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[IS(H)07]

NATIONAL QUALIFICATIONS 2007	Time: 2 Hours 30 Minutes	INFORMATION SYSTEMS

HIGHER

Estimate Examination Paper

Attempt **all** of Section **I**, **all** of Section **II** and **one** part of Section **III**.

Sections **I** and **II** — Attempt **all** questions.

Section **III** — This section has three parts:

    Part A — Applied Multimedia

    Part B — Expert Systems

    Part C — The Internet.

Choose **one** part and attempt all of the questions in that part.

Read all questions carefully.

Write your answers in the answer book provided. Do not write on the question paper.

Write as neatly as possible.

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Attempt ALL questions in this section.

1. A local company have set up a database to store details of all car rentals. They use the following structure;

    RENTAL (Make, Model, Registration Num, Hirer ID, Hirer Name, Date of Hire)

    Identify **one** *multi-valued* attribute from this structure, giving a reason for your choice.
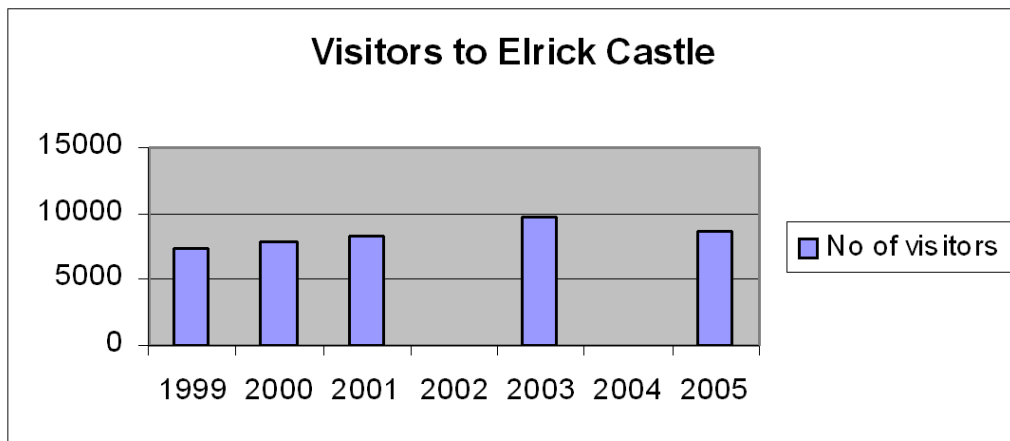
    2

2. State the *cardinality* of each of the following.

    (a) Book and ISBN

    (b) Pupil and school subject **2**

3. The bar chart below shows the number of visitors at a castle in the last 7 years.

    2

    Comment on the *accuracy* and *completeness* of the bar chart.

4. Which of the following organisations is **not** obliged to release information under the Freedom of Information (Scotland) Act.

    (a) (i) the Police

       (ii) a local sports club **1**

    (b) Explain your answer. **1**

5. When would it be appropriate to create a *surrogate* key for an entity? **2**

6. Identify **two** of the main features of *personal information management* software. **2**

7. One method of implementing a security strategy is by the use of a firewall. What is a firewall? **2**

8. *(a)* The editor of a company magazine wishes her writers to submit contributions which conform to the house style of the magazine. Which feature of the publishing software will allow the writers to do this? **1**

    (b) State **two** ways in which this feature determines the appearance of the magazine. **2**

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9. State **two** ways in which the *domain constraints* affect an attribute's data domain? **2**

10. The chart below shows how a teacher has organised the teaching of some of the units of the Higher Information Systems course.

	AUG		SEPT		OCT		NOV		DEC		JAN		FEB	
Rel D/bases	▨	▨	▨	▨	▨									
Using Info				▨	▨	▨	▨	▨						
Coursework									▥	▥	▥			
The Internet													▨	▨
Exams											▦			

(a) What name is given to this type of chart? **1**

(b) What is the purpose of this type of chart? **1**

11. For each of the following examples state whether the information is *primary* or *secondary* and whether it is *formal* or *informal*.

(a) a notification of jury service from the Sheriff Court **1**

(b) an email from a relative inviting you to a barbecue **1**

12. *(a)* In a relational database, what is meant by *referential integrity*? **2**

(b) For an entity to have *entity integrity*, two conditions must apply. One condition is that every entity must have a primary key.

State the other condition necessary to ensure entity integrity? **1**

13. Each pupil in a school is identified by a code made up from their initials, their year number and their guidance teacher's initials. For example the 3rd year pupil, Moira Leslie whose guidance teacher is Robin Thomson has the code ML3RT.

