Name: _	
IAL IT Topic 4 Mark Scheme	
Date:	
Time:	
Total marks available:	
Total marks achieved:	

### **Mark Scheme**

Question number	Answer	Additional guidance	Mark
	Award up to a maximum of two marks for a linked explanation such as:  records are digital (1) so it is easier/more efficient to search/analyse/process/generate reports (1)  orders only need entering once (1) other records/reports can be generated from them (1)  less chance of mistakes (1) as records do not have to be transcribed when generating reports (1)  easier to back up the records (1) as paper-based ones would have to be scanned/manually copied (1)  enables the manager to reduce waste and costs (1) because it provides upto-date information about current stock levels (1)  it provides up-to-date information about current stock levels (1) enabling her to fine tune ordering of new stock/launch special promotions featuring items that need to be shifted (1)  increased customer satisfaction/better customer service (1) as less chance of order being lost/mislaid (1)  company requires fewer admin staff (1) because customers fill in their own orders on the website (1)  less chance of pads/orders being lost (1) so stock data will be more accurate (1)	Allow mix and match as long as it makes sense overall	

Question	Answer	Additional	Mark
number		Guidance	
	Click 'forgot my Password' button  Input email, date of birth, 'change password'  Generate new password  Email new password  Stop  Stop		6
	Note: The flowchart is drawn to illustrate all the marking points. It is		
	not the only answer.		
	Award <b>one</b> mark for each of:		
	<ul> <li>input email and date of birth</li> <li>click 'change password' button</li> <li>check email and date of birth against stored record (database query)</li> <li>decision based on email and date of birth</li> <li>error message in the correct place</li> <li>generate a password in the correct place</li> <li>output/email new password</li> <li>correct loop.</li> <li>To a maximum of six marks</li> </ul>		

Question	Answer	Additional	Mark
number		Guidance	
	Award <b>one</b> mark for each point up to a maximum of three marks for a linked explanation. Such as:		3
	<ul> <li>creates an overview of the system (1)</li> <li>helps visualise the process / data flow (1)</li> <li>avoids going into great detail at an early stage (1)</li> <li>can be drawn at different levels of complexity, L0, L1, etc. / allows top down expansion (1)</li> <li>makes it easier to explain the system to (non-technical) audiences (1)</li> <li>shows the system boundaries (1)</li> <li>shows flow to external entities (1)</li> </ul>		
	A DFD shows a top-level view of the planned system, (1) making it easier for people to understand (1) the way in which data will be processed (1)     A DFD can be drawn as a top-level diagram (1) which avoids unnecessary detail at the planning stage (1) and makes it simpler to explain to others. (1)		

### Q4.

Question number	Answer	Additional Guidance	Mark
(i)	Award one mark for each answer to a maximum of two marks.  • employee/user (1)  • network manager (1)  • network administrator (1)  • (network) technician (1)  • architect (1)		2

Question number	Answer	Additional Guidance	Mark
(ii)	Award up to two marks for each of two descriptions such as:  a security process involving backup such as:  a secondary/remote backup stage (1) using cloud/external storage / with a recovery process (1)  a security process involving the firewall such as:  controlling external access (1) setting the permissions/port numbers/other specified property (1)  a security process involving the server such as:  controlling access (1) setting password parameters/other specified property (1)  a security process involving a networked computer/PC such as:  enforcing time out on inactivity (1) so PCs are not left open (1)	Allow two of the same type of process.  Do not allow any devices not shown in the diagram, such as WAP	4

