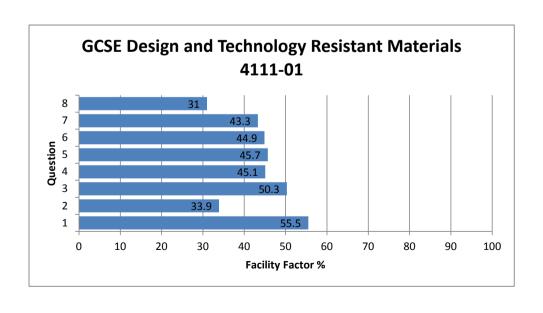


WJEC 2014 Online Exam Review

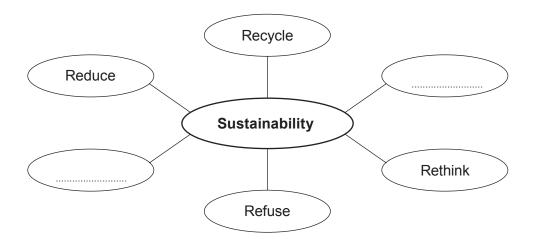
GCSE Design and Technology Resistant Materials 4111-01

All Candidates' performance across questions

?	?	?	?	?	?	?	_
Question Title	N (Mean	S D	Max Mark	F F	Attempt %	
1	6150	8.3	2.6	15	55.5	100	
2	6139	3.4	2.1	10	33.9	99.8	\leftarrow
3	6142	5	2.3	10	50.3	99.8	
4	6148	11.3	4.6	25	45.1	100	
5	6141	4.6	2.2	10	45.7	99.8	
6	6139	6.7	2.8	15	44.9	99.8	\leftarrow
7	6140	8.7	3.6	20	43.3	99.8	
8	6104	4.6	2.7	15	31	99.2	\leftarrow



- 2. This question is about the general issues of Design and Technology. It is worth a total of 10 marks.
 - (a) Complete the chart below by adding the **two** missing Rs of sustainability. [2]



(b) State the specific material referred to by **each** of the recycling symbols shown below. [2]





(c) Five step Risk Assessments are undertaken in working environments in order to consider the risks of carrying out a making process.

Complete the five step Risk Assessment below.

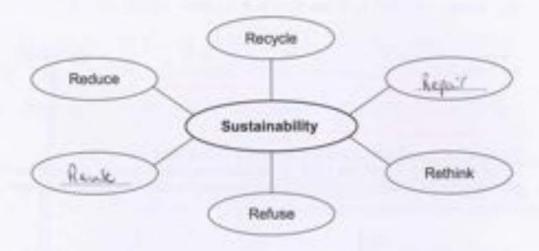
[2]

- 1. Identify the hazards.
- 2.
- **3.** Evaluate the potential risk.
- **4.** Record the findings.
- 5.

(d)	Complete the follow	wing definition of a LCA.		[2]	0
	"A Life C	A	is a method used	to measure	
	and evaluate the ir	npact of a product on the env	ironment".		
(e)	Explain the purpos	e of the British Standards Ins	stitution (BSI).	[2]	

4111

- This question is about the general issues of Design and Technology. It is worth a total of 10 marks.
 - (a) Complete the chart below by adding the two missing Rs of sustainability.



(b) State the specific material referred to by each of the recycling symbols shown below. [2]







Polypopulere.

(c) Five step Risk Assessments are undertaken in working environments in order to consider the risks of carrying out a making process.

Complete the five step Risk Assessment below.

[2]

- 1. Identify the hazards.
- 2. Get sid of the hazards
- 3. Evaluate the potential risk.
- 4. Record the findings.
- a fraduce the girdin

(d) Complete the following definition of	of a	LCA.
--	------	------

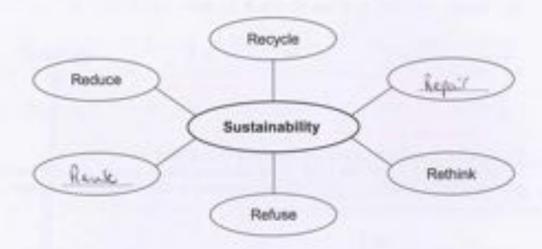
A Life Cycle A naly CS s a method used to measure and evaluate the impact of a product on the environment".

