Level 3 Technical Level
IT: CYBER SECURITY
IT: NETWORKING
IT: USER SUPPORT
H/507/6426

Unit 2 Communication technologies

Mark scheme

January 2019

Version: 1.0 Final

191AH507/6426/MS

Mark schemes are prepared by the Lead Assessment Writer and considered, together with the relevant questions, by a panel of subject teachers. This mark scheme includes any amendments made at the standardisation events which all associates participate in and is the scheme which was used by them in this examination. The standardisation process ensures that the mark scheme covers the students' responses to questions and that every associate understands and applies it in the same correct way. As preparation for standardisation each associate analyses a number of students' scripts. Alternative answers not already covered by the mark scheme are discussed and legislated for. If, after the standardisation process, associates encounter unusual answers which have not been raised they are required to refer these to the Lead Examiner.

It must be stressed that a mark scheme is a working document, in many cases further developed and expanded on the basis of students' reactions to a particular paper. Assumptions about future mark schemes on the basis of one year's document should be avoided; whilst the guiding principles of assessment remain constant, details will change, depending on the content of a particular examination paper.

Further copies of this mark scheme are available from aqa.org.uk

Level of response marking instructions

Level of response mark schemes are broken down into levels, each of which has a descriptor. The descriptor for the level shows the average performance for the level. There are marks in each level.

Before you apply the mark scheme to a student's answer read through the answer and annotate it (as instructed) to show the qualities that are being looked for. You can then apply the mark scheme.

Step 1 Determine a level

Start at the lowest level of the mark scheme and use it as a ladder to see whether the answer meets the descriptor for that level. The descriptor for the level indicates the different qualities that might be seen in the student's answer for that level. If it meets the lowest level then go to the next one and decide if it meets this level, and so on, until you have a match between the level descriptor and the answer. With practice and familiarity you will find that for better answers you will be able to quickly skip through the lower levels of the mark scheme.

When assigning a level you should look at the overall quality of the answer and not look to pick holes in small and specific parts of the answer where the student has not performed quite as well as the rest. If the answer covers different aspects of different levels of the mark scheme you should use a best fit approach for defining the level and then use the variability of the response to help decide the mark within the level, ie if the response is predominantly level 3 with a small amount of level 4 material it would be placed in level 3 but be awarded a mark near the top of the level because of the level 4 content.

Step 2 Determine a mark

Once you have assigned a level you need to decide on the mark. The descriptors on how to allocate marks can help with this. The exemplar materials used during standardisation will help. There will be an answer in the standardising materials which will correspond with each level of the mark scheme. This answer will have been awarded a mark by the Lead Examiner. You can compare the student's answer with the example to determine if it is the same standard, better or worse than the example. You can then use this to allocate a mark for the answer based on the Lead Examiner's mark on the example.

You may well need to read back through the answer as you apply the mark scheme to clarify points and assure yourself that the level and the mark are appropriate.

Indicative content in the mark scheme is provided as a guide for examiners. It is not intended to be exhaustive and you must credit other valid points. Students do not have to cover all of the points mentioned in the Indicative content to reach the highest level of the mark scheme.

An answer which contains nothing of relevance to the question must be awarded no marks.

The following annotation is used in the mark scheme:

; - means a single mark

// - means alternative response

/ - means an alternative word or sub-phrase

A. - means acceptable creditworthy answer

R - means reject answer as not creditworthy

NE - means not enough

I - means ignore

DPT - in some questions a specific error made by a candidate, if repeated, could result in the candidate failing to gain more than one mark. The DPT label indicates that this mistake should only result in a candidate failing to gain one mark on the first occasion that the error is made. Provided that the answer remains understandable, subsequent marks should be awarded as if the error was not being repeated.

Question	Guidance	Mark
01	**Mark is for AO2** Option C: short-range radio waves **R.** more than one box ticked	1
02	**Mark is for AO2** Option B: fibre optic **R.** more than one box ticked	1
03	**Mark is for AO1** Option A: amount of data transmitted in a fixed amount of time **R.** more than one box ticked	1
04	**Mark is for AO4** Option A: bus topology **R.** more than one box ticked	1
05	**Mark is for AO5** Option D: standards for local and metropolitan area networks **R.** more than one box ticked	1