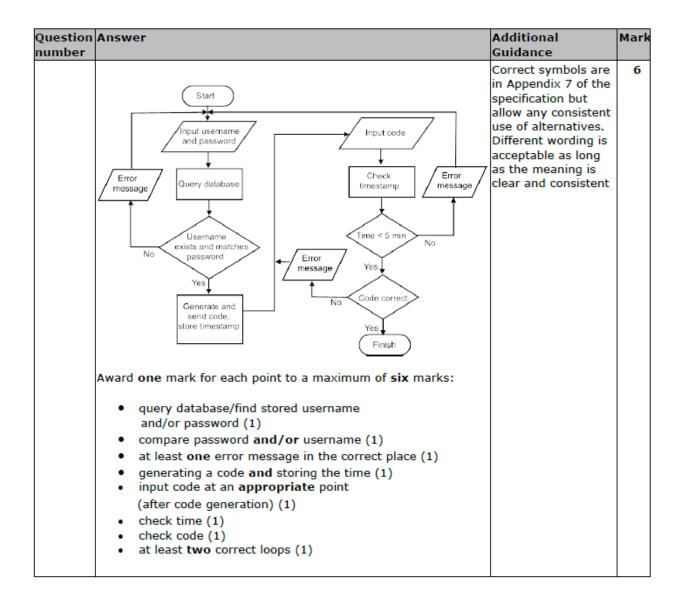
## Q5.

Question number	Answer			Additional Guidance	Mark
	Label	Name		Accept reasonable	6
	B	Invoice / receipt Order part / process order	_	alternative	
	С	Order(s)		names for items	
	D	(Stockroom) staff			
	Е	Create/raise/write reports			
	F	Supplier / wholesaler / manufacturer			

Question number	Answer	Additional Guidance	Mark
Humber			
	Award <b>one</b> mark for each item to a maximum of <b>twelve</b> marks:	The names	12
		given for	
	(a) Radar entity	data	
	(b) Tag/vehicle entity	sources,	
	(c) Barrier entity	store and	
	(d) Driver entity	movement	
	(e) Find tag ID process	may vary.	
	(f) Control barrier process	Allow any	
	(g) Generate/process toll charge/driver's account process	reasonable	
	(h) Payment process	alternatives	
	(i) Toll account store/file	as long as	
	(j) All data flows have arrows showing correct direction of flow	they're used	
	(k) Find tag ID process has links getting data from radar and tag/vehicle	consistently.	
	(l) Control barrier process has direct/indirect data link to control open <b>and</b> close		
	(m) Payment process has a return of confirmation / new balance amount		

## Q7.

Question number	Answer	Additional Guidance	Mark
	Award one mark for each point to a maximum of <b>three</b> marks for a linked explanation involving these ideas:		3
	At least one of:     set of requirements (1)     measurable criteria (1)     agreed (with the customer/client) (1)  And at least one of:     comparison of performance against criteria/specification (1)     may involve product/delivery/installation (1)		
	Examples:  There needs to be a set of criteria (1) agreed by the customer (1) that can be measured to see if they have been met (1)  A set of customer (1) requirements (1) that can be compared with delivered product (1)		



Question number	Answer	Additional Guidance	Mark
	Award one mark for each item to a maximum of twelve marks:	The names	12
		given for	
	(a) Bus entity	data	
	(b) Passenger entity	sources,	
	(c) Position report process	stores and	
	(d) Display process	movement	
	(e) Card query process	may vary.	
	(f) Card payment process	Allow any	
	(g) Bus positions store/file	reasonable	
	(h) Ticket card / transactions store/file	alternatives	
	(i) Data links have arrows showing correct direction of flow	as long as	
	data	they are	
	(j) Bus position data has links in a chain from bus to passenger	used	
	(k) Card credit process has links sending ID and returning credit	consistently.	
	amount		
	(l) Card add credit process has card <b>and</b> payment data	Accept	
	(m) Card add credit process has a return of confirmation / new	either of the	
	credit amount	pairs of	
		dotted lines.	
	Bus position  Generate position  Generate position  report  D1 Bus positions file		
	Bus details  Generate display for next three buses  Bus positions		
	Passenger Card information / ID 3 Query credit card		
	Card and payment information  Card ID  Card ID and payment amount  Add credit to card  Payment confirmation  Card ID and payment amount  D2 Card transactions file  Add credit to card  New balance / amount on card		
	/ new credit amount		

Question number	Answer	Additional guidance	Mark
	Award <b>one</b> mark for each correctly named item up to a maximum of <b>six</b> marks.  Items A-E must be nouns.  Item F must be a verb.	Accept any equivalent word for the same concept.	6
	A. Fuel type (1) B. Fuel volume (1) C. Fuel price (1) D. Pump number (1) E. Cash/money (1) F. Print receipt (1)	Items A and B could be reversed.	

