UNIVERSITY OF BUEA
COLLEGE OF TECHNOLOGY
FIRST SEMESTER EXAMINATION 2019/2020

MONTH: FEBRUARY
YEAR: 2020
DATE: 20/02/2020
TIME ALLOWED: 2 HOURS
TIME: - CBLK I 50H
INSTRUCTIONS: Answer all questions

COURSE INSTRUCTOR: Tsona Kouti Gaétan F.
COURSE CODE & NUMBER: EEC305
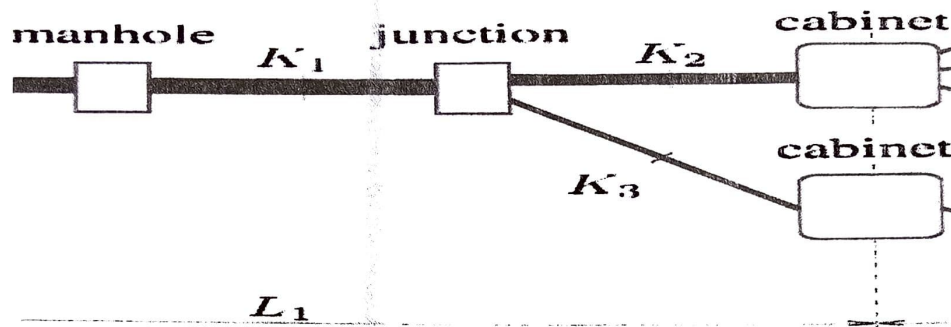**COURSE TITLE**: Access Networks
CREDIT VALUE: 3

Part I Multiple Choice Questions (15pts)

1. Which of the following accurately describe an analog network?

   a) Signals continuously variable in both amplitude and frequency
   b) Low bandwidth
   c) High capacity
   d) Low security

2. Copper cables can be differentiated by

   a) The nature and diameter of the conductor
   b) The nature of the insulator of the conductor
   c) The cabling mode (star or twisted pairs)
   d) Interference

3. Which three of the following modulation techniques do WLANs today use?

   a) OFDM
   b) AM
   c) FM
   d) DSSS
   e) MIMO

4. Which of the following are types of optical cables

   a) Drop fibers
   b) Single mode fibers
   c) Step-index multimode fibers
   d) Graded-index multimode fibers

5. Parts of an optical fiber cable are:

   a) The core
   b) The stray member
   c) The cladding
   d) The plastic coating

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Part II Civil Engineering Problem (35pts)

6. We need to extend a cupper network from the manhole to the cabinet with cables K1 and K2. The total length of the trench to be dug is L1=600 metres, 30 centimetres wide and 120 centimetres deep. All the rules of underground canalization on normal ground will be respected.

a) If four (4) pipes need to be laid along L1 and the length of a single pipe is 6m, how many pipes will be used to cover L1? (4pts)

b) What volume of sand will be needed to respect the rules of underground canalizations? (8pts)

c) What length of twine will be needed to respect the norms? (4pts)

d) What else will be needed before the trench is finally closed? (3pts)

e) Assume the cost of a 6m long pipe is 1000frs; the cost of 1 cubic meter of sand is 10000frs; the cost of digging and filling back the trench is 900frs/meter; every other requirement is available. What is the total cost estimate of the work? (16pts)

Part III   Open Questions (20pts)

7. Give the general principle of telephony (3,5pts)

8. Give the advantages of copper cables in access networks (2pts)

9. Give the three main advantages of fiber optics in telecommunications (3pts)

10. What are the disadvantages of fiber based on? (2pts)

11. List the types of wireless networks (2pts)

12. List the outdoor elements of the telephone (POTS) access network (3pts)

13. What is the main distribution frame (MDF) and what are it's functions? (3pts)

14. Give in table form the colour code of a 14 pairs copper telephone cable (1,5pts)

Good luck