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ST BENEDICT'S COLLEGE



SUBJECT
GRADE
EXAMINER
NAME
CLASS

Information Technology

11

Mrs Kench

DATE

MARKS

MODERATOR

DURATION

July 2016

120

2 hours

COGNITIVE LEVELS

LOW ORDER

45 %

**MIDDLE
ORDER**

27 %

HIGH ORDER

28 %

INSTRUCTIONS
COMMENT

**TEACHER'S
SIGNATURE**
**PARENT'S
SIGNATURE**

QUESTION 1**20 MARKS**

Write down the term that best matches the description provided:

- 1.1 Programs that are part of the system software, which perform maintenance and administrative tasks. (1)
- 1.2 A part of the processor where the result of a calculation or a single value can be kept temporarily. (1)
- 1.3 The part of the TCP/IP protocol used to transfer video and voice data. (1)
- 1.4 The protocol used to deliver emails. (1)
- 1.5 A type of fibre optic cable that can transfer more than one signal at one time. (1)
- 1.6 A problem with copper cables where adjacent wires can interfere with each other. (1)
- 1.7 The general term for any computer device on a network. (1)
- 1.8 The low level language which is translated to machine language. (1)
- 1.9 An example of a compiled high level language. (1)
- 1.10 Software to translate a high level language into machine code line by line. (1)
- 1.11 The term given when a computer can load two different operating systems. (1)
- 1.12 A temporary storage area in memory to speed up slow input /output devices. (1)
- 1.13 The program that is stored on a ROM chip that runs the start-up process of a computer. (1)
- 1.14 The opposite of a broadcast message on a network. (1)
- 1.15 Using an area of RAM to speed up hard disk access. (1)
- 1.16 The combination of software that is embedded on a ROM chip which is both hardware and software. (1)
- 1.17 A type of optical drive that store a maximum of 783Mb of data. (1)
- 1.18 Access time of a hard disk = _____ + _____. (2)
- 1.19 A type of data transmission where each bit is sent one after the other. (1)

QUESTION 2**34 MARKS**

Bbox is a new PC that has been launched with the following specifications:

Quad Core Intel Atom Z3735F Processor, 1.33 GHz
 2 GB DDR SDRAM
 32 GB SSD
 3 USB 2.0 connectors
 MicroSD card slot
 Ethernet port
 HDMI port
 Wi-Fi and Bluetooth 4.0
 Windows 8.1

- 2.1 How many cores are there on the processor? (1)
- 2.2 From the above specifications, is this processor using hyper-threading or multiprocessing? Answer the question by providing a definition for both technologies. (5)
- 2.3 Explain the terms DDR SDRAM. (3)
- 2.4 Using the specifications provided, which THREE components will be linked to the Northbridge? (3)
- 2.5 Using the specifications, list TWO components connected to the South Bridge. (2)
- 2.6 The machine cycle.
 - 2.6.1 Name the FOUR stages of the machine cycle. (4)
 - 2.6.2 Which TWO stages will always be the same? (2)
- 2.7 The specification includes a 32 GB SSD
 - 2.7.1 What is the purpose of this device? (2)
 - 2.7.2 This device is a technological advancement over a previous device. Name and describe the previous device. (2)
 - 2.7.3 Give TWO advantages of using the SSD device. (2)
- 2.8 HDMI port.
 - 2.8.1 What is the purpose of the HDMI port? (1)
 - 2.8.2 Give ONE advantage of this port. (1)
- 2.9 The CPU has been overclocked.
 - 2.9.1 Explain how the CPU will use both over clocking and clock multiplication. (4)
 - 2.9.2 If the user over clocks the computer by changing the speed of the system bus, will the CPU still be able to over clock itself? Explain your answer. (2)

QUESTION 3**25 MARKS**

- 3.1 Name the THREE main functions of an operating. (3)
- 3.2. An interrupt signal is sent from the printer to the CPU. Give an example of an interrupt message that can be received from the printer. (1)
- 3.3 Explain how interrupts allows the computer to appear to process more than one task at a time. (3)

- 3.4 Multitasking and multithreading are similar concepts. Explain how they differ by first providing a definition for both terms. (5)
- 3.5 One of the functions of an operating system is to manage processes and memory.
- 3.5.1 List the three goals that the operating system must achieve in terms of process management. (3)
- 3.5.2 The operating system must also manage virtual memory. Describe how virtual memory is achieved. (3)
- 3.5.3 Some people think that virtual memory will increase the speed of the computer. Is this true? Justify your answer. (2)
- 3.6 What is the difference between a drive and a controller? Answer this question by providing definitions for both terms. (4)
- 3.7 Years ago plug and play was called plug and pray since it often didn't work.
- 3.7.1 What is the purpose of plug and play? (1)

QUESTION 4

26 MARKS

- 4.1 Give THREE reasons why fibre optic is a superior cable compared to UTP. (3)
- 4.2 Each network adapter has a unique MAC address. Name and explain the protocol used to link a MAC address to an IP address. (2)
- 4.3 Write down the hardware device or network term most suitable to the following scenarios.
- 4.3.1 A device to link the nodes in a star topology.
- 4.3.2 A device to boost the signal sent on a cable.
- 4.3.3 A device to link networks with different protocols.
- 4.3.4 A type of media access method that assumes collisions are normal. (4)
- 4.4 You have three wireless devices at home and a printer that is linked to a desktop computer. You want to create a network so that the devices can print to the printer and all the devices including the desktop can access the Internet.
- 4.4.1 What device would be the most suitable to connect the home network to the Internet? (1)
- 4.4.2 Give THREE reasons for your choice in 4.4.2. (3)
- 4.4.3 Would your home be considered as a hotspot? Justify your answer. (2)
- 4.4.4 You have a cottage in your garden 50m away from your house and you would like to join the cottage to your network without laying cables. The cottage will need its own wireless access point. What would be the best way to join the cottage to the network? Explain your answer. (3)
- 4.4.5 Which wireless protocol would provide the highest level of security? (1)
- 4.5 Compare Wi-Max and Wi-Fi. (2)
- 4.6 You use one of the mobile devices to access the school's moodle website and discover you cannot see all the features that you know is available on the school's moodle. Give THREE possible reasons why you cannot view the complete site on your device. (3)
- 4.7 Which email protocol would be the best if you were to read your email on all of the devices? (1)

QUESTION 5**22 MARKS**

5.1 Explain how the bubble sort with a flag improves the efficiency of the bubble sort. (4)

5.2 Study the code below and answer the questions that follow:

```
for (int c = 0; c < 20; c++)  
{  
    if (array[c] == item  
    {  
        System.out.println(item + " is at " + (c + 1));  
        break;  
    }  
}
```

5.2.1 What is the purpose of the above code? (1)

5.2.2 Provide the declaration for the array. (2)

5.2.3 Why is the above code considered to be bad programming? (2)

5.2.4 Improve the code by rewriting it using a more suitable programming structure. (5)