Identify **two** problems associated with using this *meaningful identifier* as a primary key. **2**

14. Many large organisations use *data mining* as a tool for analysing information. Why is this so useful to such organisations? **2**

(30)

[*END OF SECTION I*]

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Attempt ALL questions in this section

15. The OB Tool Hire company keeps details of all customers and their hires on a customer card as follows.

Customer No	00987		
Name John Finechty	**Town**		Eastville
Address 3 Hazel Road	**Postcode**		EA23 8KL
	Tel No		01377 765875

Tool ID	Date of Hire	Duration	Payment Method
450	12/12/2006	2 days	Visa
157	21/3/2007	1 day	Visa
118	8/04/2007	3 days	American Express
157	23/4/2007	1 day	American Express

Details of all tools available for hire are stored on cards such as shown below.

Tool ID	118		
Tool Name	Power Drill	Manufacturer Name	Armstrongs
Description	24v cordless	Manufacturer Address	12 Drawry Lane Middlehampton
Rate per Day	£12.50	Manufacturer Tel No	01555 626261

Tool ID	157		
Tool Name	Humidifier	Manufacturer Name	King and Roberts
Description	Heavy/industrial use	Manufacturer Address	Adley Industrial Estate, Rollton
Rate per Day	£41.99	Manufacturer Tel No	01602 259996

Tool ID	321		
Tool Name	Mini Cement Mixer	Manufacturer Name	Armstrongs
Description	0.1 m^3 drum	Manufacturer Address	12 Drawry Lane Middlehampton
Rate per Day	£75.00	Manufacturer Tel No	01555 626261

Tool ID	124		
Tool Name	Power Drill	Manufacturer Name	White and Desmond
Description	1000w, 3m cord	Manufacturer Address	Cooks Close Inverdeen
Rate per Day	£15.00	Manufacturer Tel No	01549 839400

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15. **(continued)**

(a) The present system can be represented in un-normalised form as:

<u>Customer No</u>
Name
Address
Town
Postcode
Tel No
Tool ID
Date of Hire
Duration
Payment Method
Tool Name
Description
Rate per Day
Manufacturer Name
Manufacturer Address
Manufacturer Tel No

    (i) Using Customer No as the primary key, transform this un-normalised data into first normal form by removing repeating groups. **3**

    (ii) Identify all primary and foreign keys. **3**

(b) (i) Transform this first normal form to second normal form by removing partial dependencies. **4**

    (ii) Identify all primary and foreign keys. **2**

(c) (i) Transform this second normal form to third normal form by removing non-key dependencies. **3**

    (ii) Identify all primary and foreign keys. **2**

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16.   The Woody Furniture Company uses a relational database to hold data about its business. The data is held in the following tables.

Customer (cust_name   Order (order_code   Salesperson (sales_name   Supervisor (sup_name
         cust_address   item_name   grade   dept)
         cust_tel no   price   date_employed
         credit_limit)   cust_name   sup_name
                         sales_name   sales_dept)
                         date)

The data model above shows four related entities with the primary keys underlined.

(a)   State which foreign keys are present and in which entities these foreign keys exist.   **3**

(b)   At the end of each week a report is created to show the value of sales made by each salesperson.

Salesperson : Hazel Jones	**Dept :** Household	**Week ending :** 5/3/07

Date of sale	Item Purchased	Customer Name	Price of item
3/3/07	Lounge suite	Mrs W Jackson	£2395
4/3/07	Dining table set	Mr C Boyd	£2100
1/3/07	Dining table set	Mr D Macey	£1595
2/3/07	Leather suite	Miss L Mackie	£945
5/3/07	King-size bed	Mr H Young	£769
5/3/07	Cane swivel seat	Mrs J Hetherington	£375
2/3/07	Occasional tables	Mr S Sweet	£299
2/3/07	Coffee table	Mr F Coutts	£230
3/3/07	Standard lamp	Ms R al-Jamali	£89
		Total for week	**£8797**

By naming the tables and fields required, describe how the database would be used to create this report   **8**

(c)   Before using a relational database to hold their data, the company held their data in a flat-file database, part of which is shown below.

Order code	Item name	Price	Customer name	Salesperson name	Dept	Supervisor name	Date
4323	Settee	£675	Mr S Fraser	H Jones	Household	K Low	2/7/04
4331	Picture	£120	Ms D Kelly	R Pirie	Household	K Low	2/7/04
4359	Coffee table	£399	Mr T Peat	H Jones	Household	K Low	3/7/04

The above datafile is badly designed. State **two** problems which will occur from using this file.   **2**

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17 Claire is a customer relationship manager for a large worldwide car sales business. She uses the following spreadsheet as part of her work.

