



Do not award half marks.

In all cases give credit for appropriate alternative answers.

Question 1 (Compulsory)

(30 marks)

(a) Describe the role of a Webmaster. [5]

- **Designing the web site**
- **Maintaining the web site**
- **Ensuring consistency in design so that the web site portrays a consistent corporate identity and image**
- **Day to day operation of the website**
- **Quality assurance of the content of the web site**

Accept other relevant correct points – max 5 marks

(b) CORBA is composed of five major components: briefly describe the Interface repository component. [4]

It is an on-line database of object definitions [1] that can be queried at run-time for dynamic method calls [1], for locating potentially reusable software components [1] and for type checking of method signatures [1].

(c) In the context of a web-site that sells electronic magazines online, state three problems that the owner might face in selling these products in this way. [3]

- **possible fraudulent purchases [1]**
- **possible resale or redistribution of downloaded material [1]**
- **the online format of the publication (ie: whether customers will be able to open and read the documents) [1]**

Accept alternate correct answers, maximum 3.

(d) Distinguish between passive and active learning; for each, indicate who has control of the learning. Which of these two methods is most beneficial for the task of learning to program? Which of these two methods is most beneficial for the task of learning the alphabet? [6]

Passive learning involves memorisation and rote learning [1]. The teacher is in control [1] Active learning is learning by doing tasks [1]. The student is in control [1]

Active learning is best for learning to program [1]

Passive learning is best for learning the alphabet [1]

- (e) Give the correct and complete HTML code to implement the following:
- (i) To insert an image file called "ideas.gif" stored in the current directory. [2]
- Award a maximum of 2 marks for correct answer**
Award 1 mark if partially correct (contains IMG or SRC)
- [2]**
- (ii) To reference the website "www.greatideas.com" in a link. [2]
- Award a maximum of 2 marks for correct answer**
Award 1 mark if partially correct (contains A HREF and /A)
- ... [2]**
- (iii) To draw a horizontal line across the page. [1]
- Award 1 mark for correct answer**
- <HR> [1]**
- (iv) To list the following three software names, each starting with bullet point, [4]
- FrontPage
Dreamweaver
Flash
- Award up to a maximum of 4 marks**
- [1]**
** FrontPage [1]**
** Dreamweaver [1]**
** Flash [1]**

- (f) State three disadvantages of cookies. [3]
- Award 1 mark for each point to a maximum of 3 marks.**
- Violating the privacy of the users [1]**
Cookies are browser-dependent.
Cookies must incorporate the dropping of files into user systems and malicious files can be dropped into user systems on the pretext of cookies [1]

Do not award half marks.

In all cases give credit for appropriate alternative answers.

Question 2

- (a) No matter how effective a website business model is, it will only be successful if a potential customer can find the site. List three methods that could be used by an organisation to ensure that customers will find their web page easily. [3]

Award up to a maximum of 3 marks

Links on other pages [1]
Advertising by email [1]
Ensuring the page is being correctly returned by search Engines [1]
Accept other methods, including non-online methods

- (b) Briefly describe the functions of TCP and IP. [6]

TCP controls the assembly of a message into smaller packets [1]
before it is transmitted over the Internet . [1]
It controls the reassembly of packets once they reach their destination. [1]
IP handles all the addressing details for each packet [1]
ensuring that each is labelled [1]
with the correct destination address. [1]

- (c) Imagine you are the owner of a business that buys and sells rare postage stamps. You operate mostly in your own country but would like to extend your business internationally. The following problems will arise:

- (i) letting people know what stamps you have for sale and the prices you expect;
- (ii) advertising the prices you are prepared to pay for specific stamps, although these prices change quite rapidly;
- (iii) capturing the attention of prospective customers (there are many such web sites);
- (iv) selling stamps in different currencies.

Indicate how the web site could address each of these problems. [6]

- (i) **Present scanned images of rare stamps [1] so that customers can get a good idea of their condition [1]**
- (ii) **Change the payment prices regularly on the website [1]**
- (iii) **Ensure that the website is at least as attractive as other websites that perform the same function [1] by ensuring a good design [1]**
- (iv) **Use credit card transactions [1]**

Do not award half marks.

In all cases give credit for appropriate alternative answers.

Question 3

- (a) Outline the steps that you would use to log on to an anonymous FTP site and download a file called *game.exe* to a local directory called *pub*. [5]

Award 1 mark for each step to a maximum of 5 marks.

Establish a connection between the FTP client program and FTP server. [1]

Login with user name 'anonymous'. [1]

Send your own email address as password. [1]

Change directory to 'pub' [1]

Get the file 'game.exe' [1]

- (b) Music Heaven is a company that develops and sells MP3 audio files through an e-commerce web site to customers. All files are small enough to be downloaded from their web site. The company has different charges for the number of MP3 files purchased. All MP3 audio files are found in a database that can be searched by song title or singer.

Briefly describe seven practices or procedures the company could employ to make its e-commerce business a fully integrated and successful Electronic transaction system. [7]

Award 1 mark for each point to a maximum of 7 marks.

Provide search facilities for customers to fully enquire on any MP3 audio files with detailed descriptions. [1]

Allow customers to tick choices and provide the actual purchase price of all files with an invoice generated on-line. [1]

Allow customers to pay for the amount using their credit card. [1]

Connect the Web site to a payment gateway so that all transactions can be verified and approved. [1]

Transmit a password that lasts for a few days to the customer's e-mail immediately. [1]

Allow customer to download all the chosen MP3 audio files with the given password. [1]

Periodically send e-mail to customers when new MP3 audio files have been updated in the database. [1]

Accept appropriate alternate answers.