## Q11.

Question number	Answer	Additional Guidance	Mark
i	The only correct answer is B		1
	A is not correct because a site map shows links not flow. C is not correct because a wire frame shows page structure not flow.		
	D is not correct because a data model shows database structure not flow.		
ii	The only correct answer is D	Note use of the term 'best' in the question.	1
	A is not correct because a flowchart may take up more space than a text description		
	B is not correct because both text and flowcharts are easy to email. C is not correct because flowcharts will usually have text components and will rely on a language for that.		

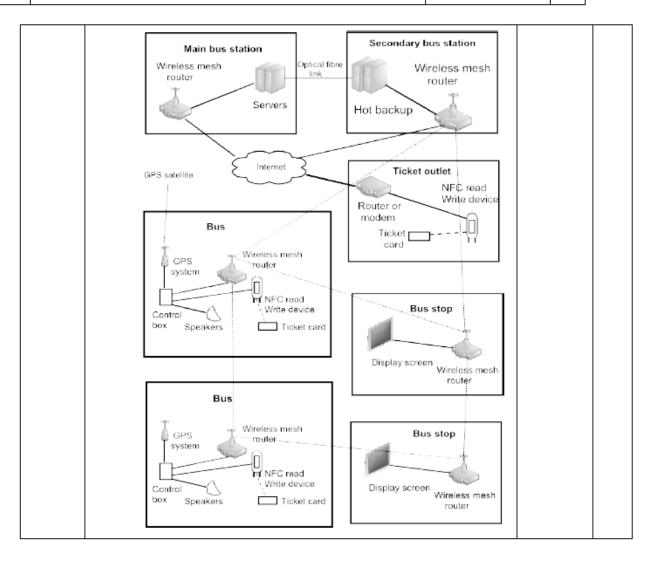
Question number	Answer	Mark
	<ul> <li>Award one mark for a benefit identified and one mark for justification/expansion up to a maximum of two marks for each response.</li> <li>The user does not have to carry more than one device (1) so is easier to run with (1)</li> <li>The device collates data on aspects of the runner's performance (1) so that it can all be viewed conveniently in one place (1)</li> <li>Combined technologies share resources/battery/processor/ (1) so is more efficient/easier to charge up (1)</li> </ul>	4

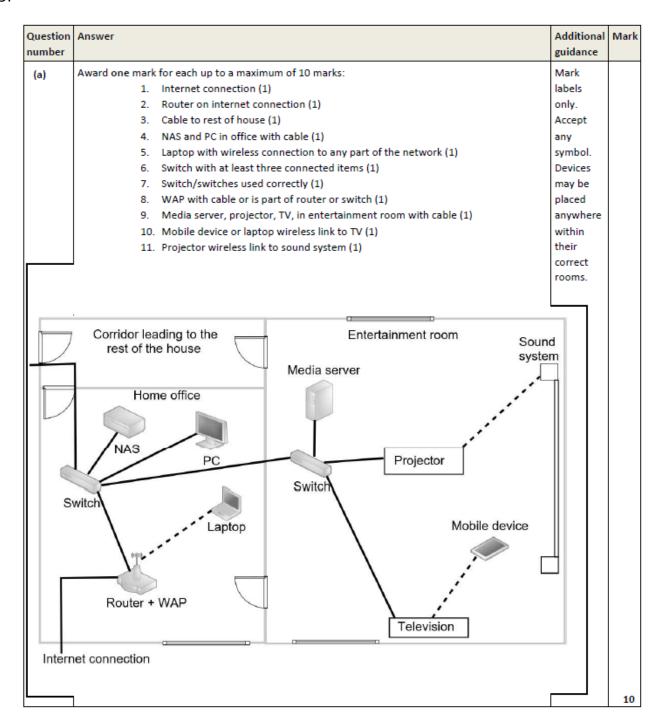
# Q13.