	Manufacture Cost (£)	Total (to Market) (£)	Sale Price (£)	Profit Per Unit (£)	Sales Target (£)	Forecast Sales (Cars Sold)	Forecast Sales Profit (£)
France	£3,932.50	£4,697.50	£9,000.00	£4,302.50	£4,500,000.00	942	£4,052,955.00
United Kingdom	£3,932.50	£4,672.50	£8,750.00	£4,077.50	£6,000,000.00	1,240	£5,056,100.00
India	£3,932.50	£4,172.50	£5,999.00	£1,826.50	£1,500,000.00	821	£1,499,556.50
U.S.A.	£4,004.00	£4,766.00	£7,599.00	£2,833.00	£4,600,000.00	1,420	£4,022,860.00
Japan	£4,004.00	£4,344.50	£8,499.00	£4,154.50	£3,270,000.00	669	£2,779,360.50
				Target Total	£19,870,000.00	Forecast Total	£17,410,832.00
Manufacture Price	£3,575.00						
UK Tarrif	£357.50						
USA Tarrif	£429.00						

(a) Claire uses *goal seeking* to assist her when adjusting this spreadsheet. Describe, using an example from the spreadsheet above, how Claire might use goal seeking to examine these figures. **3**

(b) Claire uses Project Management Software to create a project plan.

  (i) She uses the project management software to carry out a *critical path analysis*. What is a critical path and why is it important? **2**

  (ii) Claire has a number of resources which she has allocated to the tasks in her project. Describe how changing the *resource allocation* with in a project can affect is critical path. **2**

(c) Claire has received a report from her company about the effects of globalisation on their business. An extract of the report is shown below:

"As our company becomes a larger force in the global car market we need to develop a global WWW presence which contains an element of localisation. We need to further discuss the legal implications of such localised WWW content.

In addition to this, we can centralise our account and administrative divisions, using networks in order to reduce costs. It will be important to locate these services where they will generate the most successful cost/benefit for us as an organisation.

In our developing African products we may need to adopt a different marketing approach in some areas due to information poverty."

  (i) What does the report mean when it refers to 'an element of localisation' for the company web site? **1**

  (ii) Give **two** aspects of the site which might require localisation and state why. **2**

  (iii) Describe **two** aspects of the use of information systems which will allow the company to centralise its account and administrative divisions. **2**

  (iv) What does the phrase "*the most successful cost/benefit for us as an organisation*" mean in relation to location of the account and administrative divisions. **2**

  (v) The report refers to "information poverty". Give **two** reasons why someone may be described as information poor. **2**

[**Turn over**

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18. The WebMedia Company have been given a web site by a client to update and improve. A sample page
from this site is shown below.

(a) The above web page contains a number of elements of poor design and presentational style.
Select **three** of these elements and explain how each has a negative impact on the effectiveness
of the web page.   **3**

(b) WebMedia amend the web site files and upload them to a web server. The web server is backed
up daily. The server contains a large amount of data. Describe an appropriate *backup rotation*
method for the server in terms of *frequency* and *version control*.   **3**

(c) The web server is part of WebMedia's internal network. The network has several levels of
access. Users are classified as

(i)SuperAdmin,
(ii)Admin,
(iii)NormalUser

For **each** of these levels of user suggest **two** access rights or facilities which will be available to
users of this level.   **6**

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18. (continued)

  (d)   A hacker has launched a Denial of Service attacked at the web site. What is a Denial of
         Service attack and how might it be prevented?   **2**

                                                                                                    (60)

                              [*END OF SECTION II*]   **(60)**

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SECTION III

Section III – This section has three parts

Choose **one** part and attempt **all** of the questions in this part.

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Part A – Applied Multimedia   *Marks*

Attempt ALL questions in this part

19.   Moonglow Health Spa offers a wide variety of beauty treatments.

They decide to produce a multimedia presentation to give to potential clients at various conferences they attend throughout the year.

(a)   (i)   Identify three possible media elements that you would expect to find in the presentation.   **3**

(ii)   They considered storing the final product on a CD.   Explain why a CD might not be suitable for this purpose.   **1**

(iii)   Suggest a suitable hybrid system that would allow them to include access to special offers that occur from time to time throughout the year.   **2**

(b)   Identify two legal issues they should address when creating this multimedia product.   **2**

20.   Jane Brown is given the task of creating a website for Quickclik Digital Cameras.

A requirements specification has already been produced for her to use.

(a)   (i)   What earlier document should have been produced first?   **1**

(ii)   Name and describe four items you would expect Jane to find in her requirements specification?   **2**

(b)   The final website is located at
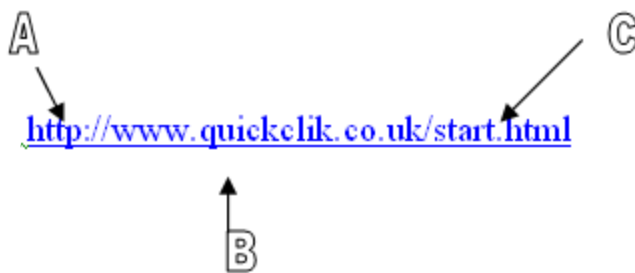
What are A, B and C in this URL?   **3**

(c)   One of the hyperlinks on this page is /sonycameras/cybershot.html

What kind of URL is this?   **1**

How does the browser know where to find the target file in this situation?   **1**

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Part A – Applied Multimedia (continued)

21. A group of sixth-formers have formed a Young Enterprise Company called Mugs4u which produces mugs with "amusing" personalised messages.

