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(The University of Choice)

MASINDE MULIRO UNIVERSITY OF SCIENCE AND TECHNOLOGY (MMUST)

UNIVERSITY EXAMINATIONS

MAIN CAMPUS

2023/2024 ACADEMIC YEAR

FOURTH YEAR FIRST SEMESTER EXAMINATIONS

FOR THE DEGREE OF BACHELOR OF SCIENCE IN COMPUTER SCIENCE

COURSE CODE: **BCS 4 70**

COURSE TITLE: **NETWORK PROTOCOLS AND STANDARDS**

DATE: 07/12/2023 **TIME:** 8:00 - 10:00AM

INSTRUCTIONS TO CANDIDATES

Answer questions ONE and any other TWO questions.

TIME: 2 Hours

MMUST observes ZERO tolerance to examination cheating

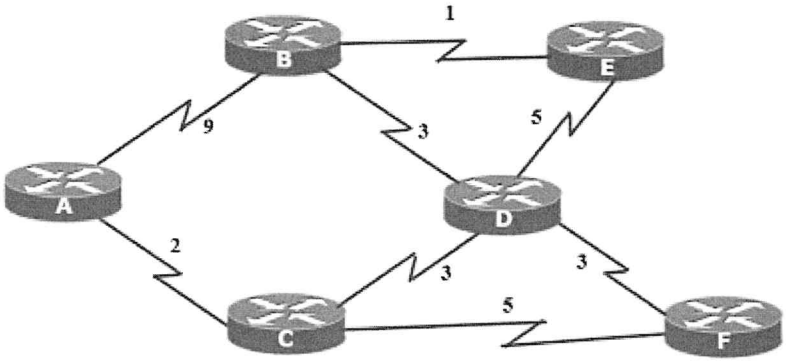
This Paper Consists of 3 Printed Pages. Please Turn Over.

QUESTION ONE (30 MARKS) COMPULSORY

a) List the data units in TCP/IP protocol suite [5 Mks]
b) State any two criteria necessary for an effective and efficient network [2 Mks]
c) What are the features of BGP [5 Mks]
d) Distinguish between a link and a node [4 Mks]
e) Explain your understanding of a protocol and a standard [4 Mks]
f) Briefly discuss Interior and Exterior Gateway routing protocols [4 Mks]
g) Briefly discuss key elements of protocols [6 Mks]

QUESTION TWO (20 MARKS)

a) The routers in the the figure below have all been enabled with OSPF routing Protocol [10 Mks]
   i. Compute the shortest path fast table for router A
   ii. Draw the SPF tree for router A



b) Discuss the crucial implications of standardization in Networking [10 Mks]

QUESTION THREE (20 MARKS)

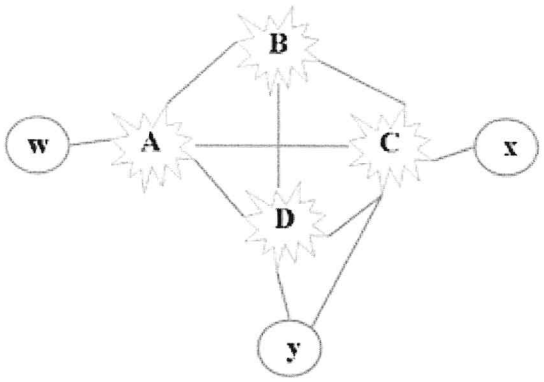
a) Network Protocols play an integral role in shaping the functionality and effectiveness of modern computer systems. Discuss [10 MKs]
b) Why is it important to synchronize network devices [6 MKs]
c) Discuss any two threats to network protocol security [4 Mks]

QUESTION FOUR (20 MARKS)

a) Network protocols and choices – what are the tradeoffs in choices, and in what types of situations would you choose one protocol over another? [10 Mks]

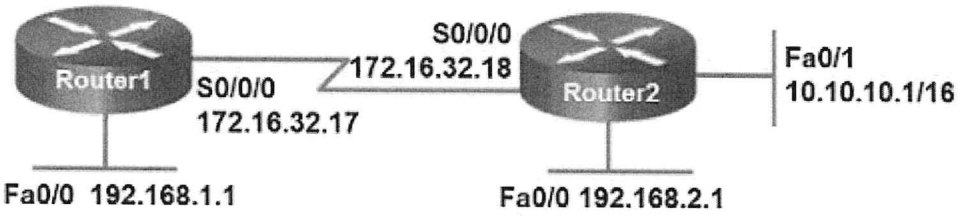
b) In the figure below, assume A and C are tier 2 ISPs, that are both clients of B and D; A and C are locally connected and prefer to use their direct connection. If they must [10 Mks]

route through B and D then they would choose D as opposed to B due to cost.
Assume w.x.and y are client systems that do not want to behave as transit networks.



i. What routes would y advertise to C
ii. What routes would C advertise to B
iii. What route would A use to route traffic from w to x
iv. What route would A use to route traffic to y
v. What is w's view of the network (draw the graph)

QUESTION FIVE (20 MARKS)



a) Using the above figure, show configurations guidelines on how you can set up the listed protocols; [10 Mks]
   i. OSPF
   ii. IBGP
   iii. RIP
   iv. EGRP
   v. Multicast Routing
b) State and explain by function the common network protocol standards [10 Mks]