



SOUTH EASTERN KENYA UNIVERSITY

UNIVERSITY EXAMINATIONS 2017/2018

FIRST SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN COMPUTER SCIENCE

CSC 314: COMPUTER SYSTEMS AND NETWORKING LAB

DATE: 5TH DECEMBER, 2017

TIME: 1.30 -3.30 PM

INSTRUCTIONS TO CANDIDATES

- a) Answer **ALL** Questions From Section A (Compulsory)
 - b) Answer **ANY TWO** Questions From Section B
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SECTION A: COMPULSORY 30 MARKS

Question One:

- (a) State three reasons that have made the internet the preferred facility in Information and Communication Technology. **(3 Marks)**
 - (b) State three factors to consider when selecting transmission media for LAN deployment. **(3 Marks)**
 - (c) Outline two characteristics of a data transmission system. **(2 Marks)**
 - (d) The management at Brandy Company Ltd intends to network all its offices that are located in a two-storey building.
 - (i) Outline **four technical factors** the management should consider when choosing the network topology to be used. **(4 Marks)**
 - (ii) Design the most appropriate LAN layout for the company. Label the devices used appropriately. **(3 Marks)**
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(e) Given the UTP cable connection in Figure 1.

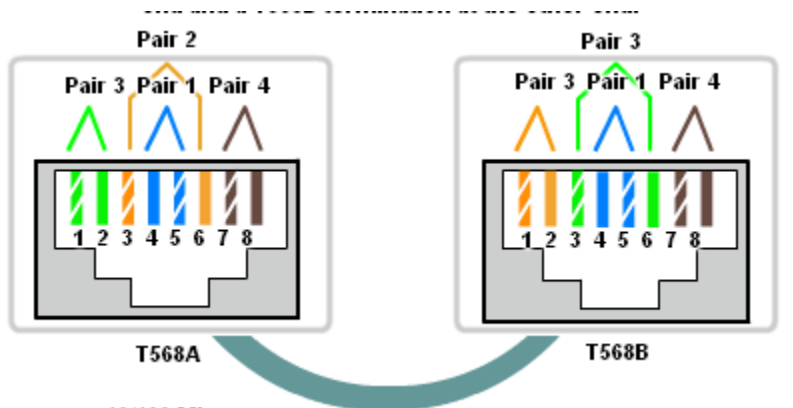


Figure 1.

- (i) Identify the type of connection. **(4 Marks)**
- (ii) List where this UTP could be used in connecting network devices **(4 Marks)**

(f) Explain three merits of the transmission media shown in the figure 2 below.

(3 Marks)



Figure 2.

- (g) Briefly describe two types of Physical networks **(4 Marks)**
- (h) Using the OSI 7 layer model explain the kind of troubleshooting that can be carried out at 4 lower layers. **(4 Marks)**

SECTION B (40 MARKS)

Answer two questions from this section

Question Two:

- (a) Outline the role of the network device found in layer 2 of OSI model. **(2Mark)**
- (b) (i)With the aid of a diagram, explain client server connection. **(3 Marks)**
(ii)State two advantages and two disadvantages of such connection. **(4 Marks)**
- (c) Explain the following concepts as used in networking:
 - (i) Pervasive Networking;
 - (ii) Integration of Voice, Video and Data;
 - (iii) New Information Services. **(6 Marks)**
- (d) Explain the role of the following software in computer networks.
 - (i) Communications software;
 - (ii) Network operating system (NOS);
 - (iii) Network management software. **(3 Marks)**
- (e) Explain two factors to consider when selecting the type of physical media to deploy in a LAN. **(2 Marks)**

Question Three

- (a) Describe the difference between:
 - (i) copper cable and coaxial in terms of bandwidth and attenuation;
 - (ii) 10baseT and 10Base2. **(4 Marks)**
- (b) Explain two similarities and two differences between OSI and TCP/IP models. **(4 Marks)**

(c) Populate table 1 below.

Table 1.

ADDRESS	CLASS	NO OF NETWORK	NO OF HOST
10.2.1.1			
128.63.2.100			
201.222.5.64			
192.6.141.2			
130.113.64.16			
256.241.201.10			

(12 Marks)

Question Four

(a) (i) Explain the significance of ping command in networking. **(2 Marks)**

(ii) Explain how it works. **(2 Marks).**

(b) (i) Define the term sub netting. **(2Mark)**

(ii) State two reasons for sub netting networks. **(2 Marks)**

(c) You are assigned a Class C network number of IP Host Address: 192.168.5.121

You want to utilize this network across multiple small groups within an organization.

You can do this by sub-netting that network with a subnet address. To accomplish this, we need to use a subnet mask 5 bits long. This gives 32 possible network numbers, 2 of which cannot be used. Determine the following details for this network:

I. Subnet Address **(3 Marks)**

II. Host Addresses **(3 Marks)**

III. Broadcast Addresses **(3 Marks)**

IV. Subnet Mask **(3 Marks)**