One of the group, Brian, is to give a talk to an assembly about the company and decides to create a presentation to be projected behind him as he speaks.

(a) Name a suitable navigation structure for this presentation and give a reason for your choice. **2**

(b) Suggest a suitable type of multimedia software to create this presentation. Give two reasons to justify your choice. **3**

(c) Brian borrows a digital camera and takes some mug shots to include in the presentation.

What file format should he use for these images? Give a reason for your choice? **2**

(d) The final images need editing before being included in the presentation. .

What type of program would be used for this task? **1**

Identify two possible tools that would be used. **1**

(e) While preparing for the presentation Brian discovers that the laptop he is going to use doesn't have the same original software and the school is unwilling to install it.

Suggest two ways that this problem can be overcome while still using the same computer and not breaking the law. **2**

22. Overthetop Educational resources are a group of history teachers who want to create a multimedia encyclopaedia about the First World War which will be sold on DVD.

(a) They have decided to use an Authoring Package to create the package.

Suggest a suitable type of authoring package for this task. Justify your choice. **2**

(b) Before creating the encyclopaedia they must first design it.

(i) How can storyboards be used at this stage? **1**

(ii) Name four pieces of information you expect to find on a detailed storyboard. **2**

(c) The teachers find that they don't have the skills to create the DVD themselves. Identify three specialist personnel that may be involved and describe what each one would bring to the project. **3**

(d) Once completed the encyclopaedia has to be tested.

Name three types of testing that should be carried out. **3**

[Turn over

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Part A – Applied Multimedia (continued)

22.   **(continued)**

(e)   During testing it is noticed that some of the fancy heading fonts do not always appear the same   **2**
on all computer systems.

Explain two ways to ensure the text is always displayed the same.

23.   A school flute quartet called COLDMAY decides to get themselves better known by having their own
website.

(a)   Give one advantage and one disadvantage of using a website instead of another form of
multimedia product to publicise themselves.   **2**

(b)   The final webpage contains a large text heading of their name, a short video and the option to
download some audio files of their work.

   (i)   Name the feature that moves the letter spacing to make letters fit better together?   **1**

   (ii)   How can they make sure that all the colours they used when creating the website are   **2**
displayed on most browsers?

(c)   The video has been designed to be streamed. What does this mean?   **1**

What problems can be caused by using this method of delivery?   **1**

(d)   The audio files can be downloaded only as MIDI files.

   (i)   Explain what MIDI files are.   **2**

   (ii)   Name another file type that might have been used.   **1**

[END OF SECTION III PART A]   **(50)**

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Part B – Expert Systems

Attempt ALL questions in this part.

24.   www.camerasforu.co.uk is Web site that advertises and sells digital cameras and digital video cameras from a number of different manufacturers. The site provides an on-line expert system that provides customers with advice on the camera that best suits their needs. The expert system was developed using an expert system *shell*.

    (a)   Describe **two** limitations of the camerasforu expert system described above.   **2**

    (b)   The components of any expert system include a *knowledge base*, *inference engine* and *user interface*.

        (i)   Explain the purpose of the inference engine.

        (ii)   Explain the importance of keeping the contents of the knowledge base of the camerasforu expert system separate from both its inference engine and its user interface.

        (iii)   Explain the use made of a *knowledge representation language* during the development of the camerasforu expert system.   **4**

25.   Research into the use of expert systems in medicine started in the early 1970's and produced a number of 'classical' expert systems, including *INTERNIST, MYCIN* and *ONCOCIN*.

    (a)   Explain how the INTERNIST and MYCIN expert systems differ from ONCOCIN in terms of their *classification*.   **1**

    (b)   The ONCOCIN expert system was developed to be a clinical *decision support system*. Distinguish between an expert system and a decision support system in terms of their purpose within the field of medicine.   **2**

    (c)   The increased use of expert systems in the field of medicine has brought about many concerns regarding the social, legal and ethical implications associated with their use. For example, many people are concerned about the implications for an experienced doctor who decides to take a particular course of action without consulting an expert system when it is later shown that the expert system may have been able to provide a preferable alternative.

        (i)   Describe **one** legal implication that could arise from this situation.

        (ii)   Describe **one** ethical implication that could arise from this situation.   **2**

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Part B – Expert Systems (continued)

26.   GlasgowDine is an expert system that recommends restaurants in Glasgow based on occasion, atmosphere and food preferences. It uses information provided by the user to decide what restaurant characteristics would be preferred for the event. The expert system uses *forward chaining* rules. Part of the GlasgowDine expert system is shown below.

    IF   Occasion is family meal
    AND   Atmosphere is lively
    AND   Food preference is European
    AND   Cost is moderate
    THEN   Suitable restaurant is CharleyCool.

    IF   Occasion is family meal
    AND   Atmosphere is lively
    AND   Food preference is European
    THEN   Suitable restaurant is Gr8@Gordos.

