2012 Information Systems

Advanced Higher

Finalised Marking Instructions

Question 1

Type & Source	Part	Marking Instructions
DBAD 2.1 KU	(a) (i)	For example: Determines whether the project is worth going ahead by taking account of technical, economic, legal and time. **Award 1 mark**
DBAD 2.1 KU	(a) (ii)	Technical **Award 1 mark**
DBAD 2.2 KU	(b) (i)	• Resources • Costs • Personnel needed at each stage **Award 1 mark for any one correct answer.**
DBAD 2.2 KU	(b) (ii)	For example: • Earlier tasks – that must be completed before the start of the task concerned – may be incomplete at start date. As a result, task will not start on time. • Project length may be incorrect causing delay in delivery to client. Other acceptable answers possible. **Award 1 mark for any acceptable answer.**
DBAD 2.3 KU	(c) (i)	Results of the investigative include: • background information • departmental objectives • description of components in existing system – specific examples needed • organisation procedures Other answers possible **Award 1 mark for any of the above.**
DBAD 2.3 KU	(c) (ii)	For example: Document sampling requires the systems analyst to look at existing forms used by a company and use them to extract relevant information including layout, data, data types, flow of document in the business, etc. (1) **Award 1 mark for use made of existing company documents (specific examples must be provided); award 1 mark for typical data gathered from the documents. Max 2 marks.**

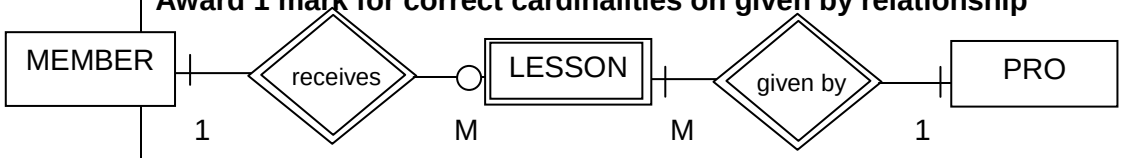
Question 2

Type & Source	Part	Marking Instructions
DBAD 2.5 KU	(a)	To gain an understanding of: • Functional requirements, Inputs/Processes/Output • Restrictions on development, Boundaries **Award 1 mark for each bulleted item. Max 2 marks.**
DBAD 4.1.2 KU	(b)	For example: The logical design defines processes and components that must be present for the system to meet its objectives; the physical design considers how the logical design can be implemented with the hardware and software available for implementation and takes account of levels of access and other security issues. **Award 1 mark for accurate description of each. Max 2 marks.**
DBAD 4.1.4 KU	(c)	Rapid Application Development (RAD) tools. - Other answers possible. **Award 1 mark.**
DBIT 4.1 KU	(d)	User Guide **Award 1 mark**
DBIT 2.3 KU	(e)	For example: Testing is planned rather than ad hoc; it follows a predefined test plan. This is to ensure that no aspect of the system is overlooked and that results of testing are recorded. **Award 1 mark for <u>planned</u> nature of testing; award 1 mark for one additional valid point. If 2 correct features stated but no explanation given, award maximum of 1 mark. Max 2 marks.**
DBIT 4.2 KU	(f)	For example: • User friendliness is considered in order to determine how easy is it for users to access the various components of the system. • Maintainability is considered in order to determine how easy it is to make changes and updates to the system. • Match to specification/correctness is considered in order to determine whether or not the system meets its requirements. Other answers are possible. **Award 1 mark an accurate explanation of any 2 aspects considered as part of the evaluation. Max 2 marks.**

Question 3

<table>
<tr><th>Type & Source</th><th>Part</th><th>Marking Instructions</th></tr>
<tr><td>DBAD 3.3.1 PS</td><td></td><td>
<table>
<tr><td></td><td>Match Sheet</td><td>Player</td><td>Venue</td><td>Fixture</td><td>Opposition</td></tr>
<tr><td>Add new player</td><td></td><td>C</td><td></td><td></td><td></td></tr>
<tr><td>Update player details</td><td></td><td>M</td><td></td><td></td><td></td></tr>
<tr><td>Change availability</td><td>(M)</td><td>M</td><td></td><td></td><td></td></tr>
<tr><td>Player leaves</td><td></td><td>D</td><td></td><td></td><td></td></tr>
<tr><td>Make Match sheet</td><td>C</td><td>R</td><td>R</td><td>R</td><td>R</td></tr>
<tr><td>Change Match Venue</td><td>M</td><td></td><td>R</td><td></td><td></td></tr>
</table>
Award 1 mark per correct row. Max 6 marks.
Note: M for Match Sheet entity of Change availability event is not necessary for the mark to be awarded.
</td></tr>
</table>

Question 4

Type & Source	Part	Marking Instructions
DBAD 3.2.1 PS	(a)	**Award 1 mark for correct relationships between entities and correct cardinalities** **Award 1 mark for correct optionalities on receives relationship** **Award 1 mark for correct cardinalities on given by relationship**  **Max 3 marks**
DBAD 3.2.1 PS	(b)	LESSON is weak **Award 1 mark**

DBAD 4.1.3 PS	(c)	IF membership type = junior THEN
		lesson cost = £20
		ELSE
		lesson cost = £30
		END IF
		Award 1 mark for use of IF with condition; award 1 mark for ELSE and ENDIF; award 1 mark for lesson costs correctly positioned. Max 3 marks.

