



Oxford Cambridge and RSA

Cambridge Technicals Applied Science

Unit 22: Global Scientific Information

Level 3 Cambridge Technical in Applied Science
05847 - 05849/05874/05879

Mark Scheme for January 2020

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This mark scheme is published as an aid to teachers and students, to indicate the requirements of the examination. It shows the basis on which marks were awarded by examiners. It does not indicate the details of the discussions which took place at an examiners' meeting before marking commenced.

All examiners are instructed that alternative correct answers and unexpected approaches in candidates' scripts must be given marks that fairly reflect the relevant knowledge and skills demonstrated.

Mark schemes should be read in conjunction with the published question papers and the report on the examination.

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Question		Answer	Mark	Guidance
1	(a)	company research department ✓	1	
	(b)	the workplace ✓ online ✓	2	DEDUCT one mark for each additional tick in excess of two (minimum mark = 0).
	(c) (i)	Copyright Designs and Patents Act (1988) ✓	1	ALLOW copyright and patents act ALLOW correct name of act without date DO NOT ALLOW correct name of act with incorrect date
	(ii)	different legislation/regulatory frameworks (in different countries) ✓ difficult to enforce in other countries ✓	2	ALLOW appropriately named examples of countries
	(iii)	Any four from: hard to prove that the idea is original ✓ the application of the technology is not novel (i.e. it is used for the same purpose of improving the mechanical and wear resistance of metal parts) ✓ the machinery used may contain patented parts ✓ the compounds may occur in nature and therefore are not novel ✓ academic or industry groups may discourage legislative protection as it may stifle innovation ✓ patent applications may be expensive / time consuming ✓	4	

Question	Answer	Mark	Guidance
2	<p>(a) Level 3 (5 – 6 marks)</p> <p>A reasoned discussion / explanation incorporating the importance of information transfer between TC and manufacturer AND between TC and customer. There is an appreciation of why this information exchange is particularly important for critical parts.</p> <p>Level 2 (3 – 4 marks)</p> <p>A discussion / explanation incorporating importance of information transfer between TC and manufacturer AND between TC and customer. There is no real appreciation of why this information exchange is particularly important for critical parts.</p> <p>Level 1 (1 – 2 marks)</p> <p>A discussion / explanation incorporating importance of information transfer between TC and manufacturer OR between TC and customer. There is no real appreciation of why this information exchange is particularly important for critical parts.</p> <p>0 marks <i>No response or no response worthy of credit</i></p>	6	<p>relevant points relating to:</p> <p>why it is important to exchange information between TC and manufacturer</p> <ul style="list-style-type: none"> • sharing of expertise • legal obligations to each other e.g. terms of contract • legal obligations to others e.g. consumers / regulatory bodies (e.g. Civil Aviation Authority) • idea that knowledge can be used to improve or redesign parts • identify faults in manufacturing processes <p>why it is important to exchange information between TC and customer</p> <ul style="list-style-type: none"> • so that QA procedures are verified • give assurance that the part is suitable for purpose • alerts that the part is not suitable for purpose • products may have to be recalled to protect consumers • expected life-time of part may be extended and therefore save money <p>understanding that information exchange is particularly important with critical parts</p> <ul style="list-style-type: none"> • critical parts may directly affect health and safety • failure (of critical parts) results in endangerment of life • reliability (of critical parts) results in continued safety <p>NOTE that some points might be common to information exchange between TC and manufacturer and between TC and customer, so credit any valid points.</p>

Question			Answer	Mark	Guidance
2	(b)	(i)	public have the right ✓ to knowledge of standards / to know that standards have been met ✓ (relating to their) health and safety ✓	3	
		(ii)	confidential ✓ risk of loss of reputation (for company) / emotional stress (to patients) ✓	2	
3	(a)		(accuracy) clear description of the component/ treatment process or the code enables accurate records to be made ✓ (accessibility) the code enables all stakeholders to have a common understanding or the code enables reliable/comparable records to be made ✓ (reassurance) stakeholders can be confident that the component is receiving the correct treatment process or (in case of part failure) the code provides a sound basis for further investigation ✓	3	Alternative responses to be finalised at SSU.

