# 2011 Information Systems

# Advanced Higher

# Finalised Marking Instructions

**Question 1**

| Type & Source | Part | Marking Instructions |
|---|---|---|
| KU DBAD 2.1 | (a) (i) | For example:<br>• Estimated cost of developing new system<br>• List of benefits that will be gained from the new system<br>• Cost-benefit analysis carried out<br>Other answers possible<br>**Award 1 mark each for any relevant factor. Max 1 mark.** |
| KU DBAD 2.1 | (a) (ii) | For example:<br>• issues associated with Data Protection Act<br>• issues associated with Computer Misuse Act<br>• issues associated with Copyright Design and Patents Act<br>Other answers possible<br>**Award 1 mark each for description any one relevant factor. Max 1 mark.** |
| KU DBAD 2.3 | (b) | Current system could be **observed**. This would enable the analyst to see the system in operation for himself – any details that were over looked by users of the system would be apparent to the analyst.<br>Analyst could **sample documents** to see the types of data and data items that need to be stored within the system.<br>**Award 1 mark for accurate description of each technique. Max 2 marks.** |
| KU DBIT 4.1 | (c) | System specification contains details of input, processes and outputs and therefore outlines everything that the system should do. During testing, the system specification is used as a checklist to make sure that nothing has been missed out and that the system is correct/fit for purpose.<br>**Award 1 mark for details contained in system specification; award 1 mark for description of how it is used during testing. Max 2 marks.** |
| KU DBIT 4.1 | (d) | User guide provides instructions on how to use each feature of the system. It is written in straightforward vocabulary and has lots of screen shots to show screen layouts.<br>**Award 1 mark for description of purpose of user guide; award 1 mark for description of contents. Max 2 marks.** |
| KU DBIT 3.2 | (e) | Parallel – paper-based system is low cost and parallel conversion would ensure that there is a backup system if faults are discovered in the new system.<br>Direct – paper-based system is likely to be very time consuming and prone to human error so many benefits to be gained by switching straight to the new system as soon as it is available.<br>Pilot – new system set up in one department. Feedback from those users is taken into account before the system is installed throughout the company.<br>**Award 1 mark for suitable reason. No marks should be awarded for method without supporting reason. Max 2 marks.** |
| KU DBIT 4.2 | (f) | For example:<br>• Use made of user-friendly forms and menus<br>• Consistent layout of forms and screens<br>• Well written user guide<br>• Availability of online help and online tutorial facilities<br>Other answers are possible but must be described appropriately.<br>**Award 1 mark each for any 2 acceptable features. Max 2 marks.** |

**Question 2**

| Type & Source | Part | Marking Instructions |
|---|---|---|
| KU DBAD 2.2 | (a) | The project plan gives details of duration of tasks and task deadlines. Progress can be monitored by checking that tasks are being completed on time and if they aren't, adjustments can be made to the plan to ensure that the delivery date is met.<br>**Award 1 mark for use made of task duration/deadlines; award 1 mark for need for adjustments to plan. Max 2 marks.** |
| KU DBIT 3.1 | (b) | For example<br>• backup procedures<br>• Security aspects of the system<br>• Levels of user access to the system<br>Other answers possible<br>**Award 1 mark for any valid answer.** |
| KU DBIT 3.1 | (c) | For example:<br>• Table used to store car details<br>• Form used to enter details of sale<br>• Script used to automatically activate a query<br>Many other suggestions are possible.<br>**Award 1 mark for suitable example of each. Max 3 marks.** |
| KU DBIT 2.1 | (d) | Systems testing should be carried out before acceptance testing.<br>Systems testing is carried out in-house to ensure that the finished system matches the system specification.<br>Acceptance testing is carried out by the client to ensure that the finished system matches their requirements.<br>**Award 1 mark for correct sequence; award 1 mark for accurate description of systems testing; award 1mark for accurate description of acceptance testing. Max 3 marks.** |

**Question 3**

<table>
<tr><th>Type & Source</th><th>Part</th><th>Marking Instructions</th></tr>
<tr><td>KU<br>DBAD<br>2.4</td><td>(a)</td><td>organisation procedures (accept also ‘operational procedures’ or ‘business rule’)<br><br>Award 1 mark. Max 1 mark.</td></tr>
<tr><td>PS<br>DBAD<br>3.3.1</td><td>(b)</td><td>
<table>
<tr><td></td><td>Artist</td><td>Song</td><td>Programme</td><td>Playlist</td></tr>
<tr><td>Receive playlist</td><td></td><td>M</td><td></td><td>R</td></tr>
<tr><td>Produce report</td><td>R</td><td>R</td><td></td><td>R</td></tr>
</table>
Award 1 mark for each correct row. Max 2 marks.<br>Note: R to indicate read activity in Artist, Song and Playlist entities is required for Produce report' event. If read activity is indicated in Programme entity, this can be ignored.</td></tr>
</table>

