Mark Scheme

Additional Sample Assessment Materials

Pearson Edexcel International Advanced Subsidiary/Advanced Level in Information Technology

Unit 1 (WIT11)

Unit 1 AddSAM – Mark Scheme

Question number	Answer	Additional guidance	Mark
1 (a)	Award **one** mark for each type. • USB • HDMI		2

Question number	Answer	Additional guidance	Mark
1 (b)	Award **one** mark for each point up to a maximum of **three** marks. • Switches are intelligent/store information/store (MAC) addresses / hubs are dumb/do not store anything • Switches can target correct devices / hubs always port flood/send to all ports • Switches can operate in full duplex mode / communicates faster • Switches prevent or reduce collisions / give more reliable communications Example Switches are intelligent (1) they can target the correct devices (1) whereas hubs always port flood (1)	Accept reverse arguments for hubs.	3

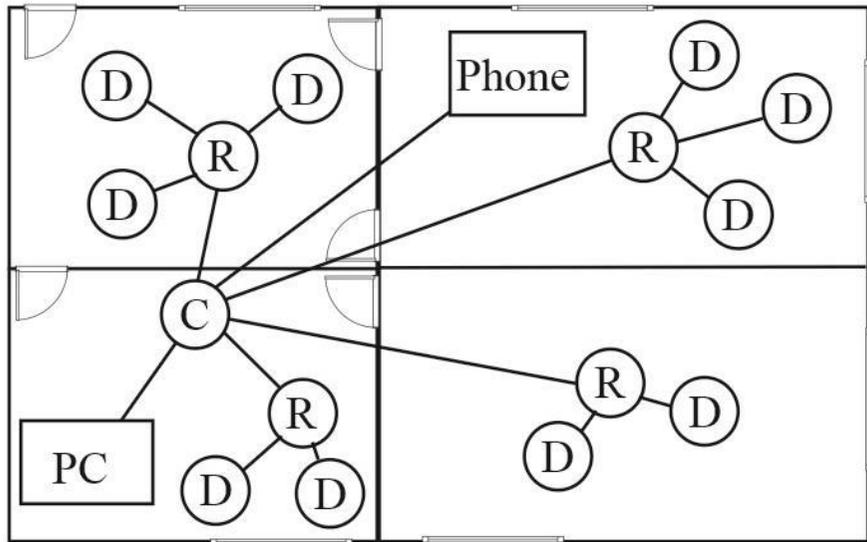| Question number	Answer	Additional guidance	Mark
1 (c) i	B		1

Question number	Answer	Additional guidance	Mark
1 (c) ii	C		1

Question number	Answer	Additional guidance	Mark
1 (d) i	Award **one** mark for a reason and **one** mark for a linked justification/expansion. Such as: • A static address once allocated never changes (even if the printer is turned off and on) (1) which means the printer can always be found by other devices / which means the devices do not have to reinstall the printer (driver) (1) • A static address does not need a DHCP server (on the network) (1) as the address does not change / is already known by other devices (1)	Accept reverse arguments for dynamic address.	2

Question number	Answer	Additional guidance	Mark
1 (d) ii	Award **one** mark for a reason and **one** mark for a linked justification/expansion. Such as: • A tablet is a mobile device which is likely to connect to other networks (1) if it had a static IP address this might clash / cause connection problems / other networks will want to allocate a dynamic address (1) • Data on the tablet is less vulnerable to hacking (1) because a dynamic IP address can only be tracked to the network that allocated it (not to the individual device to which it is assigned) (1) • No need for Gareth to manually enter any settings in order to connect his tablet to the network (1) therefore less technical knowledge or admin access required (1)	Accept reverse arguments for static address.	2