Question	Answer	Mark	Guidance															
(b)	<table border="1"> <thead> <tr> <th>consequence</th> <th></th> <th>explanation</th> </tr> </thead> <tbody> <tr> <td>misinformation</td> <td></td> <td>TriboCeram management team consider that the management of information is good</td> </tr> <tr> <td>emotional stress</td> <td></td> <td>TriboCeram may treat the wrong component in error</td> </tr> <tr> <td>bad making decision</td> <td></td> <td>the TriboCeram customer service team receive a number of complaints from dissatisfied clients</td> </tr> <tr> <td>delusion</td> <td></td> <td>the name of one of the clients is incorrect</td> </tr> </tbody> </table>	consequence		explanation	misinformation		TriboCeram management team consider that the management of information is good	emotional stress		TriboCeram may treat the wrong component in error	bad making decision		the TriboCeram customer service team receive a number of complaints from dissatisfied clients	delusion		the name of one of the clients is incorrect	4	
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	(c)	<p>access is authorised ✓</p> <p>privilege to use certain aspects of software or databases is assigned by the system administrator ✓</p> <p>access to database is controlled e.g. by one-time token password-initiated code number or access control lists or username and password ✓</p>	3	
4	(a)	solid state media ✓	1	
	(b)	<p>advantage - portability ✓</p> <p>disadvantage - (risk of) loss (of smartphone / data) ✓</p>	2	
	(c)	lack of (mobile phone) infrastructure ✓	1	ALLOW – limited/no access to the internet
	(d) (i)	Protection of Freedoms Act (2012) ✓	1	
	(ii)	<p>it regulates the storage of the biometric information ✓</p> <p>it regulates how the biometric information may be used ✓</p>	2	
	(iii)	DNA / physical feature / eye-colour / height / retina scan / facial recognition / AVP ✓	1	
	(e) (i)	<p>backup ✓</p> <p>in case of accidental loss / destruction ✓</p> <p>available for others to use/analyse or for future reference ✓</p> <p>large storage capacity ✓</p>	max 3	<p>ALLOW any other realistic suggestion. To be determined at SSU.</p> <p>ALLOW ease of access</p>

Question	Answer	Mark	Guidance
(ii)	confidentiality ✓ protocol ✓	2	
(iii)	a database / data retrieval system ✓ links file names/codes to patient data ✓	2	
(f)	funding ✓ specific example of use of funding ✓ OR access / use by other researchers ✓ results can be corroborated by other experts or results used to identify factors/causes or results used in the development of treatments (of cervical cancer) ✓ OR promotion ✓ specific example of promotion ✓ OR sharing ✓ to share the findings with other scientists / researchers / doctors	2	explanation must be linked to reason e.g. more nurses e.g. public awareness advertising of the program

Question		Answer	Mark	Guidance	
5	(a)	<p>security concept</p> <p>example</p>	3	1 mark for each correct line.	
	(b)	(i)	safeguard ✓	1	
		(ii)	to prevent/reduce risk to data/use of data ✓ from malware / spyware / viruses ✓	2	

Question		Answer	Mark	Guidance
6	(a)	(compatible) software applications use the same data formats / software applications need specific operating systems on which to operate ✓ he/Kareem must download the software that is compatible with his laptop operating system ✓	2	ALLOW – unless the software is compatible, it will not work on his laptop / he will not be able to open it.
	(b)	(i)	max 2	ALLOW reference to use of data by private companies ALLOW reference to not sharing with competitors ALLOW idea that confidentiality is protected by other laws e.g. job contract
		(ii)	1	public interest outweighs the commercial interest or the research may be publicly funded ✓
	(c)	data access speed ✓	1	ALLOW more reliable / less interference with wired connection. ALLOW the transfer of information is fast.

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