**Question 4**

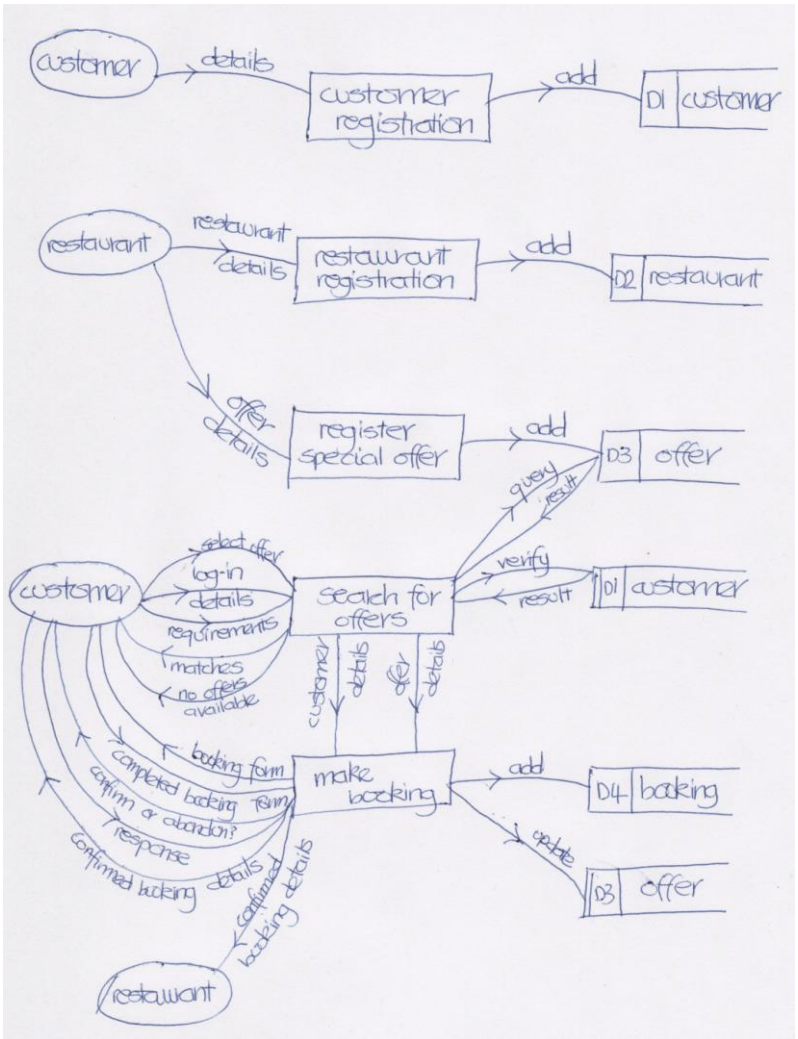
| Type & Source | Part | Marking Instructions |
|---|---|---|
| PS DBAD 3.1 | (a) | **See correct solution below. Max 12 marks to be awarded as indicated.** |

| **UNF** | **1NF** | **2NF** | **3NF** |
|---|---|---|---|
| StaffID<br>StaffName<br>StaffContactNumber<br>StaffStatus<br>StaffNINumber<br>AppointmentDate<br>AppointmentTime<br>TreatmentID<br>TreatmentDescription<br>TreatmentCost<br>CustomerID<br>CustomerName<br>CustomerContactNumber<br><br>**Award 1 mark for correct repeating group. Max 1 mark.** | StaffID<br>StaffName<br>StaffContactNumber<br>StaffStatus<br>StaffNINumber<br><br>* StaffID<br>AppointmentDate<br>AppointmentTime<br>TreatmentID<br>TreatmentDescription<br>TreatmentCost<br>CustomerID<br>CustomerName<br>CustomerContactNumber<br><br>**Award max 2 marks for correctly removing repeating group by forming two new entities with correct attributes in each; award 1 mark for correct PK in appointment entity; award 1 mark for correct FK. Max 4 marks.** | StaffID<br>StaffName<br>StaffContactNumber<br>StaffStatus<br>StaffNINumber<br><br>* StaffID<br>AppointmentDate<br>AppointmentTime<br>TreatmentID<br>TreatmentDescription<br>TreatmentCost<br>CustomerID<br>CustomerName<br>CustomerContactNumber<br><br>**Award 2 marks for no change from 1NF.** | StaffID<br>StaffName<br>StaffContactNumber<br>StaffStatus<br>StaffNINumber<br><br>* StaffID<br>AppointmentDate<br>AppointmentTime<br>* TreatmentID<br>* CustomerID<br><br>TreatmentID<br>TreatmentDescription<br>TreatmentCost<br><br>CustomerID<br>CustomerName<br>CustomerContactNumber<br><br>**Award max 3 marks for correctly removing transitive dependencies by forming three new entities with correct attributes in each; award 1 mark for correct PK in treatment and customer entities; award 1 mark for correct FKs in appointment entity. Max 5 marks.** |

| | | |
|---|---|---|
| PS DBIT 3.1 | (b) | Possible solutions:<br>• A query could be created using the entities customer, treatment and appointment (**award 1 mark**) and a calculated field or similar using the attribute cost to generate total cost by SUMming individual treatment costs (**award 1 mark**)<br>• Accept also form solution<br>• Accept also report solution<br>• Accept also a solution that indicates the processes that are required – gathering required data items, totalling the treatment costs and printing the receipt. **Award 1 mark each for any 2 of these processes.**<br><br>**Description required in each case. Marks awarded as indicated. Max 2 marks.** |

