

HSC Exam Answers

Multiple Choice

1. B
2. C
3. B
4. A
5. A
6. A
7. B
8. B
9. C
10. C
11. A
12. B
13. A
14. B
15. B
16. A
17. C
18. B
19. C
20. A

Section B

Question 21

(a)

Identifies a suitable conversion method with justification	2
Identifies a suitable conversion method with no justification	1

Direct conversion – it is a cost-efficient conversion method and it reduces the chance of error as there is only one system running at one time

Parallel conversion – it is a safe option because there will be a back-up system that is still running if the merge fails

Pilot conversion – part of the new system will make sure that the new system is suitable and functioning correctly before implementing the new system; this will allow the system to convert back to the old system if the new system fails

Phased conversion – this will make sure that each phase of the conversion is done correctly and will therefore minimise the chances of error; also, it will be easier to revert back to the old system if the new system fails because the conversion is done in phases

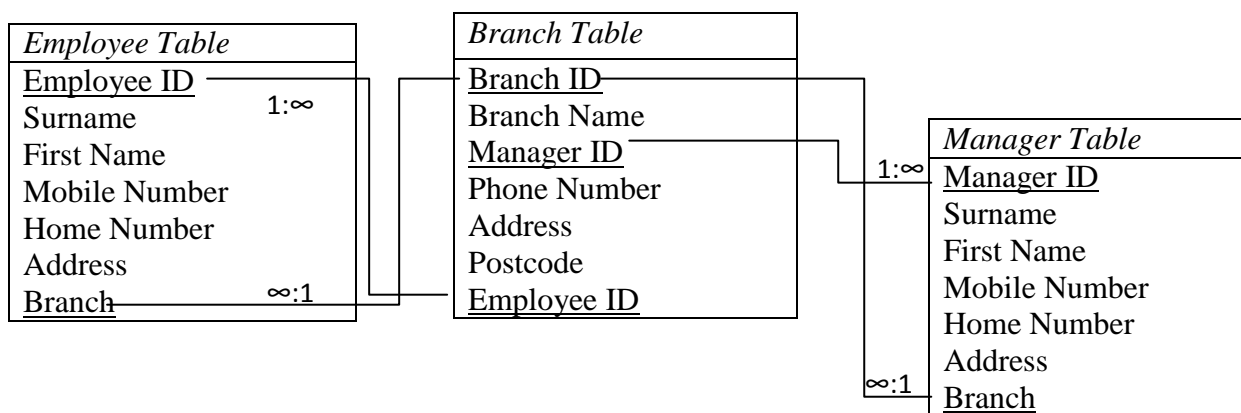
(b)

Appropriate fields with correct data types and descriptions	2
Appropriate fields with incorrect/no data types and descriptions	1

<i>Field Name</i>	<i>Data Type</i>	<i>Field Size</i>	<i>Description</i>	<i>Example</i>
Branch ID	Number	6	The ID number of the branch	495003
Branch Name	Text	15	Name of the branch	Lameville
Manager ID	Number	6	ID number of the manager of the branch	052103
Phone Number	Text	8	Phone number of the branch	98765432
Address	Text	25	Address of the branch	1 Awesome Rd, Lameville
Postcode	Number	4	Postcode of the branch	2999

(c)

Response includes at least two tables with appropriate fields. Primary keys, foreign keys and relationships are clearly labelled with the nature of the relationship labelled	3
Response includes at least two tables with appropriate fields. Relationships are shown, but not clearly labelled. There is some indication of keys	2
Response includes at least two tables but with limited understanding of appropriation of fields, keys and relationships	1



(d)

The SQL command is essentially correct, showing correct logic	3
Some errors exist in the SQL that would result in an incorrect display of employees or syntax error	2
Response includes some key factors of an SQL command relevant to this problem	1

