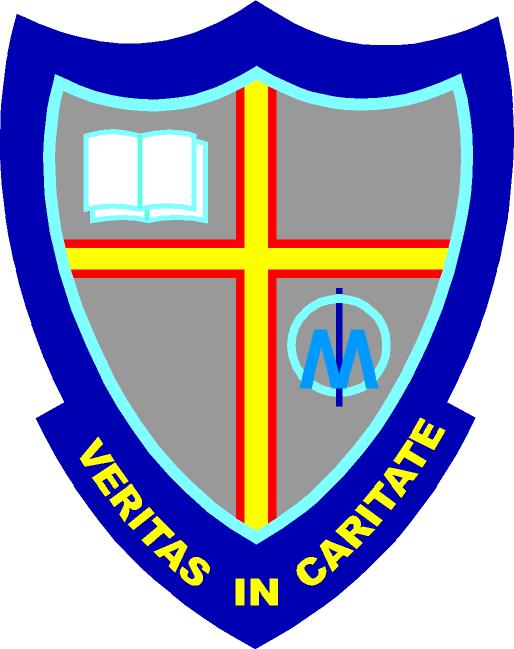
ST BENEDICT’S COLLEGE



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| **SUBJECT** | Information Technology | **DATE** | Nov 2016 |
| **GRADE** | 11 | **MARKS** | 150 |
| **EXAMINER** | J. Nocton-Smith | **MODERATOR** | L. Bothma, K. Aitken, D. Kench |
| **NAME** | **Memo** | **DURATION** | 2½ hours |
| **CLASS** |  |  |  |
|  |  |  |  |

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| --- | --- | --- | --- | --- | --- |
| **COGNITIVE LEVELS** | | | | | |
| LOW ORDER | 45 % | **MIDDLE ORDER** | 27 % | HIGH ORDER | 28 % |

|  |  |
| --- | --- |
| INSTRUCTIONS |  |
| COMMENT |  |
|  |  |
|  |  |
| TEACHER’S SIGNATURE |  |
| PARENT’S SIGNATURE |  |

question 1 TERMINOLOGY 7 marks

1.1 B

1.2. B

1.3 A

1.4 B

1.5 C

1.6 A

1.7 C (7)

question 2 TERMINOLOGY 8 marks

Provide definitions for the following terms – do not just break out the Acronyms

2.1 AUP (2)

Acceptable use policy✓– outlines the rights and responsibilities of users✓ in a NW environment – including consequences for violating terms of policy.

2.2 DNS (2)

Domain Name System - Internet service that translates domain names✓ into IP addresses. ✓

2.3 Machine Cycle (2)

Steps taken by CPU to carry out instructions : ✓Fetch, decode, execute, transfer data back to memory✓

2.4 Firewall (2)

Hardware and/or software that monitors the traffic between a computer ✓and the internet to safeguard against breaches in security✓

Question 3 Hardware and Software 31 marks

3.1 HP Envy - Core i7✓ - newer technology - plus more cache. ✓ (2)

3.2.1 Provides faster data storage and access -✓ by storing an instance of programs and data routinely accessed by the processor. ✓ (2)

3.3.1 RAM is volatile ✓

ROM non-volatile✓

Contents of RAM constantly changing

ROM comes preloaded . (2)

3.3.2 Holds the BIOS - instructions for starting up computer. ✓ (1)

3.3.3 Only used at startup - will not affect performance✓ (1)

3.4 3D images require a lot of space. ✓Frees up use of RAM✓ (2)

3.5.1 It is inbuilt into the motherboard✓ (1)

3.5.2 Lan speed 10 mbps 100 mbps and 1000 mbps (gigabit) per sec✓ (1)

3.5.3 Yes - limited to wireless connectivity may be slower✓, assume bandwidth✓

No - supports all wireless standards✓, bluetooth✓ (2)

3.6 Do not have facility to insert a SIM card. Would need to use a dongle. ✓ Not a cell device. ✓ (2)

3.7 Multiprocessing - tasks are divided between more than 1 CPU/core✓

Multitasking - each CPU splits time between multiple tasks✓

Multithreading - each program split into multiple threads (parts) which can then be processed simultaneously taking advantage of multiprocessing✓

Hyper-threading 2 sets of registers on CPU. ✓ (4)

3.8 HDD✓ as an overflow area when RAM too full. ✓ Pages of memory swapped to disk. ✓ (3)

3.9 Any device for 2 valid reasons relating to the device✓ and justified ✓to marketing manager job. ✓. E.g. marketing manager does posters – need fast cpu and graphics. (3)

Question 4 Software 7

4.1.1 Andoid, iOS, Windows OS✓ (1)

4.1.2 Mobile operating systems also manage cellular and wireless network connectivity, ✓as well as phone access. ✓ (2)

4.2 High level✓ – language is easier for humans to read and understand OR machine independent.✓ (2)

4.3 Interrupt is a signal sent to the CPU ✓

HW – sent from device such as keyboard

SW – generated from a program eg if has encountered an error✓ (2)

Question 5 Networks 26

5.1 Switch✓NIC✓ (2)

5.2 UTP✓ Fibre optic✓ (2)

5.3 UTP ✓Easy to install / ✓set up Have a max range of 100m so within the limit (2)

5.4 Router ✓- provides connectivity to the internet links to your fibre or ADSL line ✓

ADSL / fibre -✓ both provide a permanent connection. Fibre faster. ✓

Device used to connect different networks – internet is different from the LAN

Can determine the best path for data packets

3G coms would not be sufficient. (4)