Question	Answer	Additional	Mark
number		Guidance	
i	Award <b>one</b> mark for each correct part of the query up to a maximum of <b>six</b> marks.  • select required fields from the correct tables (1)	Award marks with minor	6
	<ul> <li>only the required fields selected (1)</li> <li>manufacturer = Lucas Electrical (1)</li> <li>stock &gt; 0 (1)</li> <li>use of LIKE/= with correct pattern for part number (1)</li> <li>use of AND for multiple conditions (1)</li> <li>join correct (1)</li> <li>ORDER BY name (1)</li> </ul>	errors in syntax as long as the intent is clear.	
	e.g. SELECT name, telephone FROM tbl_supplier, tbl_bulbs WHERE manufacturer='Lucas Electrical' AND partnumber LIKE 'LL80 1157 BAYD' / =LL%80 1157 BAY%D AND stocklevel > 0 / !=0 / <>0 AND tbl_supplier.supplierID=tbl_bulb.supplierID ORDER BY name		

Question number	Answer	Additional Guidance	Mark
. tii	Award up to a maximum of <b>three</b> marks for a linked explanation. e.g.		3
	Car dealer has access to rare / obsolete stock (information) (1)		
	does not have to build / maintain its own database / information is all in one place/does		
	not have to call numerous suppliers (1) saving time / resources (1)		
	Car dealer has access to rare / obsolete stock (information) (1) does not have hold wide variety		
	of stock (1) saving space / resources / money (1)		
	Car dealer can offer (better) service to customers (1)		
	that it could not do without access (1)		
	giving better customer experience / satisfaction (1)		
	Car dealer can supply rare / obsolete items (1) that would take time / resources to find without		
	the database (1) giving increased sales / profit		
	/ customer satisfaction (1)		

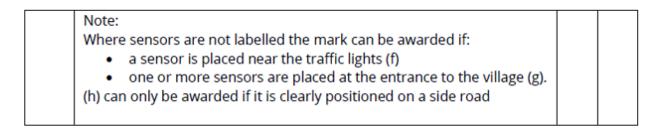
Question number	Answer	Additional Guidance	Mark
	Award one mark for each item to a maximum of twelve marks:  (a) servers in main bus station (b) hot backup server in secondary bus station (c) fibre connection between server and backup (d) router with WiFi (may be separate) in at least one bus station (e) cable connection from at least one server to router to internet (f) ticket outlet(s) has NFC device and router/modem with internet connection (g) ticket card indicated at ticket outlet(s) and/or bus(es), connecting to NFC device (h) bus stop(s) and bus(es) have WiFi connection (via router) (i) bus stop(s) have display screen(s) connected to router/network (j) bus(es) have NFC card reading device (k) bus(es) have a control box/processor (l) bus(es) have speakers connected to the control box (m) diagram shows a wireless mesh network (n) diagram shows GPS source connected to bus(es) (o) diagram shows GPS receiver/system in bus(es)	Single line = cable double = fibre dotted = wireless  Where specific symbols are used for a device that occurs more than once, only one copy need be labelled.  Where multiple buses and/or bus stops are shown the components only need to be shown once.  Devices should be marked from their labels.	12