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SELECT    Surname, First Name
FROM      Employee Table
WHERE     Surname ≤ L
ORDER BY  Surname ASC
```

Question 22

(a)

Identifies a social or ethical issue in this scenario	1
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Internet fraud (phishing)

(b)

Identifies the protocols used in the process AND provides a detailed answer describing the path taken by the email from the sender to the receiver.	4
Identifies the protocols used in this process AND provides a good answer to describe the path taken by the email.	3
Identifies the protocols used in the process AND provides an answer to the path of the email.	2
Identifies the protocols used in the process	1

The email applications communicate using SMTP (Simple Mail Transfer Protocol) or POP (Post Office Protocol). The sender composes an e-mail message which is then transmitted to the recipients POP when the MAC address of the recipient is determined. The message is received by the POP email application and the email is then stored in the users mailbox (inbox). When the recipient opens their inbox, they can select and view the email.

(c)

Defines trace fields AND describes how they could be used in this scenario.	2
Defines trace fields	1

Trace fields are added to the start of a message by various SMTP servers each time that a message is resubmitted to a user. They can be used in this scenario to determine the path taken by each message if delivery problems occur.

(d)

Correctly identifies three or more network connection devices AND describes their role in accessing the Internet or sending emails.	3
Correctly identifies two connection devices AND describes their role in accessing the Internet or sending emails.	2
Identifies connection devices OR correctly identifies one connection device AND describes its role in accessing the Internet of sending emails.	1

A coaxial cable: transmits signals along a transmission media and it supports high frequencies.

Gateway: connects two networks together and can be used to filter traffic movements between two similar networks. Commonly used to connect a LAN to the Internet.

Cable modems: used to connect to the Internet

Router: Direct messages to their destination. They also have a variety of security features such as blocking messages based on the senders IP address.

Question 23

(a)

Response includes identification of both hardware and software appropriate for this task	3
Response includes some identification of both hardware and software appropriate for this task	2
Response does not distinguish between hardware and software OR the information technology identified are inaccurate/inadequate	1

Hardware: mouse, keyboard, digital camera, printer, tablet, monitor

Software: desktop publishing software, word publishing software, operating system, photo editing software

(b)

Demonstrates a clear understanding of the processes involved by outlining all the processes involved in this task in logical order	3
Demonstrates a clear understanding of the processes involved by outlining most of the processes involved	2