- (c) Explain why customers may be reluctant to buy goods over the Internet using a credit card. [3]

Award 1 marks for each, max 3

possibility of interception by someone else [1]

used for fraudulent transaction [1]

data stolen in the process of buying goods [1]

may not trust vendor [1]

other acceptable reason

Do not award half marks.

In all cases give credit for appropriate alternative answers.

Question 4

(a) As a web site developer you have been commissioned to produce a website for a local theatre.

- (i) Describe how a theatre might use a web site to allow its visitors to decide which performance of a show to attend, based on which seats were available. [2]

Award 1 mark for each, max 2 marks

Use of a Website to display graphically [1]
all the seats available for all the performances [1]
Customers could see which seats were still available at any time [1]

Accept appropriate alternate answers.

- (ii) What new issues would the theatre need to consider if they were to decide to take online reservations using this web page? [3]

Award 1 mark for each, max 3 marks

Implications include:

- **The need to interface with a database of bookings [1]**
- **The need for more technical programming on the site [1]**
- **The need to accept personal details from the user [1]**
- **Confirmation of booking by email [1]**
- **Security of payment information [1]**
- **Data protection if clients are giving personal details [1]**

Accept appropriate alternate answers.

(b) Explain briefly what you understand by the term *broadband*. [3]

Broadband is a high speed Internet connection[1]. It uses an ordinary telephone line [1], which has been converted to a digital format [1] to increase the bandwidth of the copper wires.[1]

Maximum 3 marks

(c) Why are CGI scripts a potential security threat? [4]

Award up to 1 mark for each answer, to a maximum of 4 marks.

- **defective / malicious CGIs with free access to system resources are capable of disabling the system. [1]**
- **they can call privileged (and dangerous) base system programs that delete files. [1]**
- **they can be used to view confidential customer information including usernames and passwords. [1]**
- **CGI programs are hard to track down and manage as they can reside in many places. [1]**
- **CGI programs do not run inside a protective security sandbox. [1]**

(d) Describe three limitations of using online surveys (as opposed to paper-based surveys) [3]

- **respondents are self-selected: you may not get a representative sample [1]**
- **respondents may have more concern about the storage and use of their data when it is submitted online [1]**
- **the respondents you may be wanting to target may not have access to the internet [1]**
- **it is difficult to encourage people to fill in an online survey [1]**

Accept other alternative answers, maximum 4 marks.

Do not award half marks.
In all cases give credit for appropriate alternative answers.

Question 5

- (a) Study the screen design and provide the HTML code for the following output. [9]

DeskJet Self Training Course

Please click on the choice given below

This programme is designed for agents to learn the features of DeskJet models.
At the end of this programme every agent should be able to understand
Hardware specification and issues related to respective printer models.

DeskJet Series

[DeskJet 300](#)

[DeskJet 400](#)

Header tag <H1> and </H1>, <H2> and </H2> [1]
Opening <TABLE BORDER=1 CELLPADDING=10 CELLSPACING=5> and
closing </TABLE> [1]
New paragraph tag <P> [1]
(ignore any </P>)
anyone Opening <TR> and closing </TR> and anyone Opening <TD> and
closing </TD> [1]

Tags and enclosing 'Deskjet Series' [1]

For DeskJet 300
- award 2 marks if completely correct,
- award 1 mark if incorrect, but contains A HREF

For DeskJet 400
- award 2 marks if completely correct
- award 1 mark if incorrect, but contains A HREF

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<HTML>
<HEAD>
<TITLE>DeskJet series</TITLE>
</HEAD>
<BODY>
<H1>DeskJet Self Training Course</H1>
<H2> Please click on the choice given below</H2>
<P>This programme is designed for agents to learn the features of
DeskJet models.
    At the end of this programme every agent should be able to understand
    Hardware specification and issues related to respective printer models.
</P>
<TABLE BORDER=1 CELLPADDING=10 CELLSPACING=5 >
<TR>
<TD><B>DeskJet Series</B></TD>
</TR>
<TR>
<TD> <A HREF="deskjet300.htm">DeskJet 300</A></TD>
</TR>
<TR>
<TD> <A HREF="deskJet400.htm">DeskJet 400</A></TD>
</TR>
</TABLE>
</BODY>
</HTML>
```

- (b) The UN Declaration of Human Rights has the following statement about freedom of information:

“Everyone has the right to freedom of opinion and expression; this right includes freedom to hold opinions without interference and to seek, receive and impart information and ideas through any media and regardless of frontiers.”

Describe why the introduction of the internet has made this goal of freedom of information for everyone easier to satisfy. [2]

Before the introduction of the internet, it was only the rich or powerful who were able to access the media to express their views. [1]. You do not need to be rich or powerful to express your views on the internet. [1]

- (c) What happens if a customer makes a mistake when they fill in a form? For example, the form may ask for a credit card expiry date and the customer may type one that is clearly incorrect (eg: 11/55 instead of 11/05). How is this error handled by the processes that accept data from the form? [4]

Award 1 mark for each, max 4 marks

Mistakes of this nature cannot be detected when the form is completed. [1]

They will be found when the form data is interpreted and validated by CGI application. [1]

The application would typically generate HTML that highlights the field with the incorrect the data [1], and send this back to the browser, inviting the user to correct the data. [1]

This is both time-consuming and expensive in terms of bandwidth. [1]

Accept appropriate alternate answers.

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