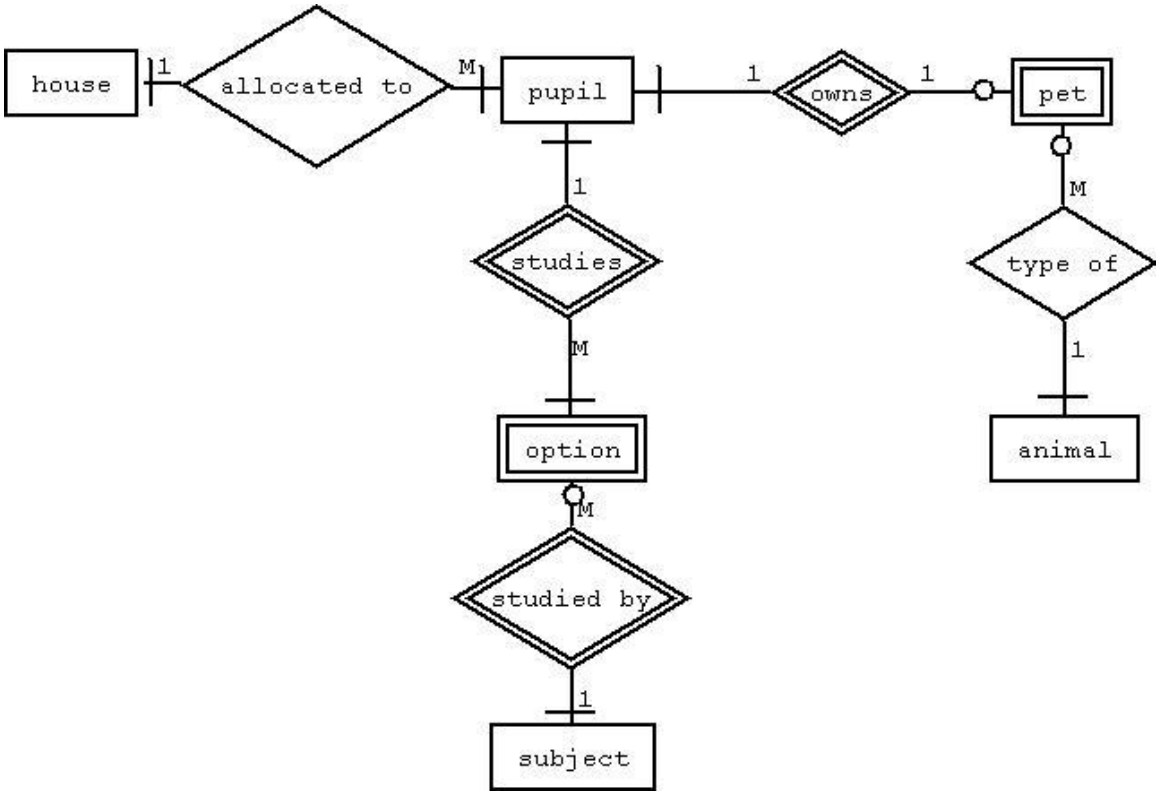
**Question 5**

| Type & Source | Part | Marking Instructions |
|---|---|---|
| PS DBAD 3.4 | | Correct DFD with 23 required data flows is shown below.<br><br>**Max 11 marks should be awarded as follows:**<br>**All 23 data flows correctly indicated – award 11 marks**<br>**21/22 data flows correctly indicated – award 10 marks**<br>**19/20 data flows correctly indicated – award 9 marks**<br>**17/18 data flows correctly indicated – award 8 marks**<br>**15/16 data flows correctly indicated – award 7 marks**<br>**13/14 data flows correctly indicated – award 6 marks**<br>**11/12 data flows correctly indicated – award 5 marks**<br>**9/10 data flows correctly indicated – award 4 marks**<br>**7/8 data flows correctly indicated – award 3 marks**<br>**5/6 data flows correctly indicated – award 2 marks**<br>**3/4 data flows correctly indicated – award 1 mark**<br>**0/1/2 data flows correctly indicated – award 0 marks** |



**Question 6**

| Type & Source | Part | Marking Instructions |
|---|---|---|
| PS DBAD 3.2.1 | | See correct solution below.<br><br>**Award max 11 marks as follows:**<br>• **ERD – all 4 relationships between correct entities: award 1 mark each; max 4 marks**<br>• **Resolve M:N relationship into two 1:M relationships: award 1 mark; both relationships weak: award 1 mark; max 2 marks**<br>• **Identify pet entity and <u>only</u> owns relationship as weak: award 1 mark each; max 2 marks**<br>• **Cardinality all correct: award 1 mark**<br>• **Mandatory relationship all correct: award 1 mark**<br>• **Optional relationships all correct: award 1mark** |