Question	Guidance	Mark
06	**2 marks for AO1** **Analogue** Maximum of 1 from: sound from a human voice; sound waves; (pure) audio signals; **A.** reference to RCA; **A.** vinyl; **A.** landline // telephone line; **A.** AM radio; **R.** radio **Digital** Maximum of 1 from: microprocessor; (digital) mobile phones; isochronous transfers; ISDN; CAT scans; MRI; **A.** reference to HDMI; **A.** broadband; **R.** machine code **A.** digital signal processing (DSP, logic units, CDs, DVDs, MP3, computers); **A.** Any other creditable answer **R.** If more than one example given, only consider the first example given	**2**

07	**2 marks for AO1** **Mbps** Maximum of 1 from (ignore spelling): • megabits per second; • measure of download / upload; • measure of internet connection speed; **MBps** Maximum of 1 from (ignore spelling): • megabytes per second; • how much of file is downloaded / uploaded per second; • amount of data transferred/downloaded;	**2**
Question	**Guidance**	**Mark**

08	**6 marks for AO5** Maximum 6 marks. 1 mark for each definition up to a maximum of 3 marks. 1 mark for each example up to a maximum of 3 marks. **Hub** connects segments (of a LAN); **A.** multiport repeater; **Examples:** • splits network connection (into multiple computers) without intelligence; • transmits to entire network/every port; • sends packets / frames to all devices (on a network); • sends data to all devices **irrespective** of any MAC address; • indiscriminate / no routing capability; • not the hub but the receiving computer that determines whether or not the message is for them; • places a lot of traffic on network; which can result in poor response times; **A.** star network central hub; **Switch** connects devices together (by receiving/processing/forwarding data); **Examples:** • **uses physical device/MAC addresses** (on incoming messages); to deliver message to correct destination/port; • can identify which system is sitting on which port; **knows exactly which port to use**; therefore, **does not impact on bandwidth**; is therefore preferred to a hub; • use of switch table; • splits network connection (into multiple computers) with intelligence/**selectively** **A.** tree network / multiple switches off a central switch **Router** (directs traffic/data on the Internet and) connects networks; **Examples:** • all traffic destined for a specific port sent to an identified IP address; • connects device to Internet Service Provider (ISP) and a LAN // two LANS // LAN and a WAN // at least two networks; • forwards data/packets between computer networks/from router to router/until destination reached; • each packet of data contains the destination address; **A.** connects a private IP to a public IP; **A.** Any other creditable answer	**6**

Question	Guidance	Mark
09	**2 marks for AO5** Maximum of 2 marks. **Internet Protocols (IP)** Maximum of 1 from: • directs packets to a specific device/server (max 1500 bits); • (unique) address / every device has an address; **A.** rules governing the format of data sent over the internet // set of standards for addressing and routing data // **source and destination addressing** **A.** sends data / datagram from one device to another; **A.** Any other creditable answer **Transmission Control Protocols (TCP)** Maximum of 1 from: • directs data/packets to a specific application (on a computer/device)using a port number // **source and destination ports**; • byte stream service // connection-orientated; • guarantees delivery of data // acknowledge and re-send // checksum (service) guarantees reliability; • guarantees data delivered in order sent // no packet loss // retransmit and reordering // sequence numbering // flow control; **A.** defines how to establish and maintain a network conversation; **A.** Any other creditable answer	2
10	**4 marks for AO3** 1 mark for each correct point or expansion point, up to a maximum of 4 marks. **Examples include:** • **interference**, **distance** limitations, weaker signals // depending on location / affects speed of data transmission // fluctuations in bandwidth // **instability** due to weather, eg atmospheric / lightening; **A.** reference to wired shielding as a means of reducing interference; • (some older computer systems) incompatible with wireless technology / with the right hardware (USB, ethernet) possible to connect more / all devices • wireless networks subject to more **security** attacks, attacker does not need to be present / easier to intercept wireless data • **obstructions** / buildings /construction / thick walls, steel, concrete congestion / multiple users	4

	• wireless suffers fluctuations in bandwidth / stability due to weather / location / distance; **A.** capacity / wireless network cannot always transfer as much data as sent; **A.** wired network faster;	

<table>
<tr><th>Question</th><th>Guidance</th><th>Mark</th></tr>
<tr><td>11</td><td>4 marks for AO2

1 mark for each correct point or expansion point, up to a maximum of 4 marks.

