



UNIVERSITY OF EMBU

2017/2018 ACADEMIC YEAR

SECOND SEMESTER EXAMINATIONS

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

CSC 225: COMPUTER NETWORKS

DATE: APRIL 12, 2018

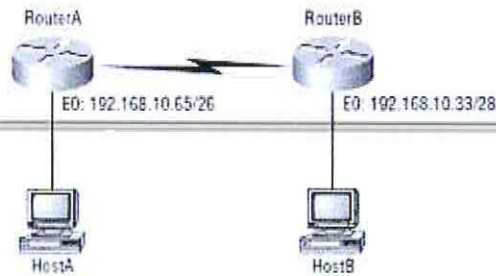
TIME: 8:30 AM – 10:30 PM

INSTRUCTIONS:

Answer Question ONE and ANY other two Questions

QUESTION ONE (30 MARKS)

- a) Explain two reasons why data communication industry uses the layered OSI reference model (2 marks)
- b) Explain two reasons why subnetting is necessary when designing a network (2 marks)
- c) List the OSI PDUs in order (2 marks)
- d) Explain how you configure an IP address on an interface of a router (4 marks)
- e) Express the IP's in binary format (4 marks)
 - i) 204.51.170.85
 - ii) 132.210.184.166
- f) Differentiate MAC address and IP address (4 marks)
- g) Discuss three levels of access on a cisco router or switch (6 marks)
- h) Router A has an IP address of 192.168.10.65/26 and router B has an IP address of 192.168.10.33/28. Router A Ethernet 0 is in the 192.168.10.64 subnet and router B Ethernet 0 is in the 192.168.10.32 network. What are the Host A and B IP addresses, Host A and B subnet masks, Host A and B default gateways? (6 marks)

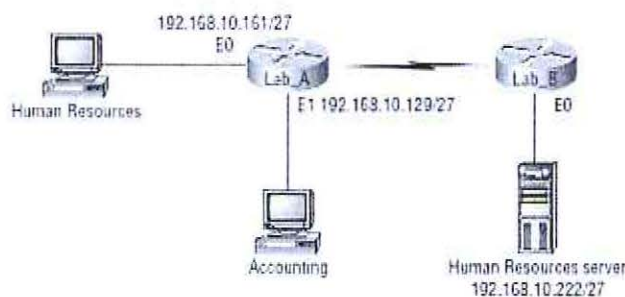


QUESTION TWO (20 MARKS)

- a) You are the network administrator of your company and you want to configure the switch such that it allows only one host per port, and to shut down the port if this rule is violated, which commands would you use. (4 marks)
- b) List four things that commonly cause LAN traffic congestion (4 marks)
- c) Explain three distinct functions of layer two switching (6 marks)
- d) Explain three types of network address translations (6 marks)

QUESTION THREE (20 MARKS)

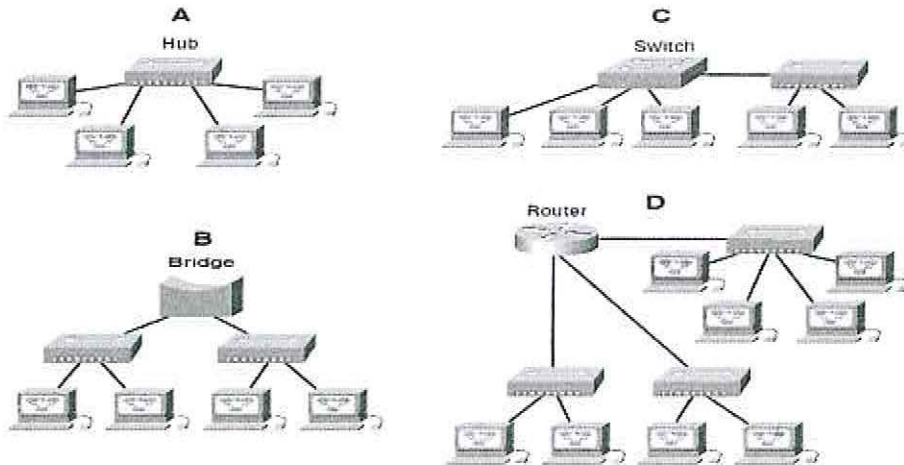
- a) You are a network engineer and you have been assigned a task of designing and implementing a computer network list four advantages of including routers in your network design. (2 marks)
- b) You want to stop the accounting users from accessing resources server attached to the lab B router but allow all other users' access to that LAN. What standard access list would you create and where would you place it. (4 marks)



- c) Indicate the class and subnet mask of the following IP addresses (6 marks)
 - i) 192.168.1.66
 - ii) 188.21.21.3
 - iii) 24.64.208.5

d) In the following exhibit, identify the number of collision domains and broadcast domains in each specified device. Each device is represented by a letter

(8 marks)

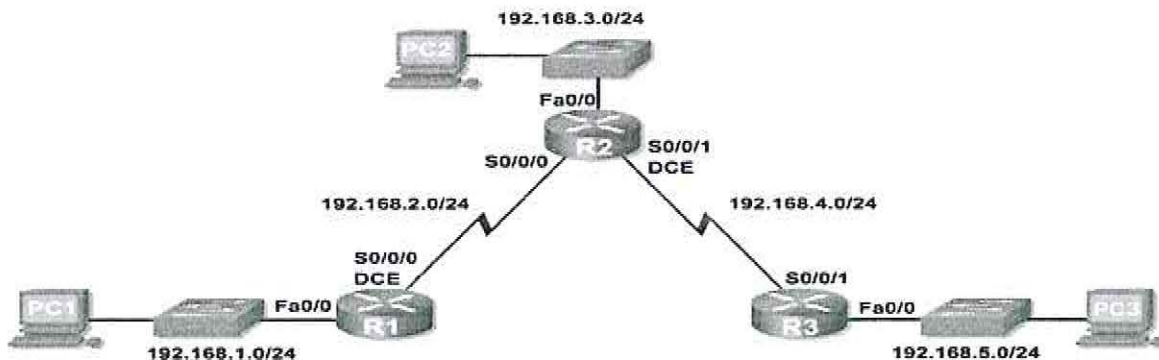


QUESTION FOUR (20 MARKS)

- a) Discuss three categories of wide area networking (6 marks)
- b) Discuss three ways to control routing decisions on your router (6 marks)
- c) Illustrate the subnets created given IP address 192.168.21.1/26 showing their network address and broadcast address (8 marks)

QUESTION FIVE (20 MARKS)

- a) List four protocols that use TCP (2 marks)
- b) List four advantages of switches over hubs (4 marks)
- c) Assuming you have performed basic router configurations and all the active serial and Ethernet addresses have been configured; Configure RIPV1 for routers R1, R2, R3. (12 marks)



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