**Question 7**

| Type & Source | Part | Marking Instructions |
|---|---|---|
| KU<br>ISI<br>1.1 | (a) (i) | • Pressure from users disappointed with access through different browsers – user expectations.<br>• Pressure from users with disabilities – disability legislation.<br>• Increased wish of users to be online at all times in different locations.<br>• Other answers possible<br>**Award 1 marks each for description of any one valid factor. Max 1 mark.** |
| KU<br>DBIT<br>4.3 | (a) (ii) | **Either**<br>Adaptive maintenance is necessary when the environment, in which the program runs, changes. In this case the hardware/operating systems have changed as more people use mobile devices.<br>**Or**<br>Perfective maintenance occurs in response to requests from the user to enhance the performance of the program. In this case mobile users have asked for a separate set of web pages for mobile devices.<br>**1 mark for explaining the meaning of the term adaptive maintenance or perfective maintenance and 1 mark for stating how it applies in this case. Max 2 marks** |
| KU<br>ISI<br>4.4.1 | (b) | A survey is completed during a one-to-one interview with the user. The researcher asks the questions and fills in the user's responses. This can either be done in a face-to-face interview or by phone.<br>**Award 2 marks for description. Max 2 marks.** |
| PS<br>ISI<br>2.2.1 | (c)<br>(i) (ii) | • Building intelligence into the website that will recognise when users are browsing with a mobile phone and automatically optimise the content and the way it is presented to them. This will save the difficulty of having to keeping two websites in synch.<br>• The introduction of an avatar to help beginners move around the site and use its features may encourage them to make more purchases.<br>• The site could build up a picture of the user's taste in sports goods over time and may recommend items it thinks the user might like. This may increase sales by bringing new goods to the user's attention.<br>• Other answers possible<br>**Award 1 mark for the description of one way an agent-based interface could be used; award 1 mark for evaluating its usefulness. Max 2 marks.** |
| KU<br>ISI<br>4.2.2 | (d) (i) | Speed of task performance<br>**Max 1 mark** |
| KU<br>ISI<br>4.2.4 | (d) (ii) | User retention of commands over time<br>**Max 1 mark** |
| KU<br>ISI<br>4.3.5 | (e) | For example:<br>The websites are designed to be useable by as wide a range of people as possible including those:<br>• who cannot see the screen content or hear audio clips<br>• who cannot read or understand printed text<br>• with physical disabilities that prevent them using their hands<br>• with slow Internet access<br>• with text-only or small screens or using mobile devices<br>• other answers possible<br>**Award 1 mark for explanation that identifies one category of user targeted by web accessibility guidelines. Max 1 mark.** |

**Question 7 continued**

<table>
<tr><th>Type & Source</th><th>Part</th><th>Marking Instructions</th></tr>
<tr><td>PS<br>DBAD<br>4.1.3</td><td>(f) (i)</td><td>
<pre>If device type is 'mobile' then send home page for mobile devices</pre>
(Accept also solution using Else statement)<br>
Award 1 mark for correct use of Else/If; award 1 mark for correct statement. Max 2 marks.
</td></tr>
<tr><td>PS<br>DBAD<br>4.1.3</td><td>(f) (ii)</td><td>
Password is not checked.<br>
Award 1 mark.
</td></tr>
<tr><td>PS<br>DBAD<br>4.1.3</td><td>(f) (iii)</td><td>
<pre>Else
   Display no store in town message</pre>
(Accept also solution using separate If statement)<br>
Award 1 mark for correct use of Else/If; award 1 mark for correct statement. Max 2 marks.
</td></tr>
<tr><td>KU<br>DBIT<br>4.1.3</td><td>(f) (iv)</td><td>
For example:
<ul><li>Structure diagram</li></ul>
Award 1 mark for valid graphical design notation. Max 1 mark.
</td></tr>
<tr><td>PS<br>DBIT<br>2.2</td><td>(g)</td><td>
Correct answers:
<table>
<tr><th>Set</th><th>Type</th><th>Accepted?</th></tr>
<tr><td>1</td><td>Extreme</td><td>Y</td></tr>
<tr><td>2</td><td>Normal</td><td>Y</td></tr>
<tr><td>3</td><td>Exceptional</td><td>N</td></tr>
</table>
Award 1 mark for each set of test data values with correct type and Y/N in accepted column. Max 3 marks.
</td></tr>
</table>

**Question 8**

| Type & Source | Part | Marking Instructions |
|---|---|---|
| KU<br>ISI<br>1.1 | (a) | Many possible. For example:<br>• RAM now available at reduced cost. Large amounts of RAM are needed to store operating system needed to control GUI.<br>• Improved resolution of monitors. High resolution is needed to display icons and multiple windows that are essential components of GUI.<br>• Development of graphics cards. Display of GUI and high speed refreshing of display necessary.<br>• Improved speed/power of CPUs. Necessary to ensure fast response to user interactions and instructions.<br>**Award 1 mark each for any two technological factors with appropriate description of their contribution to development of GUIs. Max 2 marks.** |
| PS<br>ISI<br>2.2.2 | (b) (i) | Speech Driven Software or Command and Control (do not accept both)<br>Natural Language Querying<br>**Award 1 mark for each correctly identified form of NLI. Max 2 marks.** |
| PS<br>ISI<br>4.3.1 | (b) (ii) | Many possibilities. Accept any two plausible heuristics/ rules. Examples:<br>• There should be no "dead-ends" – users should always have an exit<br>• Are standards being followed<br>• Is it consistent (vocabulary, icons etc)?<br>• Are different levels of user catered for?<br>• Is help provided? Is it clear?<br>• Is there feedback to the user? (e.g. confirmation messages for spoken commands)<br>**Award 1 mark each for any two plausible heuristics. Max 2 marks.** |
| PS<br>ISI<br>2.2.1 | (c) | Adaptive (menus)<br>**Award 1 mark. Max 1 mark.** |

