

Llyfr Atebion Arholiadau

12 Tudalen

Cyfarwyddiadau i Ymgeiswyr

1. Rhwch yr holl wybodaeth y gofynnir amdani yn y blychau isod.
2. Rhwch eich enw yn y lle a ddarparwyd ar y dde, plynwch ef a'i seilio i lawr (gan ddefnyddio'r label a ddarparwyd i'ch enw.

3. Rhaid i'r atebion fod mewn llawysgriften ddarllenadwy. Gall yr Arholwyr naill ai anwybyddu sgrïpt annarllenadwy, neu drefnu iddi gael ei theipio a chael yr ymgeisydd i dalu.
4. Ysgrifennwch eich atebion mewn inc.

5. Dechreuwch bob ateb ar dudalen newydd. Gwnewch unrhyw fras nodiadau yn y llyfr atebion a thynnu llinell drwyddynt.
6. Ni ddylid rhwgo unrhyw ran o'r llyfr hwn; rhaid ei gyflwyno yn gyfan.

7. Os defnyddir mwy nag un llyfr, rhwymwch hwy gyda'i gilydd gan ddefnyddio'r tagiau sydd ar gael oddi wrth y gwyllwrr/gwyllwyr.

8. Rhaid dychwelyd pob llyfr. Ni chaniateir mynd â llyfrau atebion, wedi eu defnyddio neu heb eu defnyddio, allan o'r lleoliad arholi o dan unrhyw amgylchiadau.

7	Nifer y Llyfrau Atebion a gyflwynwyd	
6	Rhif Sedd	
5	Lleoliad yr Arholiad	
4	Dyddiad ac Amser yr Arholiad	
3	Cod y Modwl	
2	Teitl y Papur Arholiad	
1	Rhif Myfyriwr	

(See the other side for English version)

[illegible]

Prifysgol Cymru
Y Drindod Dewi Sant
University of Wales
Trinity Saint David

Examination Answer Books

12 Pages

Instructions to Candidates

1. Please give the information requested in the boxes below.
2. Enter your name in the space provided to the right, fold over and seal down (using the label provided) to hide your name.
3. The answers must be legibly written. The Examiners cannot read illegible script or have it typed and the expense of typing is charged to the candidate.
4. Write your answers in ink.
5. Begin each answer on a fresh page. Do all rough work in the answer book and cross it through.
6. No part of this book is to be torn out; it must be handed in complete.
7. If more books than one are used, fasten them together using the tags available from the invigilator(s).
8. **Every book must be handed in. In no circumstances may answer books, used or unused, be taken out of the examination venue.**

1	Student Number	P151366
2	Title of Examination Paper	Routing and Switching concepts
3	Module Code	ACCA5002
4	Date and Time of Examination	18/5/18 9:00
5	Examination Venue	Gym Townhill
6	Seat Number	G001
7	Number of Answer Books handed in	1

(Gweler yr ochr arall am y fersiwn Cymraeg)

List the numbers of the questions you have attempted	Office Use
1	12
2	5
4	13
Total	30

Complete, fold and seal
(see note 2 below)