Question number	Answer	Additional guidance	Mark
1 (e)	Award **one** mark for each correct symbol / connection + label up to a maximum of **six** marks Video file name / ID / details D1 Video file (on PC) 1 Select video source Video file 2 Video file moved Commands (to TV). For video selection. Gareth Video file D2 Video file (on TV) Award one mark for: The entity Gareth (1) Select video source process (1) Transfer file process (1) Both data stores (1) Data flow is correct (1) Meaningful labels (1)	Also accept variation of entity symbols /shapes that are in common use.	6 Total 17
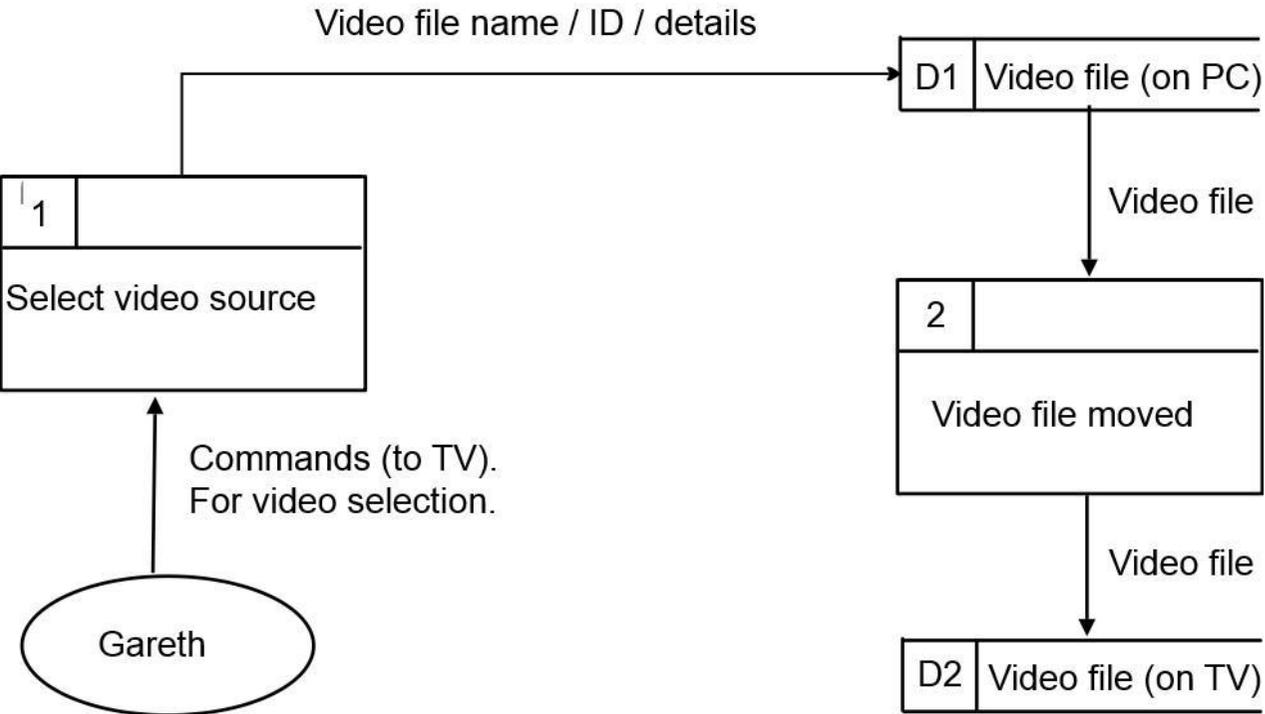
Question number	Answer	Additional guidance	Mark
2 (a)	Award **one** mark each for: • PC connected only to coordinator • Coordinator near to PC • Phone connected only to coordinator • Coordinator connected to all routers, direct or through other router • Devices/lighting panels only connected to routers or coordinator • Diagram complete, 1 coordinator, 4 routers, 10 devices/lighting panels, PC, phone, sensible distribution (1 router per room min 2 devices per room) 	Allow any reasonable topology, mesh, star, tree, hybrid. Allow any reasonable symbols.	6