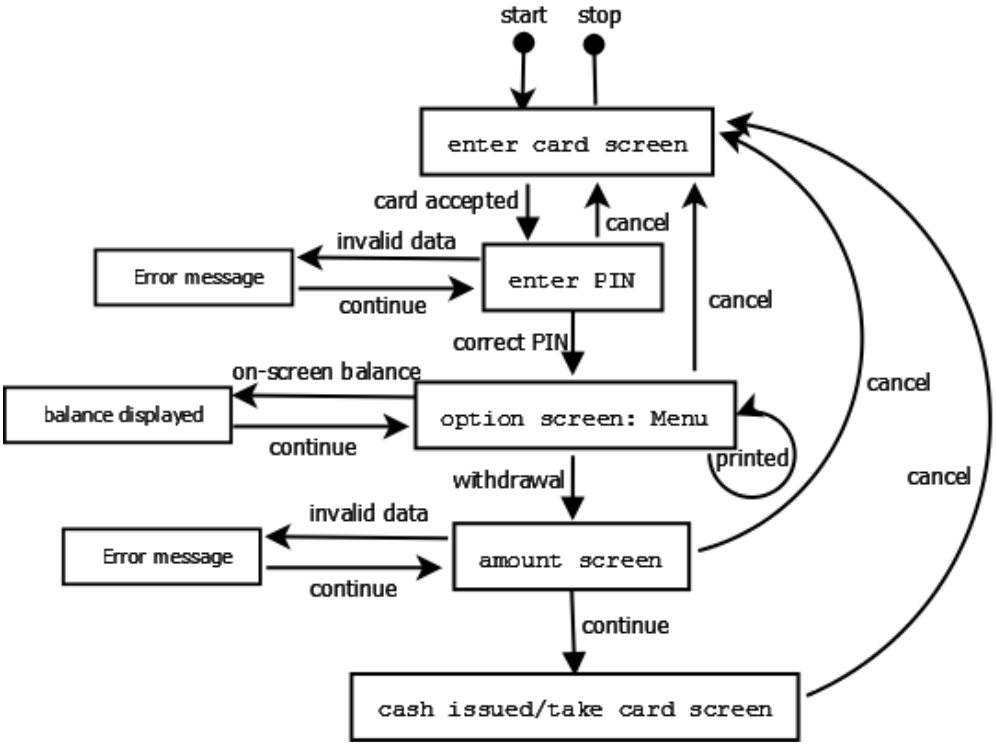
**Question 9**

| Type & Source | Part | Marking Instructions |
|---|---|---|
| KU<br>ISI<br>1.2<br>1.3 | (a) (i) | Multimodal since device is both graphical and sensory.<br>Graphical – Operating system has a graphical interface<br>Sensory – touch screen provided<br>**Award 1 mark for multimodal; award 1 mark for justification that refers to feature list provided. Max 2 marks.** |
| PS<br>ISI<br>1.2 | (a) (ii) | Input – QWERTY keyboard<br>– microphone<br>– touch pad<br>– touch screen<br>– digital camera<br>Output – high resolution screen<br>– speakers<br>**Award 1 mark for correct methods of input; award 1mark for correct methods of output. Max 2 marks.** |
| KU<br>ISI<br>3.1<br>3.6 | (b) (i) | Design foundation stage is when key screens are designed and users are asked to provide feedback on their usability. RAD tools are used to produce high fidelity prototypes that are used during usability testing of the interface design. These enable users to interact with prototype of key screens and give feedback on suitability of the interface in terms of consistency of screen layouts, colour scheme, and controls used. Use of RAD tools allows rapid updating and editing of screens to take account of user feedback.<br>**Award 1 mark for development of prototype; award 1 mark for relating to design foundation. Max 2 marks.** |
| KU<br>ISI<br>3.1<br>4.4.4 | (b) (ii) | Release is concerned with rollout of the system and the collection of information about the success of the rollout to help designers know what worked well and what needs to be changed or improved in a future product. Self-reporting logs would be suitable techniques for this purpose. Users of the system would record problems and concerns in a log book and make this available to the developers.<br>**Award 1 mark for use of self-reporting logs; award 1mark for accurate description of purpose of release stage of LUCID. Max 2 marks.** |
| PS<br>ISI<br>4.1.2<br>4.1.3 | (c) (i) | Co-discovery – two users work together to perform tasks specified by development team. They help each other to complete the task uninterrupted as they are being observed by the developers who make notes about their progress and difficulties encountered.<br>Question-asking – single user works on his/her own to complete tasks specified by development team. A member of the team interrupts the user and asks him/her to explain his/her actions as the tasks are being performed.<br>Comparison<br>• co-discovery involves 2 users working together whereas question-asking involves only 1 user working on his/her own<br>• with co-discovery, development team observe and take notes whereas with question-asking, development team interrupt user and asks him/her to explain his/her actions<br>**Award 1 mark for comparison of who is involved; award 1 mark for comparison of role of development team. Max 2 marks.** |

**Question 9 continued**

| Type & Source | Part | Marking Instructions |
|---|---|---|
| PS<br>ISI<br>4.1.3 | (c) (ii) | Question-asking protocol<br>Hand-held device would be too small to enable two users to work collaboratively to perform the specified tasks.<br>**Award 1 mark for question-asking; award 1 mark for supporting answer. Max 2 marks.** |
| KU<br>ISI<br>4.2.5 | (d) | Subjective user satisfaction<br>**Award 1 mark.** |
| KU<br>ISI<br>4.3 | (e) (i) | IT professionals who are not part of the development team<br>**Award 1 mark.** |
| PS<br>ISI<br>4.3<br>4.3.3 | (e) (ii) | This technique alone will not provide enough information to fully evaluate the device. For example, there will be no check to ensure that the various screens of the interface have a consistent layout; there will be no check to ensure that industry standards are being adhered to; there will be no check to ensure that accessibility guidelines have been followed.<br>**Award 1 mark each for any 2 evaluative comments that refer to the incompleteness of the information provided. Max 2 marks.** |
| PS<br>DBAD<br>3.2.2 | (f) (i) | Choose one of ……<br>(Accept also a description of need to choose from list of known manufacturers)<br>**Award 1 mark for indication of need to choose one from prescribed list of available manufacturers. Max 1 mark.** |
| PS<br>DBAD<br>3.2.2 | (f) (ii) | ownerID<br>Type/size = Text(18)<br>Validation = existing ownerID or Lookup in owner entity<br><br>vehicleReg<br>Type/Size = Text(8)<br>Validation = existing vehicleReg or Lookup in vehicle entity<br>(Accept also combination of ownerID & vehicleReg is unique and not null as alternative validation)<br>**Award 1 mark both properties of for each attribute correct. Max 2 marks.** |
| PS<br>DBAD<br>3.2.2 | (f) (iii) | For example:<br><= current date<br>Other answers possible.<br>**Award 1mark. Max 1 mark.** |