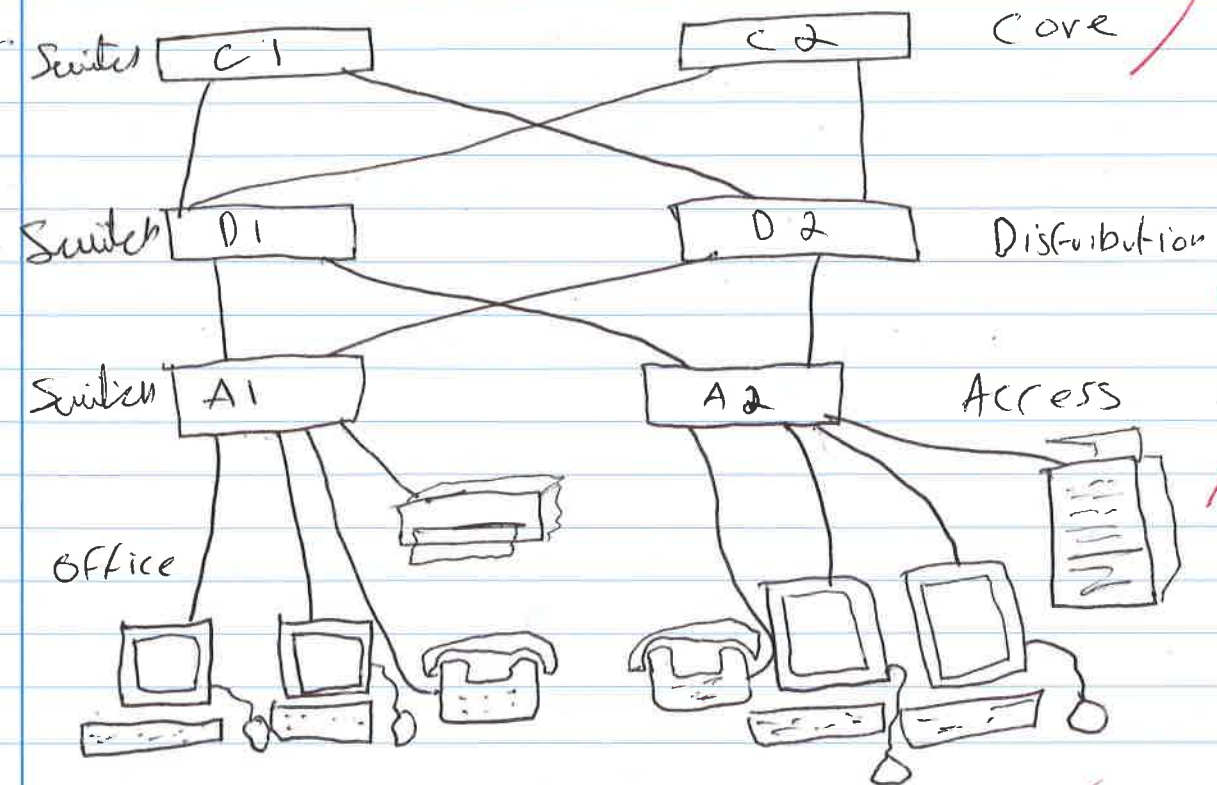
SURNAME:

FORENAME(S):

Eckharte - Jones

①

a.



Core Layer communicates with ISP, provides internet connection to Buildings/^{businesses} ~~Discovers~~. is the backbone of the network. Can hold Servers of a ~~business~~ or School for example allows connection to the distribution layer while providing backup ~~redundancy~~ connection ~~start~~ to distribution layer should any ~~core~~ core devices fail. 2

Distribution Layer acts as the middle man between core layer and access layer. also provides backup redundancy connection to the access layer and core layer. Communicates data from Servers to user nodes through the access layer. 1

- ①
- a. Access Layer receives data from the distribution layer. Has access to the backup redundant distribution layer through the access layer. Houses the main user nodes for example an office with multiple computers, ~~and~~ printer, IP phones and other office equipment/devices. Controls user accounts on the network to maintain security and integrity of the network. allows access or restricts access to different areas of the distribution services depending on user requirements for example Salesman won't need access to the Tax book or wages files in the accounting server.

not part of hierarchical network

VLAN?

b. ACL Access Control Lists

Inbound ACL

Holds the rules and conditions that affect inbound connection or data transfer to the network. Can deny a connection or communication along certain ports, or restrict ports to a certain user or type of data/connection.

Outbound ACL

Holds rules and conditions that affect outbound connection or data transfer to the network. Can deny user access to certain ports to prevent non work activities or inappropriate network use. Can restrict port usage for certain users. Can prevent confidential data being sent to the wrong place, it is mistake or malicious activity.

1

- c. Store and Forward Switching
Switch must receive full packet before encapsulation and resending the packet to its destination. Can be slower due to processing the full data packets. Reliable Switching Method due to spending more time processing the data before resending more secure than cut through switching. Slower and more demanding than cut through switching. Best used for reliable transfer of data files, emails, and other services that orient as packets, laterals (high latencies).

error clearing

2

Cut Through Switching

Switch starts sending ~~before~~ the packet as it gets it, resulting in less encapsulation processing than store and forward switching. Can foster than store and forward switching due to less processing time and sending the data sooner than store and forward. Less demanding process. Can be unreliable due to less processing of data packets and encapsulation. Faster data transfer speeds. Best used for services where users require low latency performance such as voice over IP, where 100% accurate transfer of data is not a requirement as compared to store and forward. Less secure due to less processing of the data packets before resending to destination.

work?