Examples include:
• (data transfer speed increases as signal strength increases) up to a point / as greater signal strength enables greater (physical layer data) rates
• (having achieved) sufficient signal strength / further, greater signal strength does NOT result in greater (physical layer data) rates / once max PHY rate achieved
• physical barriers (walls, etc) and noise (EMI) will degrade signal strength, impair speed // signal noise will increase with distance and impair speed;
• Shannon's law // ISP speed cannot be reached if signal strength insufficient to overcome EMI // EMI results in more errors, impairing speed (due to retransmission) // increased signal strength reduces effect of signal noise;
• fall off common due to (receiver) front-end saturation (once max PHY rate achieved);
• lower bandwidth will impair speed // lower bandwidth will impair downloading;
• ISPs can limit / throttle bandwidth / dataspeed during peak hours;
• speed only 1 of many factors;

A. bottlenecking;</td><td>4</td></tr>
<tr><td>12.1</td><td>3 marks for AO5

Maximum 3 marks.

1 mark per protocol on the correct row;

<table>
<tr><th>OSI layer</th><th>Protocol</th></tr>
<tr><td>Data link layer</td><td>IEEE 802 (LAN standard) // MAC
Ethernet, PPP, CSMA/CD, CSMA/CA etc
A. point to point</td></tr>
<tr><td>Network layer</td><td>IPv4, IPv6, RIP, IPX, EGP, SCCP, etc
A. IP</td></tr>
<tr><td>Transport layer</td><td>TCP, UDP, DCCP, ESP, SPX, etc
A. FTP</td></tr>
</table>

R. if two or more protocols are given in one box, only consider the protocol closest to the left side of the box</td><td>3</td></tr>
</table>

Question	Guidance	Mark
12.2	**3 marks for AO5** Maximum of 3 from: access to email messages on the move; access to email from more than 1 platform;; from any internet-enabled device; from any device once downloaded, without needing an internet connection messages are synched / updated; email messages (Inbox) stored on server/s; viewed by contacting / connecting with server; messages remain on the server unless deleted; messages not fully downloaded/stored to/on device unless opened; **A.** improvement on POP3; **A.** Any other creditable answer **R.** encrypted	**3**

Question	Guidance	Mark
13	**3 marks for AO5** Maximum 3 marks. If only one layer given, then award a maximum of 2 marks. Maximum of 3 marks from: • Layer 2 deals with communication of devices on the same network; • Layer 3 deals with communication of devices on different networks; • Layer 2 disassembles/reassembles **frames** into bits // bits into frames for transmission/reconstruction; • Layer 3 receives messages/frames from lower layers; • Layer 2 functions include **physical addressing** // encoding data packets // error control // flow control; • Layer 2 packets are sent to a specific port; • Circuit/packet/message switching all take place at Layer 3; • Layer 2 divided into MAC (media access control // **MAC addressing** // provides interface for network interface card) sublayer; and LLC (logic link control // establishes and maintains links) sublayer; • Layer 2 packets use the (destination) MAC address; • Layer 3 packets use the (destination) IP address // **logical addressing**; • **Routing and forwarding and packet sequencing** takes place at Layer 3; • Layer 3 makes use of gateways to reconcile (protocol) differences on two different networks; **A.** routing information/// L3 addressing // packet sequencing ; **A.** reference to routers at L3; **A.** reference to switches at L2; **A.** Any other creditable answer	**3**

Question	Guidance	Mark
14	**6 marks for AO1** Maximum 6 marks. 1 mark for each potential cause up to a maximum of 3 marks. 1 mark for each appropriate solution up to a maximum of 3 marks. **Causes include:** radiation; signals from radio / TV / nearby appliances / phone / router; conduction; contact with/proximity to electrical cables; electronic devices; interference from an adjacent power line to cabling; **A.** crosstalk; **A.** poor quality cables // unshielded cables; **R.** electromagnetic interference unless further example given **Solutions include:** grounding (points); can earth most common forms of EMI; commonly resolved by way of a 3-pin plug; shielding; use of twisted pair use of optical fibre; suppress the emission (with example of how given), making the receiver less susceptible to noise; electrical/electronic filtering; physical separation; ferrite bead/choke/core (noise) suppressor; (if appropriate) fibre optic cable; **A.** atmospheric + lightening strikes (1+1) **R.** solutions which are not appropriate to the cause	6