**Question 10**

| Type & Source | Part | Marking Instructions |
|---|---|---|
| KU<br>ISI<br>3.4 | (a) | For example:<br>• A quick /cheap method of producing screen design<br>• A quick method of allowing the client to see possible layouts for the screens so feedback may be obtained early<br>• Other answers possible<br>**Award 1 mark for any appropriate answer that identifies benefit to client.** |
| KU<br>ISI<br>4.3.2 | (b) (i) | A clear pathway exists from screen 1 to screen 5 which allows the user to check that the interfaces and responses are fit for purpose.<br>**Award 1 mark for accurate explanation that refers to screens.** |
| PS<br>ISI<br>3.5 | (b) (ii) |  <br>**Award max 10 marks as follows:**<br>**Complete diagram [8 states, 15 transitions + start/stop] – award 10 marks.**<br>**14 transitions – award 9 marks**<br>**13 transitions – award 8 marks**<br>**12 transitions – award 7 marks**<br>**11 transitions – award 6 marks**<br>**9-10 transitions – award 5 marks**<br>**7-8 transitions – award 4 marks**<br>**5-6 transitions – award 3 marks**<br>**3-4 transitions – award 2 marks**<br>**2 transitions – award 1 mark**<br>**0/1 transitions – award 0 marks** |
| KU<br>ISI<br>2.2.2 | (c) (i) | Machine translation is the use of computer software to automatically translate text or speech from one natural language to another.<br>**Award 1 mark for accurate description.** |
| KU<br>ISI<br>2.2.2 | (c) (ii) | On a basic level translation is carried out by substituting words which may lead to inaccuracies in the translation.<br>**1 mark for accurate statement.** |

**Question 11**

| Type & Source | Part | Marking Instructions |
|---|---|---|
| KU<br>DBIT<br>4.3 | (a) | **Either**<br>Adaptive maintenance is necessary when the environment, in which the program runs, changes. In this case the hardware/operating systems have changed as more people use mobile devices.<br>**Or**<br>Perfective maintenance occurs in response to requests from the user to enhance the performance of the program. In this case mobile users have asked for a separate set of web pages for mobile devices.<br>**Award 1 mark for correct type of maintenance; award 1 mark for accurate description of how the particular type of maintenance applies in this case. Max 2 marks.** |
| KU<br>ODB<br>1.1.3 | (b) | • The initial costs of hardware.<br>• The costs of scaling up hardware.<br>• The cost of employing/training staff to support the system.<br>• The problem of keeping their system secure from hackers or accidental loss.<br>**Award 1 mark each for any 2 relevant disadvantages. Max 2 marks.** |
| KU<br>ODB<br>1.1.2 | (c) | • A CRM delivers personalised and efficient marketing. A customer's complete history and details can be displayed on screen immediately when dealing with queries/complaints etc. so that customers are more likely to use the company again.<br>• It can help deal with the mechanics of sales, processing payments, invoices, receipts etc. to speed up sales and keep customers happy<br>• It keeps track of customer preferences and buying habits which can be used for suggesting other items which the customer may wish to buy.<br>• Can identify target groups for extra marketing by keeping track of all sales and doing analysis on them.<br>• Other answers possible<br>**Award 1 mark each for any 2 features of CRM that can be used to increase sales; award 1 mark each for relevance of those features to WebSport. Max 4 marks.** |
| PS<br>DBAD<br>4.1.3 | (d) (i) | `If device type is 'mobile' then send home page for mobile devices`<br>(Accept also solution using Else statement)<br>**Award 1 mark for correct use of Else/If; award 1 mark for correct statement. Max 2 marks.** |
| PS<br>DBAD<br>4.1.3 | (d) (ii) | Password is not checked.<br>**Award 1 mark.** |
| PS<br>DBAD<br>4.1.3 | (d) (iii) | `Else`<br>`Display no store in town message`<br>(Accept also solution using separate If statement)<br>**Award 1 mark for correct use of Else/If; award 1 mark for correct statement. Max 2 marks.** |
| KU<br>DBIT<br>4.1.3 | (d) (iv) | For example:<br>• Structure diagram<br>**Award 1 mark for valid graphical design notation. Max 1 mark.** |

