TECHNICAL UNIVERSITY OF MOMBASA

INSTITUTE OF COMPUTING AND INFORMATICS

Select department

UNIVERSITY EXAMINATION FOR:

BTIT/SEP2022/J-FT, BTIT/JAN2024/S - EVE

CIT 4308: SWITCHING BASICS & INTERMEDIATE ROUTING

END OF SEMESTER EXAMINATION

SERIES:DECEMBER 2024

TIME:2HOURS

DATE: Pick DateSelect MonthPick Year

Instructions to Candidates

You should have the following for this examination

-Answer Booklet, examination pass and student ID

This paper consists of **FIVE** questions. Attemptquestion ONE (Compulsory) and any other TWO questions. **Do not write on the question paper.**

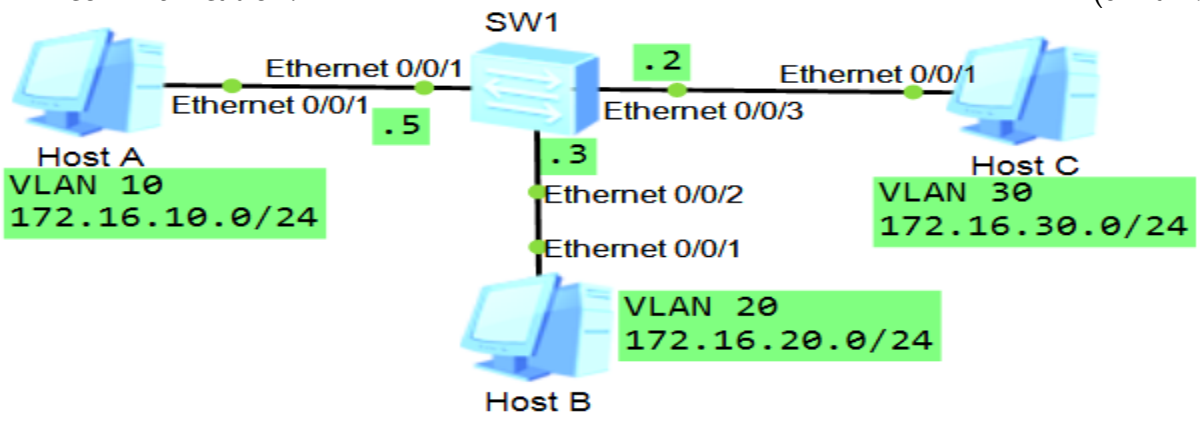
Question ONE

a) Use the diagram below to write commands to:

i) Create VLANS as indicated in the diagram. (3 marks)

ii) Assign interfaces to their respective VLANS (9 marks)

iii) Assign IP addresses to the interfaces of SWA1 to support the inter-VLAN communication. (6 marks)



b) How does MPLS improve upon IP routing in terms of efficiency and scalability? (4 marks)

c) Explain any **four** different STP states**.** (8 marks)

Question TWO

a) Explain the difference between static and dynamic Link Aggregation. (4 marks)

b) What is OSPF, and what makes it different from other routing protocols? (6 marks)

c) Differentiate between dot1q VLAN ID (VID) termination and VLAN translation in the context of VLAN handling within network devices. (6 marks)

d) What is the purpose of the Bridge ID in STP? (4 marks)

Question THREE

a) Explain how RSTP works. (6 marks)

b) What is Frame Relay, and what are its primary characteristics in data networking? (5 marks)

c) Explain three benefits of using Inter-VLAN Routing in a network infrastructure with multiple VLANs. (9 marks)

Question FOUR

a) State and explain the three port states in RSTP. (6 marks)

b) Explain the concept of Label Switched Paths (LSPs) in MPLS and their significance in data transmission. (8 marks)

c) Explain any **two** types of ACLs and their differences. (6 marks)

Question FIVE

a) State and explain the primary components required to configure a Frame Relay network. (8 marks)

b) Explain the process a client PC takes to acquire an IP address from the DHCP server. (8 marks)

c) Highlight **four** requirements for neighborship in EIGRP. (4 marks)