DBAD 4.1.3 PS	(d)	For example: A list of names and VAT inclusive costs of lessons of each club member. **Award 1 mark**

Question 5

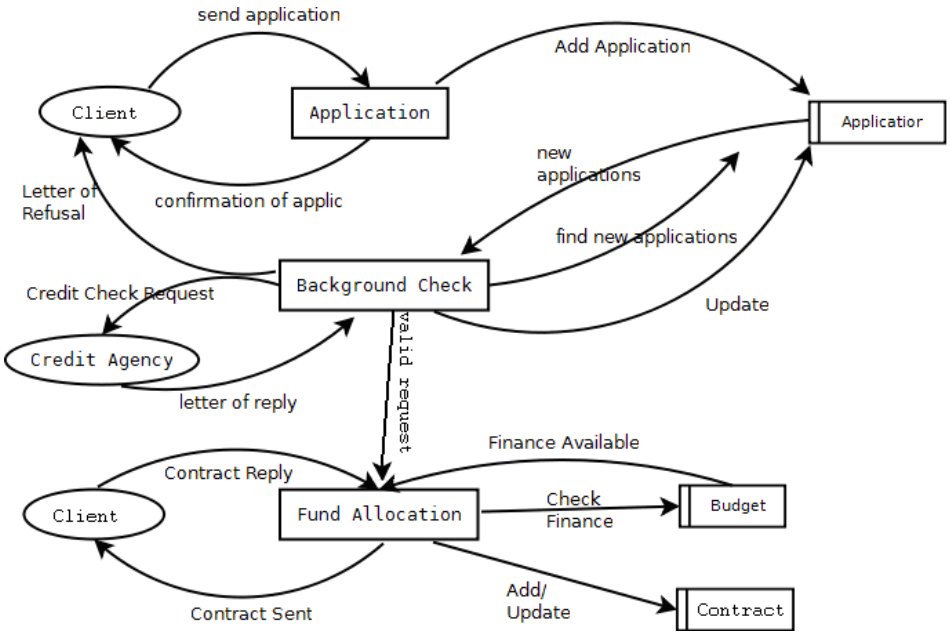
Type & Source	Part	Marking Instructions
DBIT 3.1 PS	(a)	For example: Use of a script will automate the process and avoid the need to activate the process manually. Other answers are possible. **Award 1 mark for description of any acceptable benefit of using a script for this purpose.**
DBIT 2.1 KU	(b)	Acceptance Testing: the organisers would carry out the testing to ensure that it meets their needs and requirements. The system would be installed on the organisers' computer system; they would be asked to work with the user interface, test every aspect of the system and provide feedback to the developers. **Award 1 mark for acceptance testing; award 1 mark for description that indicates who would carry out the testing; award 1 mark for description that indicates how the testing would be carried out. Max 3 marks.**
DBAD 3.2.2 DBIT 3.1 PS	(c) (i)	AthleteNo: look up ATHLETE table for existing AthleteNo EventID: lookup EVENT table for existing EventID **Award 1 mark for correct validation of each attribute. Max 2 marks.**
DBAD 3.2.2 PS	(c) (ii)	Time: must be <= 49.0 and >= 46.41 **Award 1 mark correct lower limit; award 1 mark for upper limit; award 1 mark for correct use of AND. Max 3 marks.**
DBAD 3.2.2 PS	(c) (iii)	For example: The PK of the entity is formed by combining AthleteNo, EventID and Round. All attributes that form the PK must be indexed to reduce query time. Other answers possible. **Award 1 mark for any valid reason.**
DBIT 3.2 PS	(d)	Phased conversion makes fewer demands on staff training since staff only need to be trained to use the one or two components that are being introduced in each phase of the roll-out. With a direct conversion, staff must receive training on how to use every component of the system since it will be introduced all at once. **Award 1 mark for accurate description of staff training needs for phased conversion; award 1 mark for accurate description of staff training needs for direct conversion. Max 2 marks.**

Question 6

Type & Source	Part	Marking Instructions
DBAD 3.1 PS	(a) (i)	NIN + Project Number **Award 1 mark for each attribute required to form the PK; max 2 marks** **Award max 1 mark for NIN + Project Number + company ID**
DBAD 3.1 PS	(a) (ii)	NIN, Project Number → Hours **Award 1 mark** *Candidate answer should refer or relate to their answer to part (a)(i) above*
DBAD 3.1 PS	(a) (iii)	NIN → Programmer Name **Award 1 mark** Project Number → Company ID, Company Town **Award 1 mark for each dependent attribute** **Max 2 marks** *Candidate answer should refer or relate to their answer to part (a)(i) above*
DBAD 3.1 PS	(b)	NIN * NIN Project Number Project Number * Programmer Name Company ID Hours Company Town **Award 1 mark for correct attributes in each entity and correct PK indicated; max 3 marks** **Award 1 mark for indicating correct foreign keys; max 1 mark** **Note: solutions should match dependencies identified in part (iii) above; max 4 marks to be awarded.** *Candidate answer should refer or relate to their answer to part (a)(i) above*
DBAD 3.1 PS	(c)	Company ID → Company Town **Award 1 mark** *Candidate answer should refer or relate to their previous answers*

Question 7

Type & Source	Part	Marking Instructions
DBAD 3.4 PS		Possible answer



Award marks follows:

- **Processes x 3** - **1 mark - all 3 correct; 0 marks otherwise**
- **Stores x 3** - **2 marks – all 3 correct; 1 mark any 2 correct; 0 marks otherwise**
- **External Entities x 2** - **1 mark – both correct; 0 marks otherwise**
- **Flows x 13** - **3 marks – all 13 flows correct;**
  - 2 marks – 11 to 12 flows correct;
  - 1 mark – 7 to 8 flows correct;
  - 0 marks otherwise

