

COMMONWEALTH OF AUSTRALIA

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Family Name	
Given Names	
Student Number	
Teaching Period	Semester 1, 2016

FINAL EXAMINATION	DURATION				
HIT172 – Operating Systems and Applications	<table border="1"> <tr> <td>Reading Time:</td> <td>10 minutes</td> </tr> <tr> <td>Writing Time:</td> <td>180 minutes</td> </tr> </table>	Reading Time:	10 minutes	Writing Time:	180 minutes
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INSTRUCTIONS TO CANDIDATES

1.1 The examination has **3** sections

Section A: Suggested Time:	Multiple Choice Questions: Answer ALL 25 questions 50 minutes Marks:30
Section B: Suggested Time:	Short Answer Questions: Answer ALL 10 questions 80 minutes Marks:40
Section C: Suggested Time:	Mathematical Problems: Answer ALL 3 questions 50 minutes Marks:30

1.2 Note that questions **ARE NOT** of equal value.

1.3 For **Section A:** Read **ALL** questions carefully. Questions must be answered on the answer sheet provided in **this** examination paper and **must be handed** in with your answer sheet booklet.

For **Section B and C:** Read **ALL** questions carefully. Questions must be answered in the Answer Booklet provided.

EXAM CONDITIONS

You may begin writing from the commencement of the examination session. The reading time indicated above is provided as a guide only.

This is a CLOSED BOOK examination

No calculators are permitted

No handwritten notes are permitted

No dictionaries are permitted

ADDITIONAL AUTHORISED MATERIALS	EXAMINATION MATERIALS TO BE SUPPLIED
No additional printed material is permitted	1 x 20 Page Book 1 x Scrap Paper

**THIS EXAMINATION IS PRINTED
DOUBLE-SIDED.**

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BLANK.**

Section A
Multiple Choice Questions
Total No of Marks for this section: 30

This section should be answered on the Answer Sheet provided.

Please ensure that your name and student number have been written on the Answer sheet and place in the completed answer Booklet.

Marks for each question are indicated. Suggested Time allocation for Section A: 50 mins

Section B

Short Answer Questions

Total No of Marks for this section: 40

This section should be answered in the Answer Booklet provided.

Marks for each question are indicated. Suggested Time allocation for Section B: 80 mins

Question 1

Suppose you are given a new computer and asked to do the following tasks. Briefly explain in your own words how you can accomplish the following tasks:

- (a) Install Windows 7, 64 bit Enterprise Edition in the new system

(Marks: 1.0)

- (b) Minimum requirements you need to create virtual machine. Which software you are going to use to create virtual machine and explain why you have chosen that software?

(Marks: 2.0)

- (c) Write down the command to assign static IP to the virtual machines and to check the assigned IP address of the machine.

(Marks: 2.0)

Question 2

- (a) How the compatibility issues of IPv4 to IPv6 is resolved. Explain any one of the process involved in conversion of IPv4 to IPv6.

(Marks: 2.0)

- (b) What is “guid”? Which type of base or number system is used to represent “guid”? What is the purpose of using “Bitlocker Drive Encryption”

(Marks: 3.0)

Question 3

(a) What is the use of Windows Easy Transfer and define any one of the methods which you can use to perform data migration using Windows Easy Transfer.

(Marks: 2.0)

(b) Explain in detail any one of the scheduling technique that can be used for process scheduling.

(Marks: 3.0)

Question 4

(a) Explain in detail how subnet mask is used to identify the network ID in a complete IPv4 address.

(Marks: 2.0)

(b) Define the following components:

- Switch and Router
- NAT

(Marks: 3.0)

Question 5

(a) Define briefly how the OS manage process from inactive state to final state. What is the difference between process “deadlock” and “starvation”?

(Marks: 2.5)

(b) Explain with example how you can prevent deadlock and starvation of multiple processes.

(Marks: 2.5)

Question 6

(a) What is the difference between unicast and multicast IPv6 address types?

(Marks: 3.0)

(b) Define briefly the advantage of using IPv6 over IPv4.

(Marks: 2.0)

Question 7

(a) What type of rules can you configure to allow or block applications? What is the difference between the Windows Installer Rules and the Publisher Rules in AppLocker?

(Marks: 3.0)

(b) Define the process you need to follow when configuring a client for Direct Access. Define the most secure VPN protocol supported by Windows 7.

(Marks: 2.0)

Question 8

(a) Explain briefly the importance of:

- DNS
- DHCP

(Marks: 2.0)

(b) Explain how EUI and Boot Time Filtering are effective in providing security to the computer. Mention two important criteria which can be used to restrict network access using NAP.

(Marks: 3.0)

Section C
Mathematical Problems
Total No of Marks for this section: 30

This section should be answered in the Answer Booklet provided.

Marks for each question are indicated. Suggested Time allocation for Section B: 50 mins

Question 1

You work as a network administrator for a company with 100 employees. Your company need all the employees should have a separate computer and connected to the network.

- (a) What is the smallest size address block that can support the all the 100 computers servers and routers in your perimeter network? (Express the network size in slash notation and dotted-decimal notation.)

(Marks: 3.0)

- (b) You have decided to deploy three new servers in the perimeter network and assign them each a public IP address. If your provider sells addresses in blocks only, what size block should you request to enable you to host all of your public servers on a single subnet?

(Marks: 3.0)

- (c) Are the IPv4 address 192.158.1.14 and 192.158.1.127 on the same subnet? Both have a subnet mask of 255.255.255.0

(Marks: 3.0)

Question 2

- (a) Generate IPv6 Extended Unique Identifier (EUI) Interface ID using the MAC address:
D6-BB-FF-14-25-3C

(Marks: 4.0)

- (b) Write down the simplified version of the following IPv6 address.
21cd:0053:0000:0000:03ad:003f:af37:8d62

(Marks: 4.0)

Question 3

You work in an international IT company which is named ABC. As a network administrator you are asked to build a network of 48 computers with 4 equal subnets. You are allowed to use Private IP.

(a) Write down the four subnet addresses with slash notation and define the host range for each subnet.

	ADDRESS	FIRST HOST IP	LAST HOST IP
SUBNET A			
SUBNET B			
SUBNET C			
SUBNET D			

(Marks: 4.0)

(b) In Subnet A you need to deploy a printer. Write down the IPv4 address and the subnet mask that you will assign to the printer.

IPv4 address:

Subnet Mask:

(Marks: 4.0)

(c) Define briefly the process that you will follow in connecting computers in subnet A to the subnet B. You should specify any address that you will use for making connections between Subnet A and Subnet B computers.

(Marks: 5.0)

Name:

Student ID:

Answer Sheet for Section A

Q1	Q2	Q3	Q4	Q5
Q6	Q7	Q8	Q9	Q10
Q11	Q12	Q13	Q14	Q15
Q16	Q17	Q18	Q19	Q20
Q21	Q22	Q23	Q24	Q25