**Question 11 continued**

<table>
<tr><th>Type & Source</th><th>Part</th><th>Marking Instructions</th></tr>
<tr><td>PS<br>DBIT<br>2.2</td><td>(e)</td><td>Correct answers:<br>
<table>
<tr><th>Set</th><th>Type</th><th>Accepted?</th></tr>
<tr><td>1</td><td>Extreme</td><td>Y</td></tr>
<tr><td>2</td><td>Normal</td><td>Y</td></tr>
<tr><td>3</td><td>Exceptional</td><td>N</td></tr>
</table>
Award 1 mark for each set of test data values with correct type and Y/N in accepted column. Max 3 marks.</td></tr>
<tr><td>PS<br>DBIT<br>2.2</td><td>(e)</td><td>For example:<br>Normal values – 2, 3, 4, 5, 6, 7 Expected Output – values accepted<br>Extreme values – 1, 8 Expected Output – values accepted<br>Exceptional values – 0, 9, text Expected Output – error message<br>Award 1 mark for each set of test data values with reason and expected output. Max 3 marks.</td></tr>
</table>

**Question 12**

| Type & Source | Part | Marking Instructions |
|---|---|---|
| PS<br>ODB<br>1.2.3<br>1.2.4 | (a) | For example:<br>• Open-source software is likely to be more flexible, as he will have access to the source code which can be edited and customised<br>• Commercial software is less likely to be flexible as the software will be copyright and customisation will be limited to what is built-in to the software. He will not have access to the source code<br>• Ongoing support for the open-source solution will be freely available from a large community of online users who will be able to offer advice and solutions to problems. Known issues are usually quickly addressed by the community. Fixes and updates can be downloaded at no charge, and there is no time limit to the support available. This type of support is available from forums that are supported by the original developers of the software.<br>• If a commercial product is successful and widely used, ongoing support (help/advice) may be available free from a community of online users. This type of support will be provided by a variety of independent websites/forums that have no official backing from the developers of the software.<br>**Award 1 mark for any sensible observation about flexibility for open-source.**<br>**Award 1 mark for any sensible observation about flexibility for commercial.**<br>**Award 1 mark for any sensible observation about support for open-source.**<br>**Award 1 mark for any sensible observation about support for commercial.**<br>**Max 4 marks.** |
| KU<br>ODB<br>1.1.1 | (b) | For example:<br>• CMS separate content from presentation<br>• The webmaster can lock the presentation (styles / templates) while allowing the content to be changed by the users<br>**Award 1 mark for separation of content from presentation; award 1 mark for explanation of how presentation is controlled by CMS. Max 2 marks.** |
| KU<br>ODB<br>1.1.1 | (c) | For example:<br>• The CMS would allow the webmaster to create different levels of user, each with different levels of access to the system<br>• Ordinary contributors could create content for posting, but the content would not be published until it had been scrutinised by a higher category of user, who could edit it and would also have sufficient privilege to publish it to the site<br>• Other answers possible including group moderation and content rating<br>**Award 1 mark for idea of different levels of user; award 1 mark for different privileges/stages before publication. Max 2 marks.** |
| PS<br>ODB<br>4.3.2 | (d) (i) | For example:<br><INPUT type="text" name="email_address" value="Type new e-mail address here"><br>**Award 1 mark for correct type attribute; award 1 mark for appropriate name Attribute (alternative names are acceptable); 1 mark for correct value attribute. Max 3 marks.** |
| PS<br>ODB<br>2.1.1 | (d) (ii) | For example:<br>Personal details of forum members could be held on a secure database server that can only be accessed by running a server-side script. This script requires a username and password to be submitted and thus, only authorised users of the database can access member details and so members' privacy is protected.<br>**Award 1 mark for indicating need for server-side script to be executed in order to access details held on the secure database; award 1 mark for indicating access is restricted to authorized users. Max 2 marks.** |

**Question 13**

| Type & Source | Part | Marking Instructions |
|---|---|---|
| PS<br>ODB<br>4.3.1 | (a) (i) | <form method="POST" action="dvlasecuredb.php" ><br><br>Accept also:<br><form method="GET" action="dvlassecuredb.php" ><br>**Award 1 mark for method; award 1 mark for action. Max 2 marks.** |
| PS<br>ODB<br>2.1.2<br>2.1.2<br>2.1.3<br>4.1.1<br>4.1.2 | (a) (ii) | PHP solution<br>$link = mysql_connect("dvlasdb.org.uk","dav331you","cHArLiE189");<br>mysql_select_db("dvlaDB",$link);<br><br>ASP solution eg<br>Set myConnection = Server.CreateObject ("ADODB.Connection")<br>myConnection.Open "DRIVER = ----; HST=dvladb.org.uk; SDSN = dvlaDB;<br>UID=dav331you; PWD=cHArLiE189"<br><br>**Award 1 mark for correct syntax; award 1 mark for appropriate use of provided attribute values for username & password; award 1 mark for appropriate use of provided attribute values for server name & database name. Max 3 marks.** |
| PS<br>ODB<br>4.1.3 | (b) | PHP solution<br>$querytext = "SELECT reg, ownerID FROM vehicle WHERE reg = 'SC54LOL'"<br>$result = mysql_query ($querytext);<br><br>*Accept also:*<br>$result = mysql_query("SELECT reg, ownerID FROM vehicle WHERE reg = 'SC54LOL'");<br><br>ASP solution<br>querytext = ("SELECT reg, ownerID FROM vehicle WHERE reg = 'SC54LOL'"<br>myConnection.execute(querytext)<br><br>*Accept also:*<br>myConenction.execute(("SELECT reg, ownerID FROM vehicle WHERE reg = 'SC54LOL'")<br><br>**Award 1 mark for syntax; award 1 mark for use of query string. Max 2 marks.** |
| PS<br>DBAD<br>3.2.2 | (c) (i) | Choose one of ……<br>Restricted choice<br>(Accept also a description of need to choose from list of known manufacturers)<br>**Award 1 mark for indication of need to choose one from prescribed list of available manufacturers. Max 1 mark.** |