    IF   Occasion is business lunch
    AND   Atmosphere is relaxed
    AND   Food preference is European
    AND   Location is city centre
    THEN   Suitable restaurant is Uropa.

    IF   Occasion is business lunch
    AND   Atmosphere is relaxed
    AND   Food preference is European
    THEN   Suitable restaurant is ChisCo.

    IF   Occasion is business lunch
    AND   Atmosphere is relaxed
    AND   Food preference is Asian
    THEN   Suitable restaurant is Thai&Collar.

   (a)   *Conflict resolution strategies* are often required when working with a forward chaining expert system.

            Explain why conflict resolution would be necessary when using the GlasgowDine expert system by referring to the *conflict sets* that are produced by the system.   **2**

   (b)   Maisie Mo is hosting a business lunch for clients in Glasgow next month. The lunch is to be a relaxed event for clients who enjoy European food. She uses the GlasgowDine expert system to find a suitable restaurant. What advice would be given to Maisie Mo by the GlasgowDine expert system if:

            (i)   a *rule ordering* algorithm was used to resolve the conflict? Justify your answer.

            (ii)   a *specifity* algorithm was used to resolve the conflict? Justify your answer.   **4**

27. **(continued)**

(c) Evaluate the GlasgowDine expert system in terms of:
- its purpose
- the range and coverage of the rules shown
- the quality of its user interface based on the rules shown

3

28. REHAB is a rule-based expert system that is being developed for use in social security offices. The expert system will be used to refer recipients of social security disability allowance to employment rehabilitation services.

Due to the pressure of work faced by experienced caseworkers responsible for the assessment and review of recipients, the current situation of many recipients cannot be reviewed for several months. As a result, recipients miss out on the benefits offered by the rehabilitation services.

By developing REHAB, it is hoped that unqualified administration staff will be able to use the expert system to reach unbiased and consistent assessment decisions regarding referral of the recipients of disability allowance to employment rehabilitation services. Eventually, it is hoped that administration staff using the expert system will be able to make assessments in less time and with a level of accuracy superior to the experienced caseworkers using manual methods.

(a) Identify a suitable *domain expert* for the development of the REHAB expert system and describe their role during system validation.

2

(b) Errors could occur at any stage of the development of the REHAB expert system. Describe an error that could be attributed to inferencing.

1

(c) The knowledge engineer must decide whether to represent the domain knowledge as *backward* chaining or *forward chaining* rules.

  (i) Suggest **two** factors would be used to determine the type of inference engine suitable for the REHAB expert system. Justify your answer by explaining the relevance of each factor you suggest.

  (ii) Give one reason why the developers of the REHAB expert system may decide to incorporate both backward and forward chaining.

3

(d) Compare the *quality of information* provided by the REHAB expert system with the quality of similar information provided by experienced caseworkers in terms of:
- reliability or objectivity
- timing
- availability

3

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Part B – Expert Systems (continued)

29. An expert system is being developed to identify and classify animals. The following knowledge is to be stored in the knowledge base of the expert system:

> A mammal is an animal that has hair and provides milk for it young. A carnivore is a meat-eating mammal with claws and pointed teeth whereas an ungulate is a mammal that chews cud and has hooves. A cheetah is a carnivore with black spots and a tiger is a carnivore with black stripes. A giraffe is an ungulate with a long neck and a zebra is an ungulate with black stripes.

(a) Derive *attribute pairs* from this information about animals provided above. The attribute pairs should be in the form:

```
ungulate (mammal, chews_cud, has_hooves)
cheetah (carnivore, has_black_spots
```
5

(b) The developers of the expert system decide to represent knowledge about birds as *factor tables*. The factor tables are shown below.

Lays eggs	Has feathers	Classification
Yes	Yes	Bird

Bird	Can fly	Can swim	Classification
Yes	Yes	Yes	Duck
Yes	No	No	Ostrich
Yes	No	Yes	Penguin

(i) Represent the factor tables above as a *decision tree*.

(ii) Compare the use of factor tables and a decision tree to represent the knowledge about birds. **6**

(c) Additional knowledge about elephants is to be represented using *first order predicate logic*. Use the information in the table below to represent the following statements in first order predicate logic:

Predicate	Meaning
`elephant(X)`	X is an elephant
`grey(X)`	X is grey
`has_tusks(X)`	X has tusks

(i) All elephants are grey.

(ii) Some elephants have tusks. **2**

(d) The knowledge about animals could have been stored in a relational database system rather than an expert system. Compare the two types of system in terms of the methods used to extract information and knowledge. **2**

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Part B – Expert Systems (continued)

30. SPOT-OUT is an expert system that provides uses with advice about stain removal. SPOT-OUT is a rule based expert system that makes use of *certainty factors*.

