**Unit 2: Information Systems Design and Development**

**Homework Sheets**

**Sheet 1 Data types and design**

Do SCHOLAR

Unit 2: Information Systems

Design and Development

Topic 1Structures and links (Databases)

|  |  |
| --- | --- |
| **Q1 Data types and structures** |  |
| Explain what is meant by the data type, *real*. | **2** |
| **Q2 Data types and structures** |  |
| State the most appropriate data type for the following descriptions:   * 1. (*a*) the position of a switch (on or off);   2. (*b*) photograph image (not embedded);   3. (*c*) the number of people at a meeting. | **1**  **1**  **1** |
| **Q3 Design notation** |  |
| A tool rental company keeps records of tools, rentals and customers in a relational database. The database contains the following tables.  SUPPLIER (Suppliername, Address1, Address2)  RENTAL (CustomerID\*, ToolID\*, Date, Insurance)  CUSTOMER (CustomerID, Forename, Surname, Address1, Address2, Telephoneno)  TOOL (ToolID, Type, Price, Suppliername\*)  (*a*) Draw an E-R diagram to represent the structure of this database. | **6** |

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| **Q4 Design notation** |  |
| The owners of holiday properties in the Laguna Lake apartment complex rent their apartments to holidaymakers throughout the year.  Owners may own a number of apartments  Holidaymakers may make several bookings in a year  A relational database has been set up to record these bookings. The entities and attributes are as follows:  OWNER (OwnerID, OwnerName, OwnerAddress1, OwnerAddress2)  BOOKING (CustomerID\*, ApartmentNo\*, Date, NumberOfNights)  CUSTOMER (CustomerID, Forename, Surname, Address1, Address2, TelephoneNo)  APARTMENT (ApartmentNo, Bedrooms, Floor, Price, OwnerID\*)  (*a*) Draw an *entity-relationship diagram* to represent this data model. | **6** |

**Total marks 17**

**Sheet 2 Structures and Links (databases)**

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Unit 2: Information Systems

Design and Development

Topic 1Structures and links (Databases)

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| **Q1 Design notation** |  |
| Carter’s Carriage is a transport company which operates a fleet of vans carrying goods between 25 depots throughout the country. Every trip follows one of a number of set routes between an origin depot and a destination depot. Refuelling, if necessary on longer routes, is only permitted at a particular town on the route.  A relational database has been created to help the company. The structure of the data model is as follows:   |  |  |  |  | | --- | --- | --- | --- | | **Driver** | **Trip** | **Van** | **Route** | | Driver number | Driver number\* | Registration number | Route number | | Driver name | Registration number\* | Capacity | Origin Destination | | Mobile number | Date Route number\* |  | Refuel town | |  |
| Draw an *entity relationship* diagram to represent this data model. | **6** |

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| **Q3 Structures and links (database)** |  |
| The Scottish Tennis Association stores details about players and clubs in a single table. Below is a record from this table.   |  |  | | --- | --- | | Name | Paul Notman | | Rating | 6·2 | | Tennis club | Strathmore | | Club secretary | Marta Barowska | | Club address | 67 Greenfield Street, Falkirk | | Club telephone | 01789 786532 | |  |
| Describe **one** data modification problem with this database design. | **2** |

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| --- | --- |
| **Q4 Structures and links (database)** |  |
| Kwik Kut is a salon which employs a number of stylists. Each stylist has a number of regular customers. The sample below shows an entry in the database.   |  |  | | --- | --- | | **Stylist** | Michelle | | **Appointment Date** | 23/06/11 | | **Appointment Time** | 11.30 | | **Customer Name** | Claire Morrison | | **Customer Phone Number** | 01554 765643 |   Michelle has decided to leave the salon. Describe **one** problem that could be encountered when Michelle leaves and all her records are removed. | **2** |

**Total marks 10**

**Sheet 3 Structures and Links (web-based)**

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Unit 2: Information Systems

Design and Development

Topic 2 Structures and links (web-based)

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| **Q1 Structures and links (web-based)** | |  |
| Waggy Breaks is a small business set up to offer top quality dog boarding facilities while owners are away on holiday. The facility offers luxury heated kennels and acres of securely fenced fields for dog exercise. The business wishes to create a website advertising the facilities on offer.  Waggy Breaks approaches a multimedia developer to help with this project.  Four pages from the newly developed website are shown below. | |  |
|  |  |  |
|  |  |  |
| (a) Draw a graphical representation of the navigational structure of the pages shown above. | | **3** |
| (b) It is important that Waggy Breaks considers copyright legislation in order to protect the content of their new website.  Describe how copyright applies to dog owners and to Waggy Breaks. | | **4** |

|  |  |
| --- | --- |
| **Q2 Structures and links (web-based)** |  |
| Supasonic Electronics is developing a website to sell audio-visual electronics online. Part of one of the pages being developed is shown below together with the HTML code used to produce it. |  |
| (*a*) State suitable entries for each of the missing values labeled A to G. | **7** |
|  |  |

|  |  |
| --- | --- |
| (*b*) Part of the HTML code for the homepage is as follows:  26. Supasonic Electronics   27. now selling direct to you <br/>   28. at incredible prices which will amaze everyone.  29. <p>Full money-back guarantee.</p>  Sketch the output which would be produced by this code. | **3** |
| **Q3 Structures and links (web-based)** |  |
| The screenshot below shows part of a website which has mobile phones for sale. |  |
|  |  |
| Give **one** reason why the web page in the screenshot on *Page twenty* could be described as a *dynamic* web page. | **2** |