Max 7 marks awarded

Question 8

Type & Source	Part	Marking Instructions
ISI 2.2.2 KU	(a)	For example: System is able to understand commands spoken by user – **award 1 mark** Commands issued are used to control operation of the system – **award 1 mark** **Award max 2 marks as indicated.**
ISI 1.3 PS	(b)	Graphical mode: A graphical user interface is provided. Drivers directly manipulate graphical objects in the screen display to make selections and options. Sensory: The system also provides voice-guided navigation and therefore has auditory capabilities. Textual: The system allows drivers to enter search criteria using a keypad. Multi-modal: Since it is both graphical and sensory (or both textual and sensory), it can be considered multi-modal. **Award 1 mark for justification of sensory mode; award 1 mark for justification of graphical mode or textual; award 1 mark for justification of multi-modal. Max 3 marks.**
ISI 3.6 PS	(c)	For example: It can be used to create a visual mock-up of the photo-printing kiosks by creating drawings on paper of the screen layouts associated with different aspects of the interface. These drawings are then shown to end-users of the kiosks to gather feedback about the intended screen layouts. This feedback is used to adjust layouts so that interface design suits needs of end-users. **Award 1 mark for accurate description of paper prototyping in relation to the photo-printing kiosks; award 1 mark for accurate description of how the technique is used as part of interface design process. Max 2 marks.**
ISI 3.6 KU	(d)	This allows developers to build systems quickly, by • providing tools to allow quick creation of user interfaces which are more realistic than paper ones • allowing design and implementation to be done together • having end users involved early on **Award 1 mark each for any two valid points. Max 2 marks.**
ISI 3.4 PS	(e)	Allocation of marks is indicated below: Correct options clearly visible on each screen – **award 1 mark** Suitable method for selection of payment card (eg radio buttons, drop-down list) clearly indicated on screen 1 – **award 1 mark** Layout of screen indicates all required information (ie screen 1: position of bill indicated at top of screen and position of PIN entry indicated; screen 2: proceed / return positions indicated in layout) – **award 1 mark** **Max 3 marks.**

ISI 4.3.1 4.3.3 PS	(f)	For example: Heuristics – criteria relevant to the evaluation of a kiosk interface would be selected in advance. Since only relevant criteria will be selected, the evaluation can focus on important aspects of the kiosk and provide the developers with feedback that is useful in determining whether or not the kiosk meets the requirements of its users. Feature set – a list of essential features of the system would be produced prior to evaluation taking place. The feature set then be used as a checklist to ensure that all essential elements of the system have been included and nothing has been omitted. This type of feedback is essential to the developers. **Award 1 mark each for any 2 relevant issues raised in support of the technique selected. Max 2 marks.**

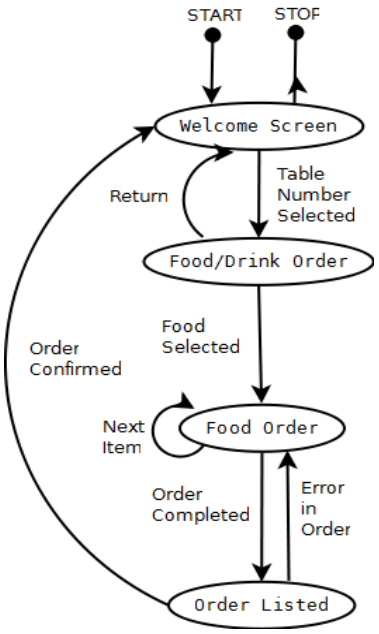
Question 9

Type & Source	Part	Marking Instructions
ISI 2.2.1 PS	(a)	Agent based interface **Award 1 mark**
ISI 2.2.2 KU	(b) (i)	For example: • Different accents • Speech impediments • Ambiguity of meaning • Background noise • Different phrases can sound the same Other answers possible **Award 1 mark each for any two valid points. Max 2 marks.**
ISI 2.2.2 PS	(b) (ii)	For example: • Much more user friendly than typing • Patients may not be capable of physical movement necessitated by a lot of typing • Allows patients to answer in their own way rather than be restricted to set phrases • Less threatening for patients Other answers possible **Award 1 mark each for any two valid points. Max 2 marks.**
DBIT 2.2 KU	(c)	For example: • Elements to be tested • Sequence of testing • Types of testing **Award 1 mark each for any two valid points. Max 2 marks.**
DBIT 4.3 KU	(d)	Perfective maintenance **Award 1 mark**