Question	Guidance	Mark
15	**6 marks for AO4** Maximum of 6 marks. Maximum of 3 from: loss of data; loss of service; loss of income; loss of reputation; **A.** Any other creditable risk 1 mark for each correct point or expansion point, up to a maximum of 5 marks. **For example:** One risk to the business is loss of reputation; expansion;; impact;;; Two risks the business might face are loss of income and loss of data;; expansion;; impact;; **Examples include:** **RISK: loss of data** IMPACT: including personal information, username and password, email addresses, dates of birth, security questions and answers, credit card and bank details, deletion of data due to malicious (malware) attack, (loss of) data valuable and difficult to replace, breach of privacy, loss of trust **RISK: loss of service** IMPACT: inconvenience, inability to trade, suspension of trading while awaiting fix, continued vulnerability while awaiting fix, system failure, customer-client cannot access systems, should have measures in place, flaws in network, information security **RISK: loss of income** IMPACT: often profitability least hit, greater concerns often relating to loss of personal data and reputational damage, focus on keeping attackers out not on response or cost **RISK: loss of reputation** IMPACT: loss of trust, particularly where exposure due to poor security practice or breach by current or former employees, human error or apparent lack of (corporate) competence, fines for poor security, lack of vigilance / resilience	**6**

Question	Guidance	Mark
16	**4 marks for AO4** 1 mark for each correct point or expansion point, up to a maximum of 4 marks. Maximum 3 marks if only one part of question is addressed. **Examples include:** **Advantages** • handles high volumes of traffic // multiple devices transmit data simultaneously; • each computer and network device interconnected with another; • potential to cover large areas; without attenuation // without degradation //without loss of signal (strength); • adding additional devices does not disrupt data transmission between other devices // adding additional devices actually improves traffic in network (every additional device = a node); • the greater the distance, the greater the signal strength; • only one wired node physically connected // wireless mesh is truly wireless; • nodes are programmed to select quickest and safest route; **A.** dynamic routing; • a broken node won't disrupt transmission of data as each node is connected to several other nodes // a broken device won't disrupt transmission of data; • as the signal will find a working device connected to a working node; • all of the nodes are interconnected with one another // data transmission supported by (sending signals to multiple) different paths; • (if one connection goes down) failure of one device does not cause a break in the network or transmission of data; **A.** self-healing; • useful for Non-Line of Sight (NLoS) connections; • community networks connect neighbourhoods; more efficient sharing of network bandwidth, expandable, flexible; **A.** self-configuring; • mesh nodes are wireless transmitters; **R.** routers / switches **Wireless mesh networking** • more cost-effective // easier to scale a mesh using wireless (than cable); • standard routers suffer attenuation // lose signal strength / degrade (the further away); • the multiple wireless stations / satellite stations working together in a mesh network; ensure blanket coverage and no loss of signal (strength); • public wireless networks are increasingly reliable for mobile phone service (ideally suited to a (wireless) mesh network); • some wireless networks designed specifically for the home (eg Eero / Google Wi-Fi); include apps that are intuitive // designed to pick up (multiple) Wi-Fi points // give unbroken coverage, room to room; • automatic connection to the strongest station;	4

<table>
<tr><th>Question</th><th>Guidance</th><th>Mark</th></tr>
<tr><td>17.1</td><td>
3 marks for AO2

Maximum 3 marks.

1 mark for each correct row. If only 1 row is correct, 1 additional mark if either column is correct.

<table>
<tr><th>Transmission media</th><th>Set up</th><th>Includes</th><th>Relative performance</th></tr>
<tr><td>Twisted pair cable</td><td>probably faster and less expensive in challenging locations</td><td>UTP, STP, coaxial</td><td>good</td></tr>
<tr><td>Wireless</td><td>easier to connect multiple devices</td><td>radio frequencies, microwave, infrared</td><td>variable</td></tr>
<tr><td>Fibre optic</td><td>costly to purchase and install</td><td>bundles of 400 or 500 pairs</td><td>great</td></tr>
</table>
</td><td>3</td></tr>
</table>

<table>
<tr><th>Question</th><th>Guidance</th><th>Mark</th></tr>
<tr><td>17.2</td><td>
9 marks for AO2
<table>
<tr><th>Level</th><th>Description</th><th>Mark Range</th></tr>
<tr><td>3</td><td>Candidate clearly discusses the advantages AND disadvantages, using two or more appropriate examples</td><td>7-9</td></tr>
<tr><td>2</td><td>Candidate makes some appropriate comparison, or clearly explains the advantages OR disadvantages, using one or more appropriate examples.</td><td>4-6</td></tr>
<tr><td>1</td><td>Candidate gives a general description of advantages and / or disadvantages</td><td>1-3</td></tr>
<tr><td></td><td>No creditworthy material</td><td>0</td></tr>
</table>
Indicative content:

Advantages
• many types of cable eg unshielded twisted-pair (UTP), shielded twisted-pair (STP), and coaxial cable
• high availability, low cost
• (already) well established (eg in rural areas as well as in towns and cities)
• copper-based cables are inexpensive and easy to work with (eg compared to fibre-optic cables)
• coaxial cable thicker due to metallic shielding, coax (therefore) has fewer issues with EMI, and higher transmission rates
• (some) twisted pair cable has better performance than wireless and is far less susceptible to variation in conditions / environment; twisted pair provides 1 Gbps and can provide 10 Gbps; modern wireless can reach such levels, but it is still not particularly common

Disadvantages
• cables at rated (performance at 100m) at 20 degrees centigrade // heat degrades performance;
• bundling cabling generates heat // routing near (particularly routing above) sources of heat degrades performance;
• heat becoming more of an issue due to Power over Ethernet (PoE) connectivity // related to Internet of Things (IoT); A. reference to 'digital buildings';
• susceptible to noise and subsequent error, interference
• limitations in some scenarios, such as >100 m distances (eg loss of signal - attenuation - over long distances)
• coaxial cable has fewer impairments than twisted-pair due to how cable is constructed // coax has lower error rates but higher installation costs;
• durability in harsh environments
</td><td>9</td></tr>
</table>

	• for twisted pair, short distance between repeaters, greater distance means more repeaters results in less loss of signal but has more potential for higher error rate • copper old technology/has limited bandwidth (eg compared to fibre optic) • • current copper market subject to shortages / rising prices • corrosion, oxidation, deterioration (over time) • loss of signal due to poorly terminated // poorly grounded connections; • loss of signal due to poor cabling // impurities in copper cabling;	

17.3	**3 marks for AO2** Maximum of 3 marks from: loss / weakening of signal as distance increases // a measure of how a signal weakens as it travels; cable designs must specify limits in the length of cable runs; (if signal strength falls below certain limits) equipment receiving the signal can find it difficult to isolate the original signal from electronic noise // extra noise; **A.** Any other creditable answer	**3**

<table>
<tr><th>Question</th><th>Guidance</th><th>Mark</th></tr>
<tr><td>18</td><td>15 marks for AO4
<table>
<tr><th>Level</th><th>Description</th><th>Mark Range</th></tr>
<tr><td>5</td><td>Candidate clearly understands the development of SIM cards, making specific reference to 1FF-4FF and full-size to nano progression; provides a confident and perceptive account of the uses of SIM cards today; provides a <u>detailed</u> description of the advantages and disadvantages relating to eSIM <u>and</u> virtual SIM, comparative argument, <u>and</u> concluding with an opinion as to likely success and / or further likely progression</td><td>13 – 15</td></tr>
<tr><td>4</td><td>Candidate clearly understands the development of SIM cards, making reference to 1FF-4FF and / or full-size to nano progression; provides an account of the uses of SIM cards today; provides an explanation of the advantages and disadvantages relating to eSIM / virtual SIM, including some comparative discussion and reference to likelihood of success and / or obstacles to take-up</td><td>10 – 12</td></tr>
<tr><td>3</td><td>Candidate has some understanding of the development of SIM cards, makes some reference to 1FF-4FF and / or to full-size to nano progression; makes appropriate reference to the uses of SIM cards today with examples; provides a description of the advantages and disadvantages relating to eSIM / virtual SIM, with some reference possible obstacles to take-up</td><td>7 – 9</td></tr>
<tr><td>2</td><td>Candidate provides a general overview of the development of SIM cards, makes some reference to any of 1FF-4FF progression and / or any of full-size to nano progression; makes some reference to the uses of SIM cards today; suggests some advantages and disadvantages relating to eSIM / virtual SIM,</td><td>4 – 6</td></tr>
<tr><td>1</td><td>Candidate gives indication they know something of the development of SIM cards, gives one or two examples of how SIM cards are used, and provides one advantage and / or one disadvantage relating to eSIM / virtual SIM.</td><td>1 – 3</td></tr>
</table></td><td>15</td></tr>
</table>