②

a. Inside Local address

The address of a device or user inside a ^{network} used to communicate with other users or devices inside the network. ~~It~~ ~~Common~~ Communicates with outside networks by ~~for~~ translating data packet into global addresses to allow communication between LANs ~~exists~~ on the WAN. ~~can only communicate~~ ^{inside} ^{Global}

Inside global address

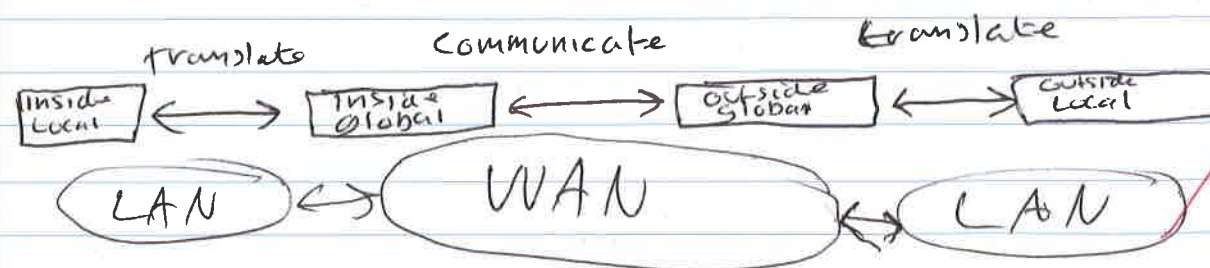
allows multicasting on the network. is the address used to communicate with other global addresses between WANs. Translate address to allow connection and transfer of data between networks on the WAN. ^{communicates with} ^{between} ^{inside local and outside global}

Outside ~~Local~~ ^{Global} address

Similar to the inside ~~local~~ ^{global} address, is the LAN network ~~identifies~~ ^{identifies} identifier address to allow ~~data~~ translation of WAN network and data transfer of networks on a WAN.

Outside ~~Local~~ ^{Global} address

Similar to the inside local address, allows data received by the global address to be sent to the receiving address inside a LAN.
 Can only communicate with outside global



②

b. Process Switching

uses Software to process data packets into ~~data~~ using encapsulation using full send, receive and data information. Reliable method of switching. must receive whole packet ~~before~~ ~~processing~~ before processing and resending. more secure

Fast Switching

uses Software to process data packets. Can start sending the data packet before receiving the full packet using only receiver address. Results in faster data transfer speeds. less secure due to less processing time.

Cisco Express Forwarding

uses Cisco hardware to process data ~~packets~~ ^{Packets}. ~~fastest~~ ^{fastest} method of data transfer due to absence of software processing of data packets and encapsulation.

c. 3 Primary uses of static route

1. Define sending and receiving ^{addresses} to ensure trusted devices are used for the connection
2. Control the routes that data uses to get to the destination resulting in more secure connections and easier troubleshooting
3. ~~can~~ allow remote access to device for example working from home or IT support remotely. uses higher security VPNs.

0000 0000 = Google Server
 routing path
 good reliable connection to internet

② creates a static route,
~~creates~~

d. ~~set static~~ from 0.0.0.0 to 192.168.1.1 allowing
 a hop count of 95 before the connection
 times out.

adds a static route to the router ensuring no other
 routes are taken results in high security
 due to known route connections over
 known devices. easier to prevent
 rogue devices or ~~packet sniffing~~
 Packet Sniffing

④

i a. Four benefits to VLANs.

- Allows control of network environments
 regardless of location. e.g. multiple IT rooms
 throughout a campus on the same VLAN.
- Allows huge number of users to be managed
 on a single VLAN (1-1005) and allows
 multiple different business departments to use the
 same lines allows using different services
- relatively easy to setup and manage
 multiple VLANs on a single network
- increases security due to separating user
 rights and access across the network.

~~increases~~

ii b. A Default VLAN is the VLAN that houses the
 preliminary devices e.g. ~~route to ISP~~ and ~~server~~ devices
 that connect the network together. They have
 limited access unless modified by the network
 Admin. Default VLANs are stored in the
 VLAN. dat file and can be modified and
 deleted.

④
 aii

A Data VLAN ~~allows~~ houses the file/data ^{access}
 Servers of the network and controls ~~access~~
 to file ~~on~~ the server depending on
 rules setup ~~by~~ by the network
 Admin. For example, Student may not
 be able to access sensitive information or
 confidential information on the university
 Servers, but Lecturer and helpdesk users
 would need access to that data on the
 Server to carry out their daily tasks.

