**QUESTION 4**

- a) Discuss the following Network Topologies:
  - (i) Star (*2 marks*)

- (ii) Bus (*2 marks*)
  - (iii) Mesh (*2 marks*)
- b) Discuss the following guided media:
- (i) Twisted-pair Cable (*2 marks*)
  - (ii) Coaxial Cable (*2 marks*)
  - (iii) Fiber- Optic Cable (*2 marks*)

#### **QUESTION 5**

- a) What makes radio waves to support multicasting? (*4 marks*)
- b) Discuss the usefulness of Unidirectional property of the Microwave (*4 marks*)
- c) Discuss the applicability of infrared (*4 marks*)

#### **QUESTION 6**

- a) Explain the function of Network Operating Systems (*3 marks*)
- b) Discuss the three switching methods (*6 marks*)
- c) Describe how asymmetric-key cryptography work (*3marks*)