Response outlines several processes related to the task	1

Collecting: text (e.g. articles) and photos are collected

Organising: the photos and text are converted to the right format

Analysing: checking for mistakes

Storing and Retrieving: The magazine is saved to hard disks, as well as USB drives for backup

Processing: mistakes in the text are corrected, photos are edited

Transmitting and Receiving: a soft copy is sent to all the members of the committee

Displaying: the magazine is printed and burned to a CD for a digital copy

(c)

At least two project management tools are identified along with justification of how they are used in the duration of the project	2
At least two project management tools are identified OR only one project management tool is identified with justification of how it is used in the system	1

Gantt Chart: To monitor the scheduled and actual time taken to complete different stages of the project

Fund Management Plan: To plan and monitor the allocation of funds involved in the project

Communication Management Plan: To make sure that there is no redundant work or work that is not done; it will avoid confusion and misunderstanding

Journals/Diaries/Logbooks: To keep track of the different stages of the project so errors can be easily detected and corrected if they should occur

(d)

Response includes an appropriate justification	2
Response includes limited understanding of the benefits of teamwork	1

Efficient teamwork will allow the magazine to be completed in a faster and more efficient rate; because more can be done in a shorter amount of time, the quality will be higher. Also, teamwork allows members to communicate efficiently, which will assist in the consistency of the design of the magazine.

Question 24 a)

Identifies a transaction processing system AND suggests comprehensive benefits and disadvantages.	3
Identifies a transaction processing system AND suggests several benefits and disadvantages.	2

Identifies a transaction processing system AND provides limited or no benefits and advantages	1
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An automated transaction processing system would be recommended.

Its benefits include:

- Faster transaction processing
- Easy backups
- Less repetitive work for participants
- Easy integration with outside organisations

Its disadvantages include:

- Significant start up costs to purchase the required IT
- Extensive training required
- Less total work for humans resulting in lower unemployment

(b)

Identifies and describes two or more software and hardware	2
Identifies a limited amount of software and hardware	1

Hardware:

- Server machines that include redundant components to improve tolerance
- Storage devices with sufficient capacity and access speeds
- Back up devices such as tape drives

Software:

- DMBS software to manage and control transactions
- Client applications to provide the interface for participants to perform the information processes

(c)

Identifies a considerate amount of participants AND data/information.	3