Question 10

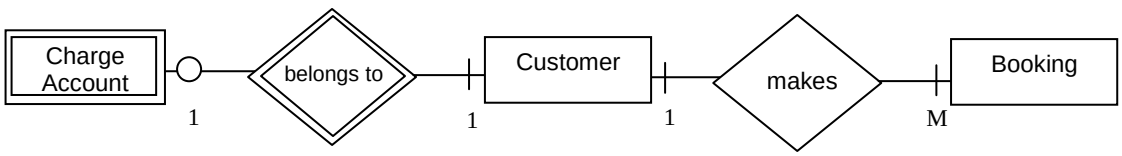
Type & Source	Part	Marking Instructions
ISI 1.1 KU	(a)	For example: • Development of high resolution colour displays • Larger amounts of memory becoming cheaper • Development of reliable and accurate pointing devices and/or touch sensitive screens • Development of cheap, fast hard discs which can hold large amounts of data • Development of fast processors **Award 1 mark each for any two valid developments. Max 2 marks.**
ISI 4.2.5 KU	(b) (i)	Subjective user satisfaction **Award 1 mark**
ISI 2.2.1 KU	(b) (ii)	For example: The menu could adapt in response to the way that it is used • menu items could be hidden if not used (often) • system could generate customised menus • menu items could change position moving frequently used items to the top of the list • the menu's appearance could be halted if not used at all • The time delay of appearance of the menu could change depending on its use **Award 1 mark each for any two valid suggestions. Max 2 marks.**
ISI 1.4 PS	(c)	For example: • Syntax is the structural or grammatical rules of the language or how a command is carried out - in this case dragging to the favourites folder or pinning on the wall; in this case, the way that the file is saved in different • Semantics is the meaning given to the rules i.e. what is carried out - in this case making frequently used files readily available; in this case, the action of saving is the same • In this case the semantics are the same but the syntax of the two commands is different **Award 1 mark each for distinguishing what the two syntaxes are; award 1 mark for identifying the semantics. Max 3 marks.**
ISI 3.1 KU	(d) (i)	The user is at the centre of the process at all stages **Award 1 mark**
DBAD 1.1 KU	(d) (ii)	For example: During testing, an error may be found which necessitates returning to an earlier stage (e.g. design) to make changes. Then the build stage is repeated. **Award 1mark for returning to earlier stage; award 1 mark for repeating build stage. Max 2 marks.**
DBIT 4.3 KU	(d) (iii)	Corrective maintenance **Award 1 mark**

Question 11

Type & Source	Part	Marking Instructions
DBAD 3.4 PS	(a) (i)	Deliver Food **Award 1 mark**
DBAD 3.4 PS	(a) (ii)	For example: Deliver food is a physical flow because no information or data is transferred between an external entity and a process. **Award 1 mark for suitable explanation**
ISI 3.5 PS	(b)	Possible solution:  **Award marks as follows;** • **Award 1 mark for Start/Stop** • **Award 2 marks for all 4 correct states; award 1 mark for any 3 correct states; award 0 marks otherwise** • **Award 1 mark for both transitions btw Welcome and Food/Drink screens; award 1 mark for transition btw Food/Drink screen and Order screen; award 1 mark for both transitions btw Food Order and Order Listed screens; award 1 mark for transisiton btw Order listed and Welcome screen; award 1 mark for Next Item looped transition at Food Order state.** **Max 8 marks**
ISI 4.3.2 KU	(c)	For example: A walkthrough requires the manager and senior worker take on the role of users of the system and try out the different options available, enter input required and check that the output is as expected. A walkthrough is used to make sure that the interface meets the needs of users. Other answers possible. **Award 1 mark for how walkthrough is carried out; award 1 mark for purpose of walkthrough. Max 2 marks.**

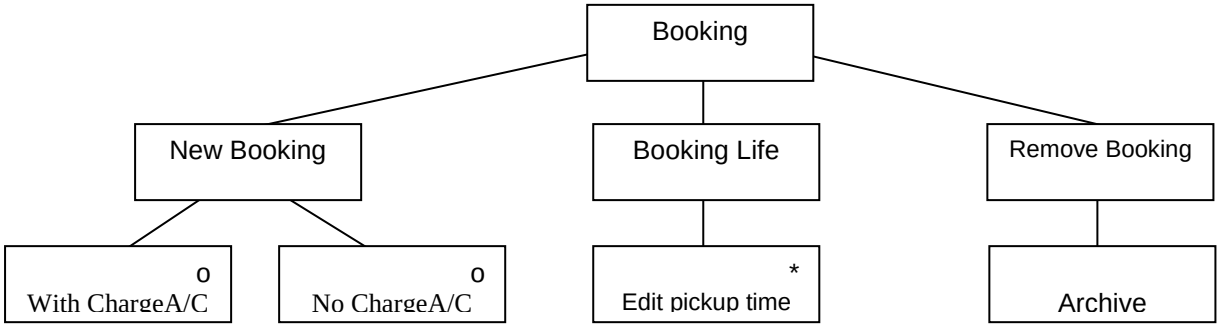
Question 12

Type & Source	Part	Marking Instructions
ISI 3.2 PS	(a)	For example: Expert and novice users will both have different expectations of the system and have different support needs. Novice users will need a simple menu-driven GUI whereas expert users who are already more skilled in moving between different areas of a system, may prefer to use shortcuts to move from one section to another. Fulfilling these dual needs will increase the time needed to design, implement and test the system and so increase the development costs. **Award 1 mark for description of needs of expert users; award 1 mark for description of needs of novice users; award 1 mark for reason for increased development costs. Max 3 marks.**
ISI 4.2.2 4.2.3 PS	(b) (i)	For example: Speed of task performance: this is relevant since drivers must be able to access the system quickly and not keep passengers waiting. User error rates: this is relevant since frequent errors would result in delayed arrivals at destinations or delayed pickups. Errors could also result in incorrect destinations being entered and wrong set of directions being provided by the system. Other explanations are possible. **Award 1 mark each for any valid explanation of each technique that is relevant to the taxi information system. Note that generic explanations/descriptions should receive no marks. Max 2 marks.**
ISI 4.4.3 4.4.4 PS	(b) (ii)	For example: User performance data logging software will automatically record driver selections and options and use made of each facility in the system. This will provide very accurate results that can be used to provide the developers with reliable results on which to base any updates or changes. Self reporting logs must be recorded and updated by the taxi drivers. This means that they would note the use made of the system and any issues that they were having. Since drivers are unable to record problems at the time, results are likely to be unreliable. **Award 1 mark for valid comment regarding reliability of feedback gained from each inquiry method. Max 2 marks.**
DBAD 3.2.1 PS	(c) (i)	See correct ERD below. **Award 1 mark for accurate completion of each side of the each relationship in the ERD. The cardinality and optionality must both be correct to gain the mark. Max 4 marks.** **NB Ignore weak nature of ChargeAccount entity and 'belongs to' relationship in awarding full marks.**