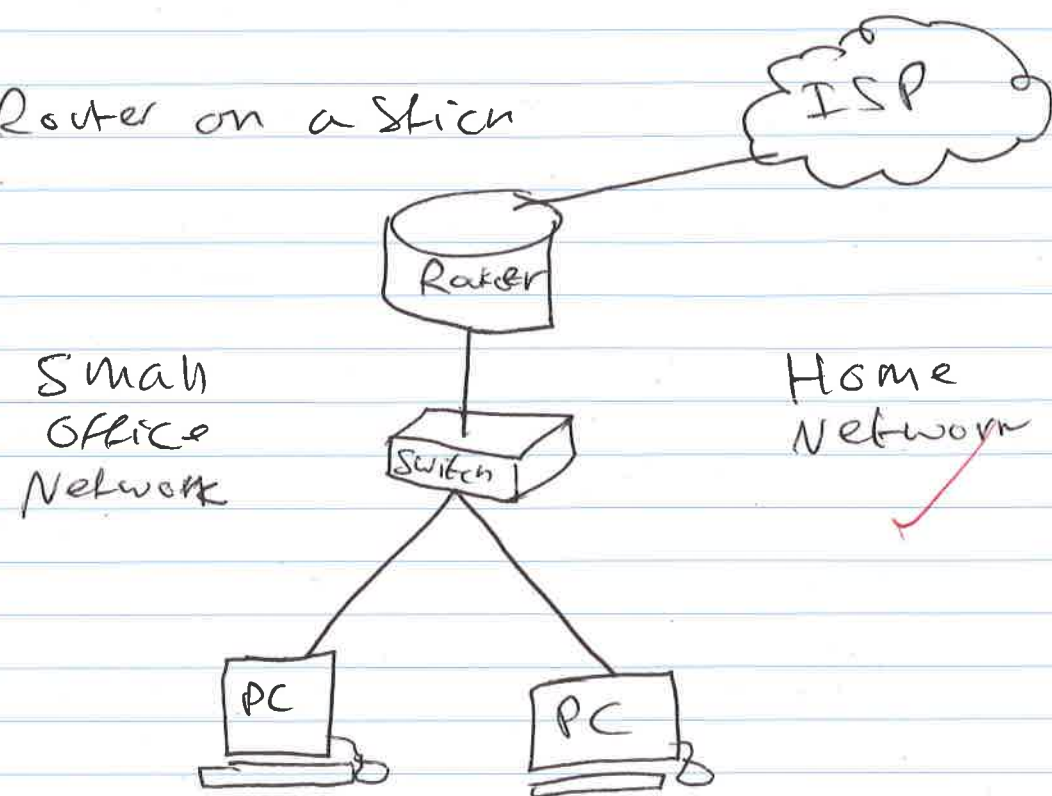
A management VLAN allows access to the ^{Network} Admin of
 whole VLANs central. ^{changes to all VLANs on}
 the network ~~can~~ can only be made by people
 who have Admin ~~access~~ level access on
 the network. It is ~~important~~ that important
 that access to the management VLAN are
 highly protected or the ~~Security~~ Security of
 the network and its Servers and users ~~can~~
 can be compromised. ~~There~~

The management VLAN is usually moved from
 the default VLAN number to reduce chances
 of hackers accessing it or even knowing which
 VLAN is the management VLAN.

(4)

a iii

Router on a Stick



A router on a stick is a very ~~simple~~ simple, basic network configuration used in small office settings or home networks.

The speed of the network is usually good due to the low loads as the user amount is low.

The network is easy to manage due to low user and device counts.

There is however a single point of failure due to the use of a single router and single switch. The network can experience long down times unless replacement equipment and technical users are present to resolve issues.

Security is usually high due to limited devices and ease of setup/management or monitoring.

(4)

a iv

VLAN Trunk

A VLAN Trunk can allow full duplex communication across a network line. This opens up the possibility of multiple user groups, e.g. accounts, HR, Salesmen and management staff to be using accounts that are on different VLANs with different access controls to the ~~same~~ ^{same} network infrastructure as other departments on the VLAN. This decreases network ~~costs~~ infrastructure costs and maintenance time considerably.

Full duplex allows the sending and receiving of data simultaneously, which is important when multiple VLANs or different departments need different tasks at the same time. Collision detection and avoidance can be made easier due to VLAN tagging through the trunking.

VLAN Trunking can allow priority data transfer to the required VLAN for heavy data transfers needs, while limiting other departments who don't require high data usage.

VLAN Trunking cuts down on network redundancy, allowing network admins to control the properties of connection parameters remotely from the management VLAN.

Networks of considerable size take much less time to setup and manage through the use of VLAN Trunking.

Question No.

Examiner Only

Rhif y Cwestiwn

Arholwyr yn unig