(a) Give **two** uses made of certainty factors in an expert system.   **2**

(b) The rule shown below is included in the SPOT-OUT expert system:

```
ADVICE    Spray with hair-spray and wash as normal (80%)
IF        Stain is due to ink
AND       Stain is on fabric.
```

Haymon uses the expert system to get advice about how to deal with an ink stain on his shirt. He provides the expert system with the following information:

The stain is due to ink:
| **Certainty Factor:** 50%○ | 60%○ | 70%○ | 80% ◉ | 90%○ | 100%○ |

The stain is due to grease:
| **Certainty Factor:** 50%○ | 60% ◉ | 70% ○ | 80% ○ | 90% ○ | 100% ○ |

The stain is on fabric:
| **Certainty Factor:** 50%○ | 60%○ | 70%◉ | 80% ○ | 90%○ | 100%○ |

The stain is on upholstery:
| **Certainty Factor:** 50%◉ | 60%○ | 70%○ | 80% ○ | 90%○ | 100%○ |

Calculate the certainty of the conclusion:
```
Spray with hair-spray and wash as normal.
```

You should show all working.   **2**

(c) Users of the SPOT-OUT expert system can ask for justification of any advice that is suggested. Explain how the expert system would justify any advice that it suggests.   **2**

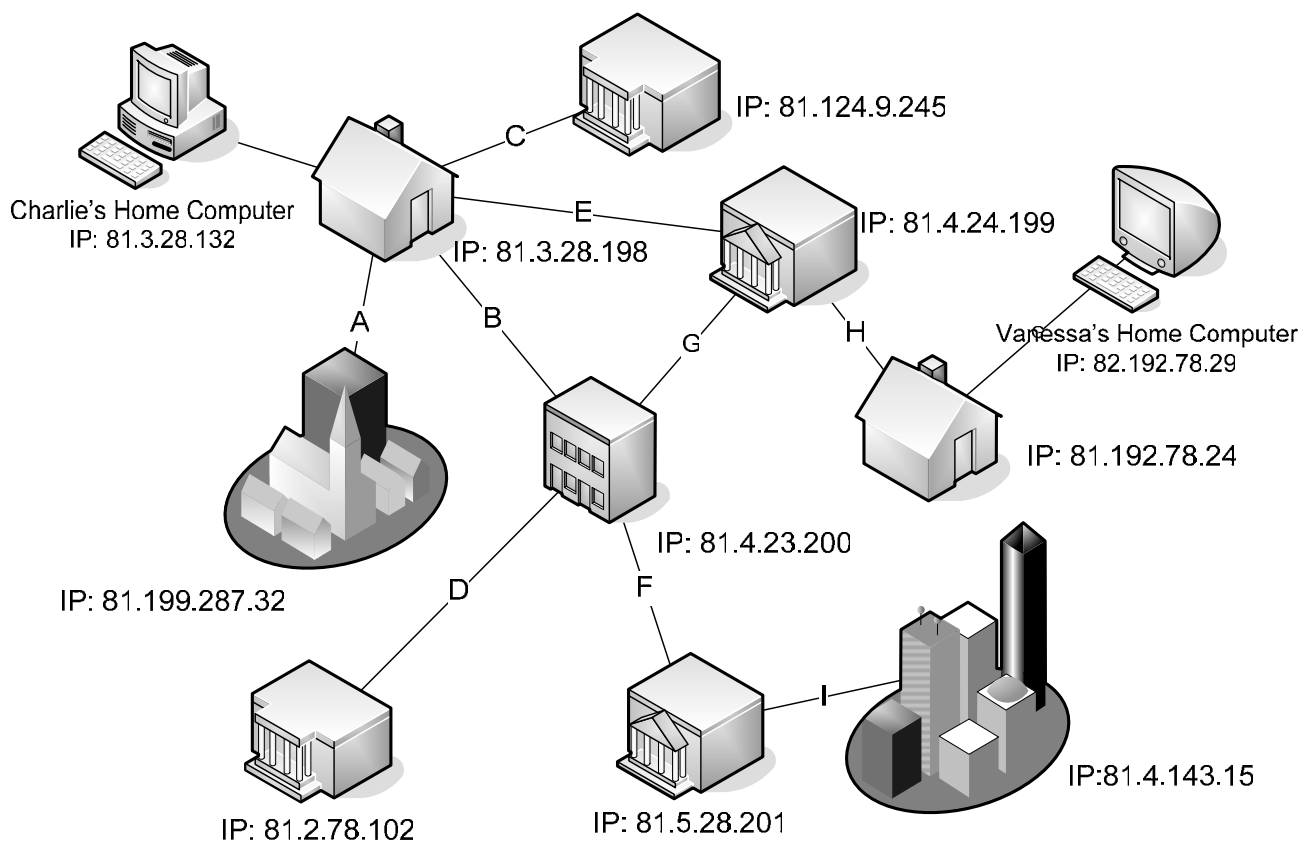*[END OF SECTION II – PART B]*   **(50)**

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Part C – The Internet

Attempt ALL questions in this part.