Identifies limited amount of participants AND limited amount of data/information	2
Identifies limited amount of participants only or limited amount of data/information only.	1

The participants of this system are:

- check out operators
- customers

The data/ information in this system include:

- cosmetic products details
- customer details
- credit card details
- transaction details

(d)

Identifies two or more data integrity methods AND/OR with explanation.	2
Identifies one data integrity method AND/OR with explanation.	1

Answers include:

- validating data- ensuring that data is reasonable and meets criteria
- verifying data- ensuring that original data matches stored data
- ensuring referential integrity- ensuring all foreign keys in linked tables match a primary key in the related table
- abiding to ACID properties- ensuring that transactions are never incomplete, inconsistent, do not affect each other and the results of a completed transaction are permanent.
- normalising data- minimising data redundancy

Question 25

(a)(i)

Defines the term bit depth and accurately describes how it is used in relation to images.	2
Defines the term bit depth or describes how it is used in relation to images.	1

Bit depth is the number of bits used to store each pixel in an image. It controls the number of possible colours for each pixel in an image. The number of colours available is 2 to the power of the bit depth. For example, if an image has a bit depth of 4, the number of colours displayed in an image would be 2^4 which is 16.

(ii)

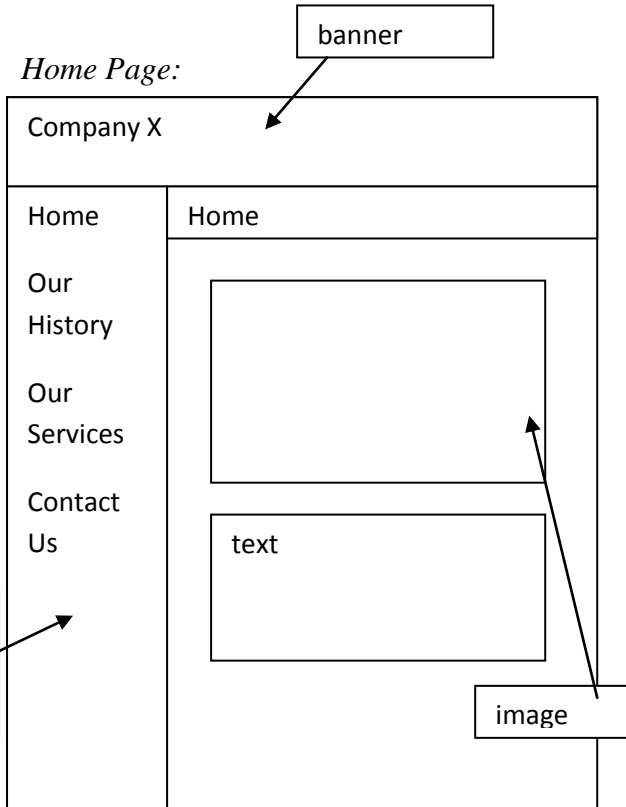
Identifies and compares/ contrasts two compression methods for images.	2
Identifies two compression methods for images OR elaborates on one method.	1

Two compression methods for images include lossy compression and lossless compression. Lossy compression compresses files with minimal loss of perceived image quality. There is an actual permanent loss of data. It is used for landscape photos. Lossless compression is another method, however it does not alter or lose any data in the compression process. It can be used for more detailed bitmap images.

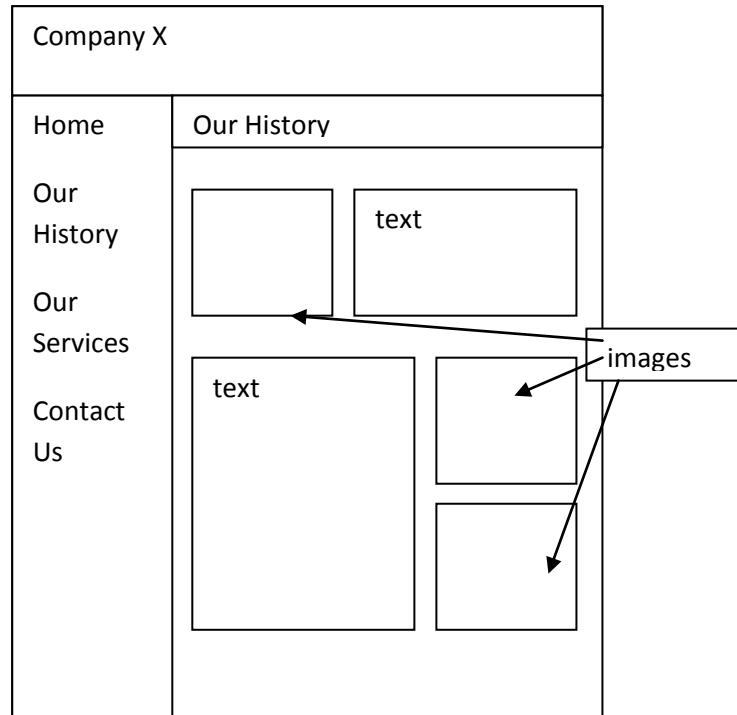
(b)

Demonstrates a comprehensive understanding of the storyboard showing a number of design elements which are labelled clearly.	2-3
Demonstrates a limited understanding of the storyboard, with few design elements labelled or not labelled.	1-2

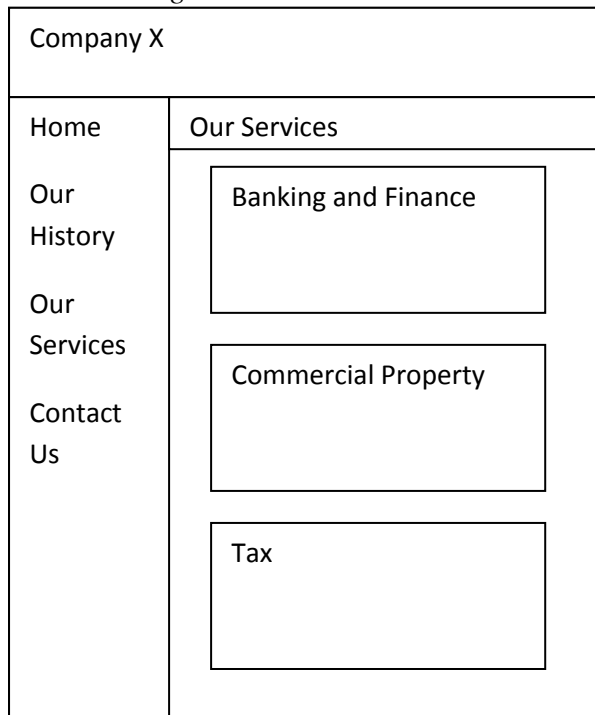
Home Page:



History Page:



Services Page:



Contact Page:



(c)

Working is correct AND explanation given for most numbers	3
Correct working with no explanation OR Part of correct working and/or with limited explanation	2
Incorrect working and/or with limited explanation	1

Resolution = 600 x 400 pixels

Colours = 256

$$=2^8$$

Therefore bit depth = 8 bits

Therefore size of image in bits = 600 x 400 x 8

$$= 240000 \times 8$$

$$= 1\,920\,000 \text{ bits}$$

There are 8 bits in 1 byte and 1024 bytes in 1 kilobyte.

Therefore size of image in kilobytes = $(1\,920\,000 \div 8 \div 1024)$ KB