(e) Explain the purpose of the British Standards Institution (BSI).

[2]

To more sure that British products gamly as says to we and meet the criteria of needed.

- This question is about the general issues of Design and Technology. It is worth a total of 10 marks.
 - (a) Complete the chart below by adding the two missing Rs of sustainability.



(b) State the specific material referred to by each of the recycling symbols shown below. [2]







Mission Tin

Polypopulene /

(c) Five step Risk Assessments are undertaken in working environments in order to consider the risks of carrying out a making process.

Complete the five step Risk Assessment below.

[2]

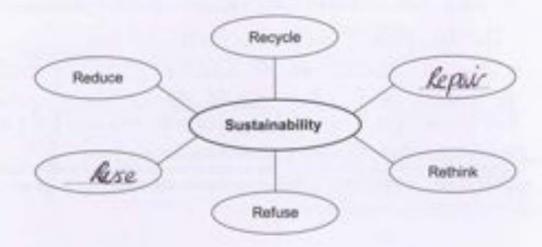
- Identify the hazards.
- 2. Get sid of the hazards
- 3. Evaluate the potential risk.
- 4. Record the findings.
- a fraduce the goding

(d) Co	omplete t	he followin	ng definiti	on of a LCA.			[2]
				Analytis		s a method u	used to measure
			au waxa		environment".	10.	PH
To	21000				products	VI.	42
		. le	and	meet H	u criteri		necled.

d



- This question is about the general issues of Design and Technology. It is worth a total of 10 marks.
 - (a) Complete the chart below by adding the two missing Rs of sustainability.



(b) State the specific material referred to by each of the recycling symbols shown below. [2]





Ferious material

Poly Polyvine Plastic

(c) Five step Risk Assessments are undertaken in working environments in order to consider the risks of carrying out a making process.

Complete the five step Risk Assessment below.

[2]

- 1. Identify the hazards.
- 2. how high the TISES We
- Evaluate the potential risk.
- 4. Record the findings.
- s. Solution to risks

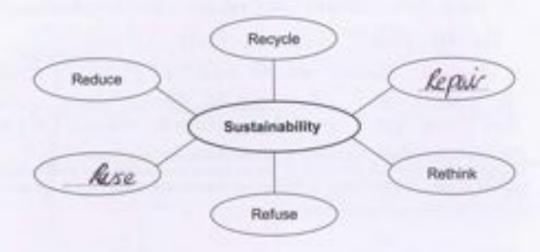
(d) Complete the following definition of a LCA.

(e) Explain the purpose of the British Standards Institution (BSI). [2]

British Standards Institution tells us that the products Standard is good although production

- This question is about the general issues of Design and Technology. It is worth a total of 10 marks.
 - (a) Complete the chart below by adding the two missing Rs of sustainability.

121



(b) State the specific material referred to by each of the recycling symbols shown below. [2]



٨

Ferious material

Poly Polyvine Pastic

(c) Five step Risk Assessments are undertaken in working environments in order to consider the risks of carrying out a making process.

Complete the five step Risk Assessment below.

129

- Identify the hazards.
- 2. how high the TISKS We
- 3. Evaluate the potential risk.
- 4. Record the findings.
- s solution to risks

(d) Complete the following definition of a LCA.

"A LITO CYCLE

only |

, is a method used to measure

and evaluate the impact of a product on the environment".

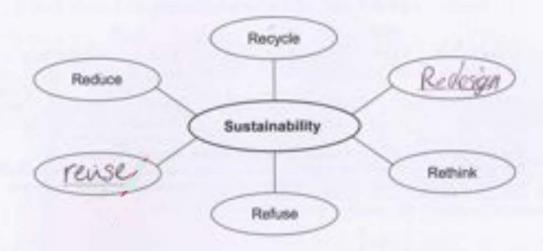
(e) Explain the purpose of the British Standards Institution (BSI).

[2]

Brish standards institution tells us that the

il

- This question is about the general issues of Design and Technology. It is worth a total of 10 marks.
 - (a) Complete the chart below by adding the two missing Rs of sustainability.