Question 12 continued

Type & Source	Part	Marking Instructions
DBAD 3.3.2 PS	(c) (ii)	See correct ELH below. **Award 1 mark for correct placement of events; award 1 mark for correct optionality; award 1 mark for correct repetition. Max 3 marks.**



Question 13

Type & Source	Part	Marking Instructions
ODB 1.1.1 KU	(a)	Any two features including: ▪ Allow for a large number of people to contribute to and share stored data ▪ Control access to data, based on user roles (the user roles define which information each user can view or edit) ▪ Aid in easy storage and retrieval of data ▪ Reduce repetitive duplicate input ▪ Improve the ease of report writing ▪ Improve communication between users ▪ Automatically track workflow Other answers possible **Award 1 mark each for any 2. Max 2 marks.**
ODB 1.2.2 PS	(b)	For example: Commercial Software • Code not freely available so less likely to be hacked • Software well tested by large team of developers • Open source developers are not regulated which means that the software is less likely to be safe Open source software • Security flaws fixed more quickly by members of the development community • Fewer hacker-friendly back doors **Award 1 mark each for any two accurate points that supports choice; no marks for choice of open-source or commercial. Max 2 marks.**
ODB 1.3.1 KU	(c)	For example: Transaction standardisation is needed as the insurance company will store the data in a particular format. This may not be compatible with the data formats used by the DVLA. By agreeing to the standard that is used when data is transmitted, both parties will be able to transmit data successfully. **Award 1 mark for the data formats used by each EDI party; award 1 mark for description of any acceptable benefit of the method named. Max 2 marks.**
ODB 3.1 KU	(d)	DML is required as the UPDATE statement will be needed to amend the record details in the table. Other explanations are possible. **Award 1 mark.**
DBIT 4.3 KU	(e)	Perfective **Award 1 mark.**

Question 14

Type & Source	Part	Marking Instructions
ODB 1.3.3 KU	(a)	For example: EDI INT: this method of communication is beneficial to a new business since it avoids the need to pay for a third-party to receive and forward EDI transmissions. EDI VAN: this method of communication is beneficial to a new business since it avoids the need to purchase secure servers by paying a third party for use of their servers. **Award 1 mark for name of EDI communication method; award 1 mark for description of any acceptable benefit of the method named. Max 2 marks.**
ODB 1.3.4 KU	(b)	For example: Whenever personal details are being exchanged, appropriate precautions must be taken to ensure that the data is secure and that details remain private. This is a necessity because the storage of personal data is covered by the Data Protection Act. **Award 1 mark for description of appropriate legal restriction that applies to EDI; award 1 mark for correctly stating appropriate legislation. Max 2 marks.**
ODB 1.2.1 1.2.3 1.2.4 PS	(c) (i)	For example: Users – likely that updates and error fixes will be available more quickly; no cost to download application and make use of the functionality it provides; application automatically tracks flights using booking number entered therefore easy to use Other answers possible Developers – more cost effective to develop application since original source code is available at no cost; original source code can be adapted to meet specific needs of HapiHols and so reduce development time and costs; providing a free application for download could lead to increased satisfaction with the service provided by the company and so increase customer loyalty and business; large community of users available to provide support and advice to developer Other answers possible **Award 1 mark for any one relevant benefit to users of the application; award 1 mark each for any 2 relevant benefits to developers. Max of 3 marks.**
DBIT 2.2 KU	(c) (ii)	For example: List of elements of the systems that are to be tested Sequence of test that should be carried out Types of testing to be performed **Award 1 mark each for any two correct items. Max 2 marks.**
DBAD 1.1 DBIT 1.1 KU	(c) (iii)	For example: When a problem arises at implementation stage, developers must go back to design stage to rectify the error. The correction must then be implemented. **Award 1 mark for need to go back to design/earlier stage; award 1 mark for need to repeat implementation stage. Max 2 marks.**
DBIT 4.3 KU	(d)	Corrective **Award 1 mark.**