Question number	Answer	Additional guidance	Mark
2 (b)	Award **one** mark for each descriptive point up to a maximum of four marks. • IPv4 uses four 1 byte decimal numbers, separated by a dot • IPv4 addresses are 32 bits/4 bytes / e.g. 192.168.1.1 • IPv6 uses hexadecimal numbers, separated by colons • IPv6 addresses are 128 bits/16 bytes / e.g. fc00:1234:56:7:0:0:abc:def (need to be 8 sets of numbers)	For IPv6 :: can be used to indicate zeros e.g. fc00:1234:56::abc:def is also valid	4

Question number	Answer	Additional guidance	Mark
2 (c)	Award **one** mark for each device up to a maximum of **two** marks. • warning devices such as fire alarms / carbon monoxide alarms / motion sensors • control devices such as switches / thermostats • metering devices for gas / electricity / water • entertainment devices such as speakers / media streamer • security devices such as locks / intruder alarms	Do not allow lighting devices Allow two devices of each kind	2

Question number	Answer	Additional guidance	Mark
2 (d) i	Award **one** mark for any of: • simple to set up • easily scalable/expandable • uses less power / longer battery life	Portability not acceptable	1

Question number	Answer	Additional guidance	Mark
2 (d) ii	Award **one** mark for a disadvantage and **one** mark for a linked justification/expansion. Such as: • limited range/about 10 metres coverage (1) may need several routers instead of one WAP / may not be able to reach some areas of the house (1) • less secure than Wi-Fi (1) because keys are known to have been compromised / relies on third parties/manufacturers for keys (1) • relatively new technology (1) so limited types of device available / so is limited in how it can be used (1)		2 **Total 15**

Question number	Answer	Additional guidance	Mark
3 (a) i	Award **one** mark for any one of: • storage is on remote computers/servers accessed via the internet (1) • storage owned/maintained/operated by third party accessed via the internet (1)		1

Question number	Answer	Additional guidance	Mark
3 (a) ii	Award **one** mark for each risk and **one** mark for a linked expansion. Such as: • loss of control of data / data held by third party (1) privacy/encryption set by someone outside the company (1) • data leakage (1) third party employees could view/mishandle the data (1) • loss of control of (cryptographic) key management (1) keys shared with third parties increases risk (1) • less control over cloud credentials / access rights on the remote server (1) if misconfigured, stored files may be viewable/accessible by others (1) • data/files can be intercepted in transit (1) as data/files must travel on the internet (1)	Do not accept generalised answers such as virus, hacking.	4

Question number	Answer	Additional guidance	Mark
3 (b)	Award **one** mark for each descriptive point up to a maximum of **three** marks for a linked description. • (data protection) laws in both countries • treaties/agreements that exist between the countries • extra restrictions on **personal** data / **personal** data may be allowed to move to a more restrictive country but then not be allowed to return • different countries have different exceptions to/interpretations of the same law. e.g. in the areas of fair use, public interest, national security. • different countries/courts have different ideas on where they have jurisdiction, whose law applies in certain situations.		3

Question number	Answer	Additional guidance	Mark
3 (c) (i)	Award **one** mark for: Unique (non-physical) items that are a result of original creative thought.		1