(b) State the specific material referred to by each of the recycling symbols shown below. [2]





magnetic

recyclible

(c) Five step Risk Assessments are undertaken in working environments in order to consider the risks of carrying out a making process.

Complete the five step Risk Assessment below.

[2]

- 1. Identify the hazards.
- 2 check equipment
- 3. Evaluate the potential risk.
- 4. Record the findings.
- a improve the situation/equiptment

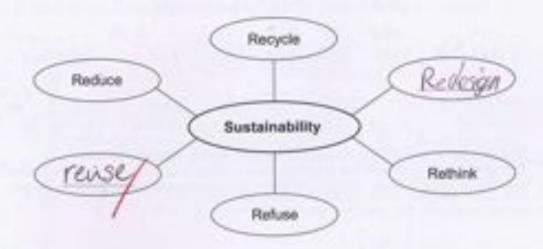
(d) Complete the following definition of a LCA.

" Lim cycle And Sis a method used to measure and evaluate the impact of a product on the environment".

(e) Explain the purpose of the British Standards Institution (BSI).

to ensure the product is of a good quality to be sold

- This question is about the general issues of Design and Technology. It is worth a total of 10 marks.
 - (a) Complete the chart below by adding the two missing Rs of sustainability.



(b) State the specific material referred to by each of the recycling symbols shown below. [2]



ۿۣ

magnetic

recyclible

(c) Five step Risk Assessments are undertaken in working environments in order to consider the risks of carrying out a making process.

Complete the five step Risk Assessment below.

[2]

 \bigcirc

- 1. Identify the hazards.
- 2 check equipment
- 3. Evaluate the potential risk.
- 4. Record the findings.
- s improve the situation/equiptment

6. This question is about Materials and Components. It is worth a total of 15 marks.

Brass

Stainless steel

(a) Metal alloys are a mixture of two or more metals. Correctly match the following alloys to the metals from which they are made. [4]

Duralumin

Bronze

Metals	Alloy
Copper (65%) + Zinc (35%)	=
Steel (72%) + Chrome and Nickel (18%)	=
Aluminium (95%) + Copper (4%) + Magnesium (1%)	=
Copper (90%) + Tin (10%)	=

(b) Complete the table by **underlining** the correct words from **each** list. (The first product has been completed as an example.)

[4]

Product	Material	Classification
Metalworking vice	Aluminium <u>Cast iron</u> Pewter	Ferrous metal Non ferrous metal
Electrical socket	Urea formaldehyde Polystyrene Acrylic	Thermosetting plastic Thermoplastic
Mallet	Chipboard Beech Balsa	Hardwood Softwood Manufactured board

State	the correct name of the two Knock Down Fittings (KDFs) shown below. [2	2]
(i)	(ii)	
(iii) 		ed 2]
(i)	State the correct name of one smart material that you have studied.	1]
(ii)		a 2]
	(i) (iii)(i)	(i) Describe one advantage to the consumer of buying products that are assemble using Knock Down Fittings (KDFs). [2] (ii) State the correct name of one smart material that you have studied. [7] (iii) Describe how the properties of the smart material named above can be used in

- 6. This question is about Materials and Components. It is worth a total of 15 marks.
 - (a) Metal alloys are a mixture of two or more metals. Correctly match the following alloys to the metals from which they are made.
 [4]

Stainless steel	Brass	Durglümin		Byprize	
Metals				Alloy	
Copper (65%) + Zinc (35)	(6)		=	B-53	
Steel (72%) + Chrome an	d Nickel (18%)		=	Stainless Ited	
Aluminium (95%) + Copp	er (4%) + Magne	esium (1%)	н,	Biorze	
Copper (90%) + Tin (10%)		=	Duralunia	

(b) Complete the table by underlining the correct words from each list. (The first product has been completed as an example.)

[4]

Product	Material	Classification
Metalworking vice	Aluminium Cast iron Pewter	Ferrous metal Non ferrous metal
Electrical socket	Urea formaldehyde Polystyrene Acrylic	Thermosetting plastic
Mallet	Chipboard Beech Balsa	Hardwood Softwood Manufactured board

[1]

(c) State the correct name of the two Knock Down Fittings (KDFs) shown below.



m Camp



- (i) Ten 4
- (iii) Describe one advantage to the consumer of buying products that are assembled using Knock Down Fittings (KDFs).

