



SOUTH EASTERN KENYA UNIVERSITY

UNIVERSITY EXAMINATIONS 2016/2017

SECOND SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE (COMPUTER SCIENCE)

CSC 314: COMPUTER SYSTEMS AND NETWORKING LAB

DATE: 18TH APRIL 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)**
- (e) Given the UTP cable connection in Figure 1.

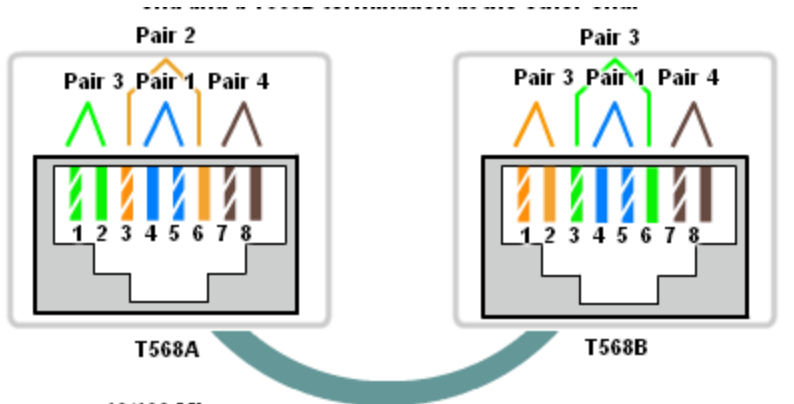


Figure 1.

(i) Identify the type of connection.

(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 1 below.



Figure 1.

(g) Briefly describe two types of Physical networks

(3 Marks)

(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 communications.
 - (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 2 below.

Table 2.

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)**