31. Charlie and Vanessa both work from home for a large web design company. The network they use is based on the TCP/IP protocol.   The following diagram shows each of the nodes on the network, the connections between them (labelled A to I) and their home computers.

(a) The network makes use of *packet switching*.

   (i) What is "packet switching?" **3**

   (ii) Describe how this technique would be of use if connection E above severed. **1**

(b) Describe how the *routing tables* held by each of the nodes would route traffic from Charlie's computer to Vanessa's computer. **3**

(c) This network makes use of Class A, Class B and Class C network addresses.

   (i) Using an example from those given above show a Class A network address and the host address. **1**

   (ii) Using an example from those given above show a Class C network address and the host address. **1**

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Part C - The Internet (continued)

31. **(continued)**

(d) (i) Give the IP address of the *gateway* used by Charlie's computer. **1**

(ii) How does Charlie's computer make use of this gateway? **1**

(e) To access content on the network Charlie enters the URL

http://81.2.78.102:72/documents/index.html#incoming

into his web browser. To access the same content Vanessa enters the URL

http://documentserver:72/documents/index.html#incoming

(i) Why is it possible to enter these two different URLs to access the same content? **1**

(ii) Using Vanessa's URL as an example, explain the structure of a Uniform Resource Locator. **3**

(iii) A *Domain Name Server* is used to resolve URLs. What happens if a particular DNS is unable to resolve a **valid** URL which **exists** on the network? **2**

32. Aarif uses email and the World Wide Web daily for his work. He often has to send confidential documents for his company via email and access secure web sites.

(a) Aarif's company uses an encryption system which makes use of public and private keys.

(i) Aarif needs to send email to Paul but does not have the required encryption key. Suggest **two** ways that Aarif could obtain this key. **2**

(ii) Explain the concept of private and public keys in encryption. **2**

(b) The secure web sites which Aarif accesses make use of *secure sockets (SSL)*.

(i) What is the purpose of a certificate authority when accessing a web site using SSL? **1**

(ii) How must all SSL URLs be identified? **1**

(iii) Describe the sequence of events which happen when Aarif connects to a web site which uses SLL? **3**

(c) Aarif discovers a folder on his computer which is full of *cookies*.

(i) Why does Aarif's computer have this folder? **1**

(ii) Describe **two** benefits which these cookies may bring to Aarif. **2**

[Turn over

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Part C - The Internet (continued)

33. The following web site is created by Drop Design, a web site development company.
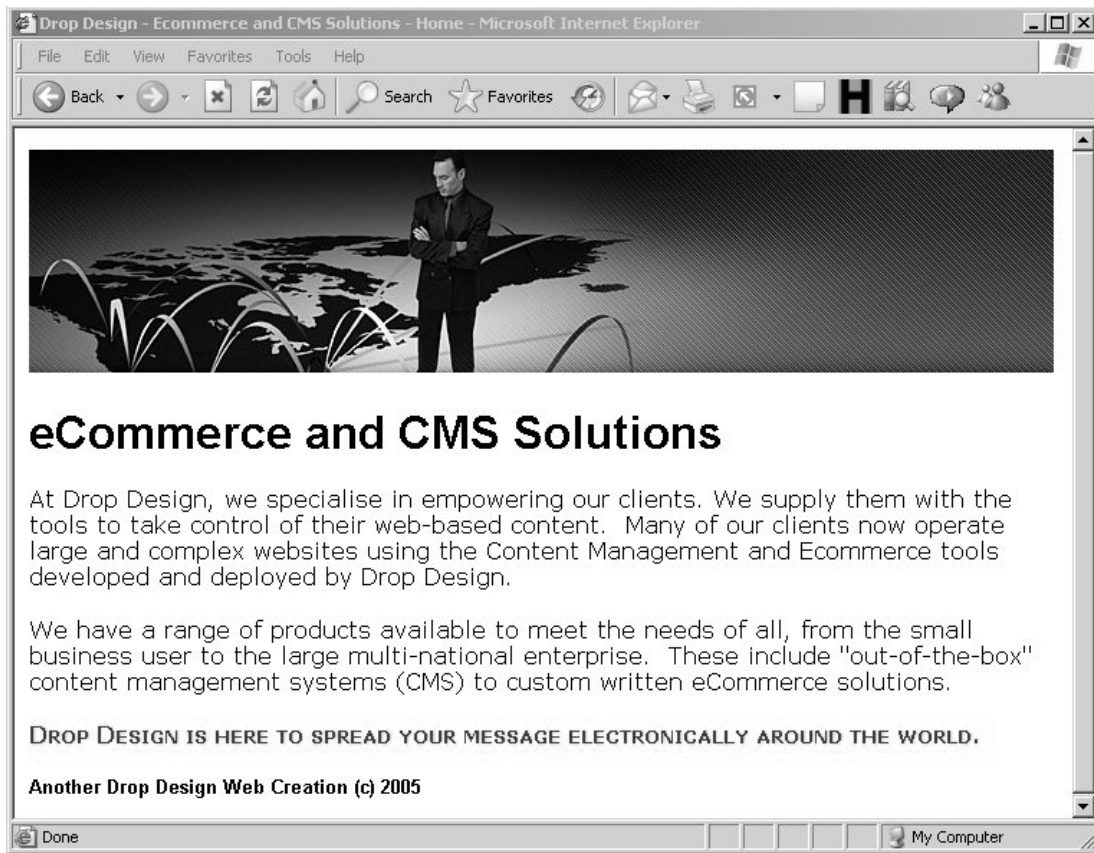
The HTML code used to produce this page is shown below.