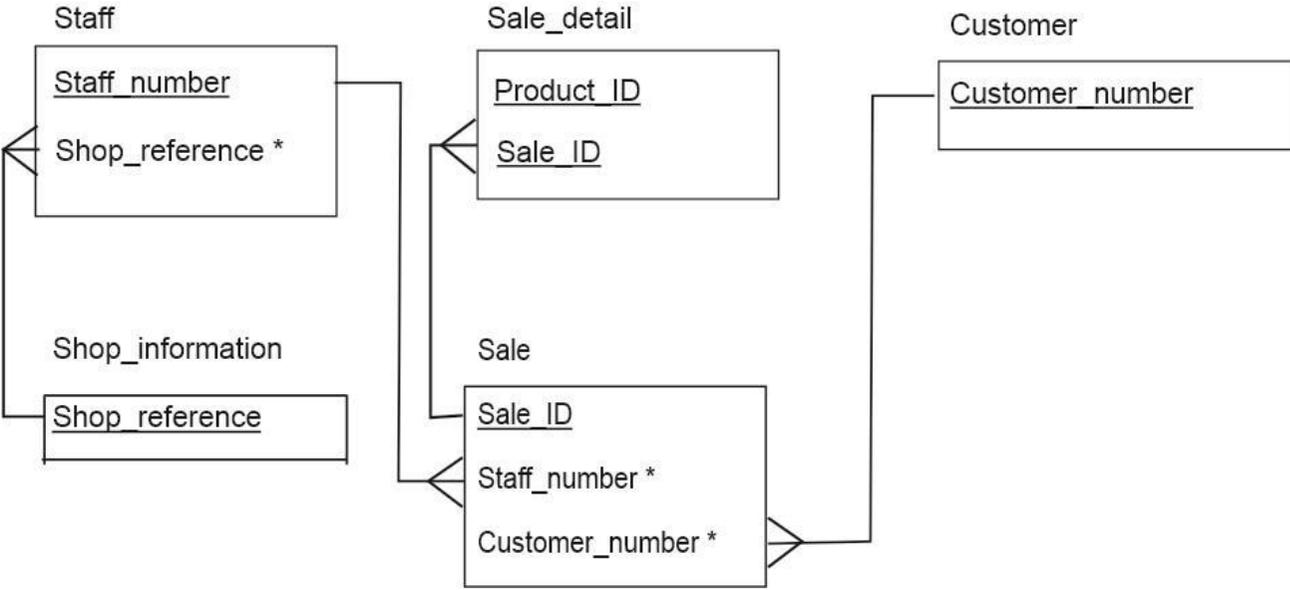| Question number	Answer	Additional guidance	Mark

3 (c) (ii)	Award **one** mark for the first point and **two** marks for a linked explanation.
	
	- These agreements impose duties on a country to recognise/protect copyright granted in other countries (1) which means:
	   o protection should be the same as protection granted to intellectual property in that country (1)
	   o if a country is not signed up the images on the website would be unprotected (1)
	   o the company does not need to register copyright in every country (1)
			3
			
			Total 12

Question number	Indicative content	Additional guidance	Mark

4(a)	Responses should be in relationship to the context of the question. (use of Wi-Fi to make the town 'smart') and make reference to both the town and residents.
	
	Transport:
	• Apps / displays for:
	   o timetables
	   o showing when bus will arrive at a location
	   o booking seats for long distance
	   o finding / paying for parking spaces
	• Monitor traffic / keep traffic flowing / reduce traffic jams
	
	Education:
	• school information e.g.
	   o attendance
	   o reports
	   o paying fees / for trips/events
	   o notifying absence
	• library
	   o access to e-books
	   o search for / reserve books / other media
	• web access for general information
	   o internet access, possibly filtered / family safe
	   o government / town council / official publications / public records
	
	Services:
	• medical
	   o appointments
	   o diagnosis
	   o health information
	• shopping
	   o online
	   o search / reserve item for collection
	   o booking delivery slot
	   o package tracking
	• communications
	   o VoIP
			6

		o email		
		• banking		
		o online payments / transfers		
		o e-statements etc.		
		• e-governance and public participation		
		o voting / election related		
		o petitions		
		o communication with representatives / government / town council		
		o platform for (political) communication to wider audience		
		Social interaction:		
		• forums / social pages / chat		
		• calendars / events		

Level	Mark	Descriptor
	0	No rewardable material.
Level 1	1–2	• Demonstrates limited knowledge and understanding, some of which may be inaccurate. • Applies understanding with limited coherence to produce a superficial and unbalanced discussion.
Level 2	3–4	• Demonstrates knowledge and understanding which is mostly relevant but may include some inaccuracies. • Applies understanding to make some coherent connections, leading to a discussion that shows some development, but may be unbalanced.
Level 3	5–6	• Demonstrates accurate and relevant knowledge and understanding throughout. • Applies understanding coherently to produce a balanced and fully developed discussion.

Question number	Answer	Additional guidance	Mark

4(b)	Responses should be in relationship to the context of the question. (planning "smart" features for a new town) and involve the use of IT.
	