Question 15

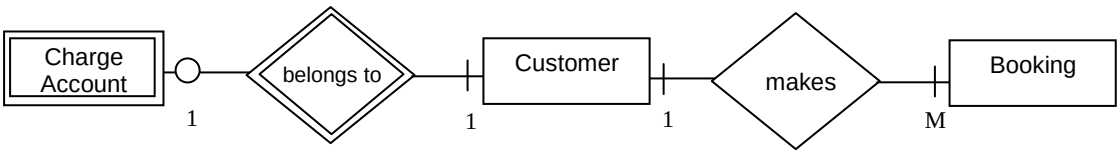
Type & Source	Part	Marking Instructions
ODB 1.1.3 KU	(a) (i)	For example: • Shopping Basket / Trolley • Check-out • Secure payment • Back ordering system **Award 1 mark each. Max 2 marks. NB <u>DO NOT</u> award mark for product catalogue.**
ODB 1.1.3 PS	(a)(i)i	For example: Tom would access the product catalogue on the secure database server to search or browse the catalogue; Tom requires read-only access to the file. Jenny would access the product catalogue on the secure database server to edit the structure of the catalogue and edit its details; Jenny requires read/write/execute access to the file. **Award 1 mark each for any acceptable use. Max 2 marks.**
ODB 2.2 PS	(a)(iii)	For example: Server-based database management tools would enable different levels of user access to be set with each level of user protected by a password. Other explanations possible. **Award 1 mark**
ODB 4.1.1 4.2.2 PS	(b)	For example:<u>PHP solution</u> $link = mysql_connect("http://www.pricestorm.co.uk ","Eric", " sdf745kla "); mysql_select_db("psmaincat ",$link); **Award 1 mark for correct syntax; award 1 mark each for appropriate use of provided attribute values for username & password, server name and database name. Max 4 marks.**
DBAD 3.4 PS	(c) (i)	Send Item **Award 1 mark**
DBAD 3.4 PS	(c) (ii)	For example: Send Item is a physical flow becasue no information or data is transferred between an external entity and a process. **Award 1 mark for suitable explanation**

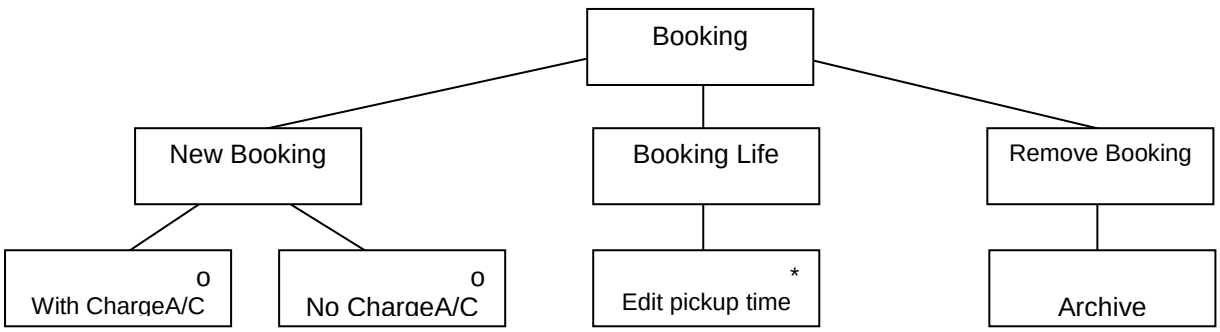
Question 16

Type & Source	Part	Marking Instructions
ODB 3.1 PS	(a)	For example: It will change all rows in the table to have the band name Full Throttle. **Award 1 mark.**
ODB 3.2.1 PS	(b) (i)	WHERE BAND_NAME = 'Minted'; **Award 1 mark**
ODB 3.2.1 PS	(b) (ii)	SELECT BAND_NAME, GENRE FROM BANDS WHERE DATE_FORMED < (SELECT DATE_FORMED FROM BANDS WHERE BAND_NAME = 'Minted'); **Award marks as indicated. Max 3 marks** **Award 1 mark for SELECT and FROM statements** **Award 1 mark** **Award 1 mark for correct use of subquery**
ODB 3.2.6 PS	(c)	SELECT BANDS.BAND_NAME, BANDS.DATE_FORMED, AGENTS.LASTNAME FROM BANDS *INNER* JOIN AGENTS *(INNER optional)* ON(BANDS.AGENT = AGENTS.AGENT_ID) WHERE BANDS.BAND_NAME = 'DrimDram' *or* SELECT BANDS.BAND_NAME, BANDS.DATE_FORMED, AGENTS.LASTNAME FROM BANDS, AGENTS WHERE BANDS.AGENT = AGENTS.AGENT_ID AND BANDS.BAND_NAME = 'DrimDram' **Award 2 marks for correct use of FROM statement; award 2 marks for correct use of ON and/or WHERE statements. Max 4 marks.**
ODB 2.1 KU	(d)	Server address Database name Port driver **Award 1 mark each for any 2 of above. Max 2 marks.**
ODB 4.3.2 PS	(e) (i)	Username ****** Password ****** **Award 1 mark for two input boxes on separate lines; award 1 mark for two sets of *'s in each input box. Max 2 marks.**
ODB 4.3.1 KU	(e) (ii)	The data entered in the form will be sent to the page specified. **Award 1 mark.**

Question 17

Type & Source	Part	Marking Instructions
ODB 4.3.3 PS	(a)	This code is associated with the Clear button. The purpose of this button is to clear the user selections and return them to their initial values. **Award 1 mark for correct button; award 1 mark for appropriate explanation. Max 2 marks.**
ODB 3.2.4 3.2.5 PS	(b) (i)	For example: This query will count the number of restaurants in each location. **Award 1 mark for count number of restaurants; award 1 mark for counting restaurants by location. Max 2 marks.**
ODB 4.1.3 PS	(b) (ii)	For example: mysql_query("SELECT location, COUNT(venueName) FROM venue WHERE venueType = 'Restaurant' GROUP BY location"); **Award 1 mark for correct syntax; award 1 mark for appropriate use made of SQL query. Max 2 marks.**
ODB 1.1.2 PS	(c)	For example: A CRM system will benefit a small business because its use could bring about improved customer satisfaction. Satisfied customers are more likely to reuse a business that has provided them with a good service and as a result, customer loyalty increases. These factors can lead to increased business for the company. **Award 1 mark each for any 2 valid points. Max 2 marks.**
DBAD 3.2.1 PS	(d) (i)	See correct ERD below. **Award 1 mark for accurate completion of each side of the each relationship in the ERD. The cardinality and optionality must both be correct to gain the mark. Max 4 marks.** **NB Ignore weak nature of ChargeAccount entity and 'belongs to' relationship in awarding full marks.**
DBAD 3.3.2 PS	(c) (ii)	See correct ELH below. **Award 1 mark for correct placement of events; award 1 mark for correct optionality; award 1 mark for correct repetition. Max 3 marks.**