**Total marks 19**

**Sheet 4 Structures and Links (web-based)**

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Unit 2: Information Systems

Design and Development

Topic 2 Structures and links (Web-based)

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| **Q1 Structures and links (web-based)** |  |
| Northbank Supply Agency is developing a website. An extract from a test page is shown below |  |
|  |  |
| Part of the HTML code for the test page is shown here. |  |
| 1 <head>  2  3 <style>  4 h5 {text-align:center>  5 </style>  6  7  8 <h1>Northbank Supply Agency</h1>  9 <div align=center>  10 Pool Attendant/Lifeguard  11 <W>Leisure Assistant/Gym Instructor/Personal Trainer</W>  12 </div>  13 <X> We can supply the above staff for  14 <span> style="font-size:24px">ANY</span>  15 Sports facility within 50 KM of Northbank</X>  16 </body> |  |
| (a) The HTML tags <p> and <br> are used to format lines of text. These tags have been replaced in the above code by the letters **W** and **X**.  State which tags have been replaced by each of the letters **W** and **X**. Justify  your answer. | **4** |

|  |  |
| --- | --- |
| (*b*) Write the missing HTML code for  (i) line 2;  (ii) line 6;  (iii) line 7. | **3** |
| **Q2 Structures and links (web-based)** |  |
| Deeper Blue Sea is a company selling diving equipment. Part of a page from the company’s website is shown below. |  |
|  |  |

|  |  |
| --- | --- |
| Part of the HTML code used to produce this page is shown below.  (*a*) State suitable entries for each of the missing values labelled A to D. | **4** |
|  |  |
| (*b*) Write the *cascading style sheet* code for lines 3 to 5 which causes the text “Click for larger image” in line 10 to be displayed in 9 point. | **4** |

**Total marks 15**

**Sheet 5 Coding, Testing and Security**

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Unit 2: Information Systems

Design and Development

Topic 4 Coding

Topic 5 Testing

Topic 12 Security precautions

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| **Q1 Coding** |  |
| Games Review is a website on which fans may post their comments regarding their team’s performance in recent matches. Access is by annual subscription of £10.  A sample page from the website is shown below. |  |
|  |  |
| In order to subscribe to this website, users have to complete an on-screen form. Describe **two** advantages of using client-side scripting for validating the form. | **2** |

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| --- | --- |
| **Q2 Testing** |  |
| The final stages in the development of any multimedia product are *testing*, *documentation* and *evaluation*. |  |
| Name and describe how *beta testing* that should be carried out on a multimedia product. | **4** |
| **Q3 Security precautions** |  |
| A multinational company holds confidential personal data about its customers. |  |
| The company’s security strategy requires employees to use passwords. |  |
| Apart from passwords, describe **two** data security measures that the company should introduce as part of a security strategy. | **4** |

**Total marks 10**

**Sheet 6 Legal Implications**

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Unit 2: Information Systems

Design and Development

Topic 13 Legal Implications

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| **Q1 Legal Implications** |  |
| Mr Kai finds a wallet in the corridor at work. There is no identification in the wallet but there is a card with the following information: Username: JHans982 Password: 12345  Mr Kai decides to log on to a computer at work using these details in order to find out the owner of the wallet.  Comment on the ethics of Mr Kai using ICT for this purpose. | **2** |
| **Q2 Legal Implications** |  |
| The Computer Misuse Act is an example of current legislation that applies to information systems. This Act criminalises unauthorised access to, and modification of, computer files.  Name and describe the purpose of **three** other examples of current legislation that apply to information systems. | **6** |
| **Q3 Legal Implications** |  |
| State **two** reasons why there is a need for policing of the Internet. | **2** |
| **Q4 Legal Implications** |  |
| Describe one aspect of the Regulation of Investigatory Powers Act (2000). | **2** |
| **Q5 Legal Implications** |  |
| State two requirements of the Data Protection Act 1998**.** | **2** |
| **Q6 Legal Implications** |  |
| Total Action has just developed a game called “Zombeez” and is creating a new website for this game.  A games designer gains unauthorised access to the new website from a computer in New York, USA. Describe how the UK police would deal with this international incident. | **3** |

**Total marks 17**

**Sheet 7 Economic and Social impact**

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Unit 2: Information Systems

Design and Development

Topic 15 Economic and social impact

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| **Q1 Economic and social impact** |  |
| Describe **one** possible ethical implication of policing the Internet. | **2** |

|  |  |
| --- | --- |
| **Q2 Economic and social impact** |  |
| BestPals is a social networking website. Members can post comments and images on their own pages and on their friends’ pages. |  |
| Members of BestPals can also send private messages to their friends.  Under three separate headings of *social*, *legal* and *ethical*, comment on the implications of using private messaging. | **6** |

**Total marks 8**