	No creditworthy content	0

Indicative content:

SIM cards

- full size, mini, micro, nano
- IFF, 2FF, 3FF, 4FF
- downsized over time
- traditionally supplied with service contract
- simple memory chip with information about ID of user
- until recently, physically integrated into phone

Development

- SIM card needed for all GSM / 2G mobile phones / authenticated / identifiable
- UICC needed for 3G and 4G
- advantage of UICC uses wireless technology and IP
- first SIM cards same size as a credit card and required 5v; most SIM cards today operate on 3v
- has reduced in size (as phones have reduced in size) but grown in capacity
- revolutionised mobile technology, still critical to most smartphones and some tablets;
- SIM cards have a specific operator's identify and encryption and are personalised for carrier and subscriber (subscriber login and password, carrier verification and encryption keys)
- eSIM stands for embedded SIM / is not a real, physical SIM card
- eSIM already used in iPAD, Apple watch, and Google Pixel 2 smartphone

Advantages (of SIM card slot)

- SIM card easily swapped and replaced, used for different contracts/purposes
- they are pre-provisioned; manufacture and support for physical SIM cards will continue for some time due to long usage cycles of basic SIM phones and devices
- each SIM card has a unique 20 character ID number / enables user to port SIM card between operators
- each SIM card also has a PIN and a PUK
- each SIM card has memory up to 256kb / enough for 250 contacts
- possible now for SIM card users to keep (more) contacts on cloud / (more) safely

Disadvantages (of move towards eSIM / away from SIM card slot)

- has been around for a while but has yet to become mainstream / possible resistance by customers / possible loss of customers if product enforced
- contractual issues, disputes with long-term contracts
- compatibility
- how to cater for dual SIM user eg loss of current flexibility, unable to move a

	physical SIM between devices if you use multiple phones, unable to "borrow" a phone by just putting your existing SIM in it; (advantages) solutions in emerging technology, eg iPhone XS has dual SIM capability • technology not yet available on all mobile phone networks, so not yet true to say eSIMs are replacing SIMs • eSIM users with multiple devices and used to swapping one SIM card between their devices will not be able to do so / will have to use software to activate eSIM on each device before being able to use that device • eSIM users will no longer, for example, be able to take their SIM card out of their own phone and use in a friend's device if, say, they are running out of battery, or damage their phone and need to make a call or send a message urgently **Advantages (of eSIM)** • (from Feb 2016) the eSIM enabled SIM card spec enables the user to select multiple mobile networks without physically changing the SIM card • no need to insert a (physical) SIM card into any device / removes the need to have a physical SIM card or SIM slot • instantly activated (remotely) if user changes carrier / no need to wait for old SIM (card) to be deactivated / new SIM card to be activated • eSIM more reliable / less likely to faiL • eSIM is smaller and therefore can be used in smaller devices / eg smartwatches • has same/additional functionality • OTA updating • eSIM is dynamic, virtual; whether removable or integrated • eSIM is remotely-provisioned – change of provider, replacing exchange of a physical card; possibility of shared data plans for multiple devices • provider solutions, eg number for business and another for personal calls, data roaming for use in another country, separate voice and data plans **DISCUSSION / ARGUMENT** • manufacturers could supply dual SIM and eSIM as standard / thereby avoiding need for customer to choose / enabling customer to try before they buy and choose at a later date • eSIM cards not yet widely used but both Apple and Google are offering dual SIM smartphones as standard / likely more carriers will follow the trend with eSIM or at the very least dual SIM becoming more popular	

Assessment Outcomes						
Question	**AO1**	**AO2**	**AO3**	**AO4**	**AO5**	**Question Total**
SECTION A						
1		2c (1)				1
2		2c (1)				1
3	1d (1)					1
4				4b (1)		1
5					5a (1)	1
6	1a (2)					2
7	1b (2)					2
8					5c (6)	6
9					5c (2)	2
10			3d (4)			4
11		2c (4)				4
12.1					5b (3)	3
12.2					5c (3)	3
13					5c (3)	3
14	1c (6)					6
15				4c (6)		6
16				4a (4)		4
Total A	11	6	4	11	18	**50**
SECTION B						
17.1		2c (3)				3
17.2		2abc (9)				9
17.3		2c (3)				3
18			3c (15)			15
Total B	0	15	15	0	0	**30**
Total A+B	11	21	19	11	18	**80**