5.5.1 Cable types : UTP, fibre, coaxial✓

Speed 10/100 mbps and 1gbps✓

Star topology (2)

5.5.2 Carrier sense, - message sent when line clear. ✓multiple access - used for collison detection. ✓Message resent after a random time if a collision occurs (2)

5.5.3 Switches send point to point . No collisions. ✓ (1)

5.6.1 Provide wireless access to internet ✓- typically in a public spaces✓ (2)

5.6.2. Router or a wireless gateway ✓ Wireless access point✓ (2)

5.6.3 WPA2 encryption✓ - make it password protected✓ With gateway can ensure users logon (2)

5.7 GPS technology - ✓receives location from satellites - ✓can communicate positions to UBER - ✓Google maps can calculate distance and time - uber uses this for fare calculation. (3)

5.8 They are connecting to the UBER system using a third party service✓ such as cell. ✓ (2)

Question 6 e\_Communication and security 26

6.1.1. Set of rules ✓for transmitting data across a NW✓ (2)

6.1.2 Http protocol defines how web pages transmitted across the web✓

Https - secure, encrypted transmission to protect data✓. Recognised by padlock next to url.

Https for secure data. ✓ (3)

6.1.3 Can personalise the experience more easily✓

Apps can make better use of mobile features - integrate with mobile tech eg gps✓

More secure✓

Better user experience

Transfer less data - Faster access (3)

6.2 Phishing - emails luring to fake site to get info

As so much of their business online must be very aware of risk and must guard against handing out info online

Pretexting - as dealing with different people every day - guard against revealing personal details ANY of other methods names✓, explained✓ and prevention. ✓ (6)

6.3 Physical loss of data ✓- damage to HW✓ - use cloud based. ✓

Cyber attack✓ - firewalls✓ - security SW✓ (6)

6.4.1 Cookies are small files✓ which are stored on a user's computer. ✓ They are designed to hold a modest amount of data specific to a particular client and website, and can be accessed either by the web server or the client computer (2)

6.4.2 for authenticating users, ✓ remembering user preferences and settings, ✓ determining the popularity of content, (2)

Question 7 Social 19

7.1 Simulation of human decision making processes by a computer system that is programmed to react✓ on the basis of input gained from sensors. ✓In this scenario cars using gps technology for route and cameras to record surroundings feeding back info to program✓, other sensors detecting proximity of objects. ✓ Car speed and direction adapting to inputs.

Yes, if software malfunctions. ✓ (5)

7.2 Programmer : writes code to create software, normally part of a team, must be able to work with people – will need to interface with graphic designers, systems analysts, problem solving skills , technical programming skills.

Systems Analyst : interact with users, ✓determine needs, ✓ designs solution, ✓ writes a spec for programmers✓

Graphic Designer : designs the appearance of things : layout of website, user interface for application : company logo : branding

Security Consultant : tests, analyses the security requirements of a company. Designs/ recommends solution to meet requirements. Covers physical security, computer based security, access control, protection from hackers. (4)

7.3 Describes the ease with which people, goods, cultures are exchanged around the world. Enabled by technologies such as communication (2)

7.3.1 Has quickly managed to expand into other countries✓ - travellers get used to experience in one city and have same experience when travel.

Can make use of developers all over the world✓

Strong technology platform can be shared globally (2)

7.4 Limited public transport✓, stricter drinking and driving laws✓ (2)

Question 8 Software development

8.1.1 Encapsulation in Java is a mechanism of wrapping the data (variables) ✓and code acting on the data (methods) together as a single unit. ✓ (2)

8.1.2 Fields private✓, hide inner workings. ✓ (2)

import com.uber.sdk.android.rides.RideRequestButton;

8.2.1 To make use of classes that are defined in other pacakages✓ (1)

8.2.2 Declare and instatntiate a RideRequestButton object✓ (1)

8.2.3 RideRequestButton✓ (1)

8.2.4 RequestButton✓ (1)

8.2.5 Constructor✓ (1)

8.2.6 Can have different versions of the method ✓- each must have a unique parameter list✓ (2)

8.2.7 Typed - need to return a value of specified type✓

Void - no data returned✓ (2)

8.3 Drop down lists ✓ + explain✓

Radio buttons✓ + explain ✓

Prefill options

Check box (4)

8.4.1 Vehicle type✓

Start location/end location✓

Estimated travel time✓

Time of ride (peak or not) ✓ (4)

8.4.2

Input distance, (km)

travel time (mins)

vehicle

time √

vehicle  
type√

Uber x

Fare =

5 + (0.75\*mins) +(7.5\*km) √

Uber black

Fare =

15 + (1.3\*mins) +(13\*km) √

Uber van

Or uv carseat

Fare =

22 + (1.6\*mins) +(16\*km) √

Time of day during peak time? √

Fare \* surge multiplier√

Output fare√

END

(10)

8.5.1 Oracle, MySQL✓ (1)

8.6.2 driverID✓ (1)

8.6.3 Uniquely identify each record✓ (1)

8.7 WHERE eliminates rows in table ✓HAVING eliminates row from an aggregate function. ✓Need a HAVING to remove rows from a COUNT. ✓ (3)