	IT technologies:
	• Sensors
	• Networks
	• Models / simulations
	• Location awareness
	• CCTV
	• Virtual reality
	• Robotics
	
	Transport:
	• planning of:
	    o walking, cycling routes
	    o ease of movement about the town
	
	Recreation:
	• planning of open spaces
	• management of events
	• accessing impact of events
	
	Safety and mobility, planning of:
	• traffic management / separation of pedestrians / cyclists from traffic
	• sensors monitoring environmental factors
	• facilities for disabled people
	• intelligent lighting
	
	Sustainability / ecology, planning and management of:
	• heat
	• power
	• water
	• waste
			6
			
			Total 12

Level	Mark		Descriptor
	0		No rewardable material.
Level 1	1–2		• Demonstrates limited knowledge and understanding, some of which may be inaccurate. • Applies understanding with limited coherence to produce a superficial and unbalanced discussion.
Level 2	3–4		• Demonstrates knowledge and understanding which is mostly relevant but may include some inaccuracies. • Applies understanding to make some coherent connections, leading to a discussion that shows some development, but may be unbalanced.
Level 3	5–6		• Demonstrates accurate and relevant knowledge and understanding throughout. • Applies understanding coherently to produce a balanced and fully developed discussion.

Question number	Answer	Additional guidance	Mark
5(a)	Award **one** mark for each of: • five entities with the correct names • the four correct relationships (the lines) • correct relationship type between sale and Sale_detail • the three remaining correct relationship types • correct primary key in Sale_detail • the four remaining primary keys • correctly identified foreign keys in Sale • correctly identified foreign keys in Staff or Sale_detail • a fully completed diagram 	Accept logical and consistent abbreviations Any understandable and consistent notation for relationships	9

Question number	Answer	Additional guidance	Mark
5(b)	Award **one** mark for each point up to a maximum of **three** marks for a linked explanation. • structured data is (highly) organised, unstructured is not / does not have a standard organisation method • structured data has a pre-defined data model, unstructured does not • structured data is formatted to enable it to be read by machines, unstructured has variable format • structured data is easily searchable by simple algorithms, unstructured needs complex algorithms / may not be searchable at all. Example • structured data is easily searchable by simple algorithms (1) because it is highly organised / has been formatted to be read by machines (1) whereas unstructured data can only be searched using complex algorithms (1)		3 **Total 12**

Question number	Answer	Additional guidance	Mark
6	Responses should be in relationship to the context and include a conclusion. Costs: • open source is free to download / only costs the price of the media • documentation / support may be expensive • open source may have limited functions, require fee for add-on modules / extra features Reliability: • open source usually has a faster update / bugfix cycle • developers / authors respond faster to user requests for changes • code is visible / released so it can be checked for errors / adapted to needs • may be abandoned by the author / developer leaving users without support / with an obsolete product • software which mimics commercial products will lag behind them • little or no redress if the software causes problems Convenience • faster update cycle can mean more work for administrator / Afram • installation / updates may require more technical knowledge / skill than proprietary software • simpler licensing requirements / no pirating or copyright issues Compatibility • open source **must** use open formats / open standards • the open formats do not have to match common proprietary formats • open source software will usually include routines to input and output common proprietary formats		**12** **Total 12**

Level	Mark		Descriptor
	0		No rewardable material.
Level 1	1–4		- Demonstrates limited knowledge and understanding, some of which may be inaccurate. - Applies understanding with limited coherence to produce a response that lacks development. - Demonstrates limited awareness of competing arguments. Conclusion, if present, is generic or unsupported.
Level 2	5–8		- Demonstrates knowledge and understanding, which is mostly relevant and may include some inaccuracies. - Applies understanding to make some coherent connections and a partially developed response. - Demonstrates some awareness of competing arguments, but this may be unbalanced, and partially supports conclusion with evidence.
Level 3	9–12		- Demonstrates accurate and relevant knowledge and understanding throughout. - Applies understanding coherently to produce a fully developed response. - Demonstrates an awareness of competing arguments and supports conclusion with evidence.