1. <HTML>
2. <HEAD>
3. <TITLE>Drop Design - Ecommerce and CMS Solutions - Home</TITLE>
4. <META content="At Drop Design, we specialise in empowering our clients. We supply them with the tools to take control of their web-based content." name=description>
5. <META content="Drop Design, CMS, Database, Consultancy, Internet, Web, ecommerce, PHP, SQL, MySQL." name=keywords>
6. <META content="MSHTML 6.00.2900.2873" name=GENERATOR>
7. <META http-equiv="Content-Type" content="text/html; charset=iso-8859-1">
8. <link href="style.css" rel="stylesheet" type="text/css">
9. </HEAD>
10. <BODY>
11. <DIV>
12. <img src="logo1.jpg" width="713" height="155">
13. <h1>eCommerce and CMS Solutions</h1>
14. </DIV>
15. <DIV class="style2">
16. <p>At Drop Design, we specialise in empowering our clients. We supply them with the tools to take control of their web-based content.&nbsp; Many of our clients now operate large and complex websites using the Content Management and Ecommerce tools developed and deployed by Drop Design. </p>

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Part C – The Internet (Continued)

33. **(continued)**

```
17.  <p>We have a range of products available to meet the needs of all, from the small business
         user to the large multi-national enterprise.  These include "out-of-the-box" content
         management systems (CMS) to custom written eCommerce solutions.    </p>
18.  </DIV>
19.  <DIV class="slogan">
20.  <p>Drop Design is here to spread your message electronically around the world. </p>
21.  </DIV>
22.  <DIV>
23.  <h5 class="style1">Another Drop Design Web Creation (c) 2005</h5>
24.  </DIV>
25.  </BODY></HTML>
```

The cascading style sheet attached to this page is shown below.

```
1.   h1 {font-family: Arial, Helvetica, sans-serif}
2.   .style1 {
3.          font-family: Verdana, Arial, Helvetica, sans-serif;
4.          font-size: 10px;
5.          font-weight: bold;
6.   }
7.   .style2 {font-family: Verdana, Arial, Helvetica, sans-serif}
8.   .slogan {
9.          font-family: Verdana, Arial, Helvetica, sans-serif, ;
10.         font-size: 16px;
11.         font-weight: bold;
12.         font-variant: small-caps;
13.         color: #FF0000;
14. }
```

(a) This HTML document makes use of a cascading style sheet (CSS). Give **two** advantages, for a web site design company, of using CSS.   **2**

(b) The text "eCommerce and CMS Solutions" should be shown in "Times" font. How would you change the above files to ensure the text is shown in the correct font?   **1**

(c) The HTML code above uses the DIV tag. Give **two** reasons why the DIV tag has been used.   **2**

(d) The HTML code includes META tags.

  (i) What is the purpose of META tags?   **1**

  (ii) Select **two** META tags from those given in lines 4-7 in the HTML above. Describe the purpose of each of your selected tags.   **2**

(e) Line 12 should contain the HTML code to allow users to click on the image to navigate to the URL http://www.dropdesign.co.uk. Write the code which will allow users to click on the image (Line 12) to navigate to this URL.   **4**

[Turn over

Part C – The Internet (Continued)

33.   **(continued)**

(f)   Line 13 contains the tag <H1> and Line 23 the tag <H5>. What is difference between these
           two tags?   **1**

34.   The Internet is a global network and is dependent on a number of international agreements and a
           number of organisations for its development and operation.

(a)   Describe the role of each of the following Internet regulatory organisations.

           (i)   The Internet Engineering Task Force (IETF)   **1**

           (ii)   The World Wide Web Consortium (W3C)   **1**

(b)   The Internet makes uses of a number of Domain Name registrars. What does a Domain Name
           registrar do and why is this important.   **2**

(c)   Why are International agreements required to allow the successful operation of the Internet?   **1**

(d)   From your knowledge of the characteristics of site design explain **each** of the following terms
           using a suitable example.

           (i)   browser compatibility issues
           (ii)   download efficiency
           (iii) uniformity of presentation   **3**

[*END OF PART C – THE INTERNET*]   **(50)**

[*END OF SECTION III*]

[*END OF QUESTION PAPER*]

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