Analysis of Questions

Section I

Question	Type	Marks	Source Unit	Content Statement	Core/Option
1 (a) (i)	KU	1	DBAD	2.1	Core
1 (a) (ii)	KU	1	DBAD	2.1	Core
1 (b) (i)	KU	1	DBAD	2.2	Core
1 (b) (ii)	KU	1	DBAD	2.2	Core
1 (c) (i)	KU	1	DBAD	2.3	Core
1 (c) (ii)	KU	2	DBAD	2.3	Core
2 (a)	KU	2	DBAD	2.5	Core
2 (b)	KU	2	DBAD	4.1.2	Core
2 (c)	KU	1	DBAD	4.1.4	Core
2 (d)	KU	1	DBIT	4.1	Core
2 (e)	KU	2	DBIT	2.3	Core
2 (f)	KU	2	DBIT	4.2	Core
3	PS	6	DBAD	3.3.1	Core
4 (a)	PS	3	DBAD	3.2.1	Core
4 (b)	PS	1	DBAD	3.2.1	Core
4 (c)	PS	3	DBAD	4.1.3	Core
4 (d)	PS	1	DBAD	4.1.3	Core
5 (a)	PS	1	DBIT	3.1	Core
5 (b)	KU	3	DBIT	2.1	Core
5 (c) (i)	PS	2	DBAD	3.2.2	Core
			DBIT	3.1	Core
5 (c) (ii)	PS	3	DBAD	3.2.2	Core
5 (c) (iii)	PS	1	DBAD	3.2.2	Core
5 (d)	PS	2	DBIT	3.2	Core
6 (a) (i)	PS	2	DBAD	3.1	Core
6 (a) (ii)	PS	1	DBAD	3.1	Core
6 (a) (iii)	PS	2	DBAD	3.1	Core
6 (b)	PS	4	DBAD	3.1	Core
6 (c)	PS	1	DBAD	3.1	Core
7	PS	7	DBAD	3.4	Core

Totals

KU	20
PS	40

Analysis of Questions

Section II Part A: Information Systems Interfaces

Question	Type	Marks	Source Unit	Content Statement	Core/Option
8 (a)	KU	2	ISI	2.2.2	Option
8 (b)	PS	3	ISI	1.2	Option
8 (c)	PS	2	ISI	3.6	Option
8 (d)	KU	2	ISI	3.6	Option
8 (e)	PS	3	ISI	3.4	Option
8 (f)	PS	2	ISI	4.3.1 4.3.3	Option
9 (a)	PS	1	ISI	2.2.1	Option
9 (b) (i)	KU	2	ISI	2.2.2	Option
9 (b) (ii)	PS	2	ISI	2.2.2	Option
9 (c)	KU	2	DBIT	2.2	Core
9 (d)	KU	1	DBIT	4.3	Core
10 (a)	KU	2	ISI	1.1	Option
10 (b) (i)	KU	1	ISI	4.2.5	Option
10 (b) (ii)	KU	2	ISI	2.2.1	Option
10 (c)	PS	3	ISI	1.4	Option
10 (d) (i)	KU	1	ISI	3.1	Option
10 (d) (ii)	KU	2	DBAD	1.1	Core
10 (d) (iii)	KU	1	DBIT	4.3	Core
11 (a) (i)	PS	1	DBAD	3.4	Core
11 (a) (ii)	PS	1	DBAD	3.4	Core
11 (b)	PS	8	ISI	3.5	Option
11 (c)	KU	2	ISI	4.3.2	Option
12 (a)	PS	3	ISI	3.2	Option
12 (b) (i)	PS	2	ISI	4.2.2 4.2.3	Option
12 (b) (ii)	PS	2	ISI	4.4.3 4.4.4	Option
12 (c) (i)	PS	4	DBAD	3.2.1	Core
12 (c) (ii)	PS	3	DBAD	3.3.2	Core