**Question 13 continued**

| Type & Source | Part | Marking Instructions |
|---|---|---|
| PS<br>DBAD<br>3.2.2 | (c) (ii) | ownerID<br>Type/size = Text(18)<br>Validation = existing ownerID or Lookup in owner entity<br><br>vehicleReg<br>Type/Size = Text(8)<br>Validation = existing vehicleReg or Lookup in vehicle entity<br>(Accept also combination of ownerID & vehicleReg is unique and not null as alternative validation)<br>**Award 1 mark both properties of for each attribute correct. Max 2 marks.** |
| PS<br>DBAD<br>3.2.2 | (c) (iii) | For example:<br><= current date<br>Other answers possible.<br>**Award 1mark. Max 1 mark.** |
| KU<br>ODB<br>2.2.2 | (d) (i) | For example:<br>• can access tools from anywhere since they are server-based – not restricted to using a particular PC<br>• since tools provide graphical interface, possible to update database content without having any knowledge of SQL<br>Other answers possible.<br>**Award 1 mark each for any 2 valid advantages. Max 2 marks.** |
| KU<br>ODB<br>1.3.1<br>1.3.2 | (d) (ii)<br>Part A | Before sending data, it must be translated into the agreed standard format so that the national organisers' software will be able to read the data.<br>When data is received, it will be in the agreed standard format and must be converted into the format that can be understood by David's software.<br>**Award 1 mark for each. Max 2 marks.** |
| KU<br>ODB<br>1.3.3 | (d) (ii)<br>Part B | For example:<br>EDI INT: uses secure Internet transmissions to exchange data. This takes advantage of recent improvements in Internet security.<br>EDI VAN: uses third party company to act as intermediary. This saves having the expense of having to set up and maintain secure server dedicated for this purpose.<br>**Award 1 mark for name of EDI communication method; award 1 mark for accurate description. Max 2 marks.** |
| PS<br>ODB<br>1.3.4 | (d) (ii)<br>Part C | For example:<br>• data includes personal details and which must be up-to-date and accurate since Data Protection Act applies<br>• since personal details are being stored, data must be held securely to protect the privacy of the data subjects<br>Other answers possible.<br>**Award 1 mark each for any 2 valid legal implications that apply in this situation. Note that the implications suggested must be related to the scenarios for the marks to be awarded. Max 2 marks.** |

**Question 14**

| Type & Source | Part | Marking Instructions |
|---|---|---|
| PS<br>ODB<br>3.2.1 | (a) (i) | `SELECT Berth, Boat`<br>`FROM Reserved`<br>`WHERE Boat Is Null;`<br><br>*Also accept:*<br>`WHERE Boat = ' '`<br>**Award 1 mark `WHERE` with correct field; award 1 mark for correct criteria. Max 2 marks.** |
| PS<br>ODB<br>3.2.2<br>3.2.3 | (a) (ii) | `SELECT Boat, Berth`<br>`FROM Reserved`<br>`WHERE Berth NOT BETWEEN 'K1' AND 'L4';`<br><br>*Also accept:*<br>`WHERE Berth NOT IN ('K1', 'K2', 'K3', 'K4', 'L1', 'L2', 'L3', 'L4');`<br>`WHERE NOT(Berth >= 'K1' AND Berth <= 'L4')`<br><br>**Depending on form of answer, award marks as follows:**<br>**Award 1 mark `NOT BETWEEN`; award 1 mark correct range with `AND`.**<br>**Award 1 mark `NOT IN`; award 1 mark for correct list of values.**<br>**Award 1 mark for `NOT`; award 1 mark for correct range with `AND`.**<br>**Max 2 marks.** |
| PS<br>ODB<br>3.2.5 | (b) (i) | The error given is that the statement `GROUP BY` should be `ORDER BY` if the data is to be sorted as shown.<br>**1 Mark for correct explanation. Max 1 mark.** |
| PS<br>ODB<br>3.2.6 | (b) (ii) | Explanation must refer to impact on the query given. For example:<br>The inner join combines the records of the two tables Owner and Repair using an equality join of `Owner.OwnerID = Repair.OwnerID`. This allows the record data set to be displayed.<br>**1 mark for accurate explanation. Max 1 mark.** |
| PS<br>ODB<br>3.2.4 | (c) | `SELECT AVG(Cost)`<br>`FROM Repair;`<br>**Award 1 mark `AVG` function; award 1 mark correct field. Max 2 marks.** |
| PS<br>ODB<br>3.2.4 | (d) | `SUM` query<br>This would add the individual repair costs ie the total of £8000 would be produced<br><br>`COUNT` query<br>This would count the number of records with an entry for the cost attribute ie count of 5 would be produced<br>**Award 1 mark each for accurate description of output produced by each query. Accept correct total and count as alternative to description in each case. Max 2 marks.** |
| KU<br>ODB<br>3.1 | (e) | DML allows a database user to insert, delete and update data in a RDBMS.<br>**1 mark for correct explanation; Max 1 mark** |

[END OF MARKING INSTRUCTIONS]