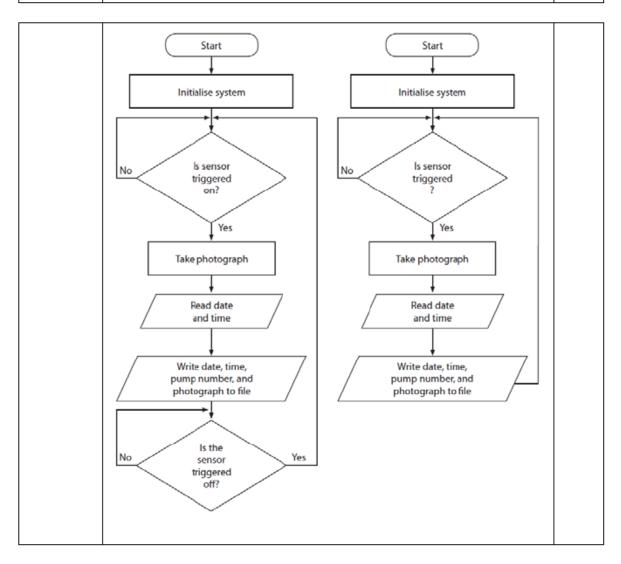


Question number	Answer	Additional guidance	Mark
(b) i	Award one mark for an X between the internet and the first network component on the network diagram	Accept a label or other obvious indication of the firewall	1
(b) ii	Award up to two marks for a linked explanation such as:              hardware firewalls have single point of administration (1) whereas software firewalls must be installed/maintained on each device that needs protection (1)             hardware firewalls protect the whole network/devices that cannot run their own firewall (1) whereas software firewalls only protect the device that they are running on (1)		2

Question	Answer	Additional	Mark
number			
Question number	The diagram shows the functionality – the location of particular devices may vary. Allow radio signals for connecting devices as long as a receiver is included.  Award one mark for each item to a maximum of ten marks:  a) microprocessor / processor / embedded computer in control box / server / computer  b) modem / router in control box / attached or wired to the box  c) timer / clock in box or from internet  d) microprocessor (or device credited in (a)) connects to Internet via router/modem  e) red light / traffic camera on main/side road  f) red light sensor identified, motion (radar, camera)  g) speed sensor on main/side road (radar, camera)  (must be at entrance to the village)  h) appropriate vehicle sensor on side road, proximity (pressure, radar, induction loop, camera)  i) radio receiver  j) wireless signal to radio receiver (vehicle is not needed for the mark)  k) all sensors, lights, cameras and radio receiver connect to switch	Guidance	Mark 10



Question number	Answer	Mark
	Award <b>one</b> mark for each correctly identified part of the flowchart up to maximum of <b>four</b> marks.	6
	Flow chart includes a function to:  reset the sensor (1)  trigger an event and define the loop (1)  capture data – photo, date and time (1)  store data (1).	
	Award one mark for use of correct conventions. (1)	
	Award one mark for a logical and functional process. (1)	
	Other solutions may exist.	



Question number	Answers	Additional guidance	Mark
	<ul> <li>Award one mark for any of the following up to a maximum of four marks.</li> <li>A temperature sensor inside the pacifier that reads the temperature (1)</li> <li>A moisture sensor that activates the pacifier (1)</li> <li>A wireless transmitter in the pacifier sends data/temperature to the smartphone app (1)</li> <li>A radio frequency identification (RFID) transmitter in the pacifier enables it to be found if lost (1)</li> <li>An LED light to show when it is on (1).</li> <li>An LED display to show the temperature (1)</li> <li>A speaker that sounds if the temperature goes too high (1)</li> <li>An app automatically sends an alert message if the temperature goes too high (1)</li> </ul>	Accept Bluetooth, WI-FI, GPS as plausible options for location  Phone application can be awarded only once for any functionality	4

# Q19.

Question number	Answer		Additional guidance	Mark
	Award one mark for eac	h correct answer to a maximum of 6 marks:	Accept meaningful alternatives	
	Label	Data		
	А	Order		
	В	Order		
	С	Stock used		
	D	Stock and order reports		
	E	Daily orders		
	F	Stock required		
	G	Purchase order		
				6