Totals

KU	20
PS	40
Core	15
Option	45

Analysis of Questions

Section II Part B: On-line Database Systems

Question	Type	Marks	Source Unit	Content Statement	Core/Option
13 (a)	KU	2	ODB	1.1.1	Option
13 (b)	PS	2	ODB	1.2.2	Option
13 (c)	KU	2	ODB	1.3.1	Option
13 (d)	KU	1	ODB	3.1	Option
13 (e)	KU	1	DBIT	4.3	Core
14 (a)	KU	2	ODB	1.3.3	Option
14 (b)	KU	2	ODB	1.3.4	Option
14 (c) (i)	PS	3	ODB	1.2.1 1.2.3 1.2.4	Option
14 (c) (ii)	KU	2	DBIT	2.2	Core
14 (c) (iii)	KU	2	DBAD	1.1	Core
			DBIT	1.1	Core
14 (d)	KU	1	DBIT	4.3	Core
15 (a) (i)	KU	2	ODB	1.1.3	Option
15 (a) (ii)	PS	2	ODB	1.1.3	Option
15 (a) (iii)	PS	1	ODB	2.2	Option
15 (b)	PS	4	ODB	4.1.1 4.2.2	Option
15 (c) (i)	PS	1	DBAD	3.4	Core
15 (c) (ii)	PS	1	DBAD	3.4	Core
16 (a)	PS	1	ODB	3.1	Option
16 (b) (i)	PS	1	ODB	3.2.1	Option
16 (b) (ii)	PS	3	ODB	3.2.1	Option
16 (c)	PS	4	ODB	3.2.6	Option
16 (d)	KU	2	ODB	2.1	Option
16 (e) (i)	PS	2	ODB	4.3.2	Option
16 (e) (ii)	KU	1	ODB	4.3.1	Option
17 (a)	PS	2	ODB	4.3.3	Option
17 (b) (i)	PS	2	ODB	3.2.4 3.2.5	Option
17 (b) (ii)	PS	2	ODB	4.1.3	Option
17 (c)	PS	2	ODB	1.1.2	Option
17 (d) (i)	PS	4	DBAD	3.2.1	Core
17 (d) (ii)	PS	3	DBAD	3.3.2	Core

Totals

KU	20
PS	40
Core	15
Option	45

Unit Content Statements – Core Units

Unit	Statement	Content
Database Analysis an d Design (DBAD)	1. Overview of Life Cycle	1.1 Stages and Iterative Nature
	2. Techniques Involved	2.1 Feasibility Study
		2.2 Project Plan
		2.3 Investigative Techniques
		2.4 Results from Investigation
		2.5 System Specification
	3. Modelling Techniques	3.1 Normalisation
		3.2 3.2.1 E/R Modelling
		3.2.2 Data Dictionary
		3.3 3.3.1 Entity Event Matrix
		3.3.2 Entity Life History
		3.4 Data Flow Diagram
	4. Database Design	4.1 Techniques
		4.1.1 System refinement
		4.1.2 Logical/physical design
		4.1.3 Process description
		4.1.4 Screen layout design
Database Implementation and Testing (DBIT)	1. Overview of DB Implementation	1.1 Stages and Iterative Nature
	2. Testing	2.1 Types of Testing
		2.2 Contents of Test Plan
		2.3 Systematic Testing
	3. DB Development	3.1 Components
		3.2 Conversion Techniques
	4. Documentation, Evaluation, Maintenance	4.1 Documentation
		4.2 Evaluation
		4.3 Maintenance

Content Statements – Information Systems Interfaces

Unit	Statement	Content
Information Systems Interfaces (ISI)	1. Interface Modes	1.1 Contributing Factors 1.2 Range of Interfaces (description) 1.3 Interface Modes 1.4 Syntax and Semantics
	2. Intelligent Interfaces	2.1 Trends and Characteristics 2.2 2.2.1 Predictive and Adaptive Predictive text Grammar / spell check Adaptive menus Agent-based interface 2.2.2 Natural Language Machine translation Natural language querying Command and control Speech driven software
	3. Interface Modelling and Design	3.1 LUCID 3.2 Classes of User 3.3 Comparison of Techniques 3.4 Storyboard 3.5 State Transition Diagram 3.6 Prototypes
	4. Usability Testing and Evaluation	4.1 Qualitative Techniques 4.1.1 Thinking aloud 4.1.2 Co-discovery 4.1.3 Question-asking 4.1.4 Eye tracking 4.2 Quantitative Techniques 4.2.1 Time to learn 4.2.2 Speed of task perform. 4.2.3 User error rates 4.2.4 User retention 4.2.5 Subjective user satisfact. 4.3 Inspection Methods 4.3.1 Heuristic evaluation 4.3.2 Walkthrough 4.3.3 Feature set 4.3.4 Consistency inspection 4.3.5 Adherence to standards 4.4 Inquiry Methods 4.4.1 Surveys 4.4.2 Questionnaires 4.4.3 User perform. data log 4.4.4 Self reporting logs

Content Statements – On-line Database Systems

Online Database Systems (ODB)	1. Internet Developments	1.1 Applications 1.1.1 Content Management 1.1.2 Customer Relationship 1.1.3 E-Commerce 1.2 Open Source and Commercial 1.2.1 Cost effectiveness 1.2.2 Security 1.2.3 Flexibility and adaptability 1.2.4 Community of users 1.3 EDI 1.3.1 Transaction standarisation 1.3.2 Translation software 1.3.3 Communications 1.3.4 Legal restrictions
	2. Database Connectivity	2.1 Requirements 2.1.1 Username/password 2.1.2 Server address 2.1.3 Database name 2.2 Server Based Management Tools 2.2.1 Connect client to server 2.2.2 Edit table structures
	3. SQL	3.1 DML 3.2 DQL 3.2.1 SELECT Statement 3.2.2 Logical operators 3.2.3 Negating Conditions 3.2.4 Aggregate Functions 3.2.5 Sorting and Grouping 3.2.6 Joins
	4. Application Development	4.1 Server Side Scripting 4.1.1 Server connection 4.1.2 Database selection 4.1.3 Exe. query & extract results 4.2 Form Processing 4.2.1 Insert data 4.2.2 Amend data 4.3 HTML 4.3.1 <form> element 4.3.2 <input> element 4.3.3 <button> element

[END OF MARKING INSTRUCTIONS]