They are quite to wheathe at they my

(d) (i) State the correct name of one smart material that you have studied.

Thermo chronic int

(ii) Describe how the properties of the smart material named above can be used in a specific product. [2]

It can be used to the as a point which changes colour according to temperature.

Examiner

 \bigcirc

- 6. This question is about Materials and Components. It is worth a total of 15 marks.
 - (a) Metal alloys are a mixture of two or more metals. Correctly match the following alloys to the metals from which they are made.
 [4]

	Stainless steel	Brass	Durgkimin	Byprize	
Me	tals			Alloy	,
Cop	pper (65%) + Zinc (35%	0		= Bn.53	- ,
Ste	el (72%) + Chrome and	1 Nickel (18%)		thankli .	Jed
Alu	minium (95%) + Coppe	r (4%) + Magn	esium (1%)	* Bore	X
Co	pper (90%) + Tin (10%)			= Duratus	is X

(b) Complete the table by underlining the correct words from each list. (The first product has been completed as an example.)

Product	Material	Classification
Metalworking vice	Aluminium Cast iron Pewter	Ferrous metal Non ferrous metal
Electrical socket	Urea formaldehyde Polystyrene Acrylic	Thermosetting plastic
Mallet	Chipboard Beech Balsa	Hardwood Softwood Manufactured board

)	State the correct name of the two Knock Down Fittings (KDFs) sho	own below. [2]
	(1) Cleary (1) Test 4	
	(iii) Describe one advantage to the consumer of buying product using Knock Down Fittings (KDFs). They are quick to subsoils as	[2]
ŋ	(i) State the correct name of one smart material that you have a Thurmo chromic in K	studied. [1]
	(ii) Describe how the properties of the smart material named at specific product.	pove can be used in a [2]
	thought toler according to temperate	,

- 6. This question is about Materials and Components. It is worth a total of 15 marks.
 - (a) Metal alloys are a mixture of two or more metals. Correctly match the following alloys to the metals from which they are made. [4]

Stainess sizer	brass t	Juraiuman	Brusze
Metals			Alloy
Copper (65%) + Zinc (35%	16)		Braiss
Steel (72%) + Chrome an	nd Nickel (18%)		skinds steal
Aluminium (95%) + Copp	er (4%) + Magnesiun	n (1%) =	purolumin
Copper (90%) + Tin (10%	9		Bronze

(b) Complete the table by underlining the correct words from each list. (The first product has been completed as an example.)

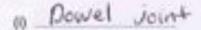
[4]

Product	Material	Classification
Metalworking vice	Aluminium Cast iron Pewter	Ferrous metal Non ferrous metal
Electrical socket	Urea formaldehyde Polystyrene Acrylic	Thermosetting plastic Thermoplastic
Malet	Chipboard Beech Balsa	Hardwood Softwood Manufactured board

m

(c) State the correct name of the two Knock Down Fittings (KDFs) shown below.







(11) Auf and bolt

- (ii) Describe one advantage to the consumer of buying products that are assembled using Knock Down Fittings (KDFs). [2]

 15 govel

 15 govel

 15 years buying a procluct that is assembled

 Using knock Down Fillings as when something

 needs taking home the proclect con be

 described (taken aper) and teaken nome
- (d) (i) State the correct name of one smart material that you have studied.
 - Describe how the properties of the smart material named above can be used in a specific product.

The properties of knitarod can be used for transpolines as it can stretch then go back to its origional shape/form it has a memory.

6. This question is about Materials and Components. It is worth a total of 15 marks.

Brass

Stainless steel

(a) Metal alloys are a mixture of two or more metals. Correctly match the following alloys to the metals from which they are made. [4]

Duralumin

Bronze

Metals	Alloy
Copper (65%) + Zinc (35%)	= Braiss
Steel (72%) + Chrome and Nickel (18%)	= Skirles Steal
Aluminium (95%) + Copper (4%) + Magnesium (1%)	= Duralimin /
Copper (90%) + Tin (10%)	= Bromze /

(b) Complete the table by underlining the correct words from each list. (The first product has been completed as an example.)

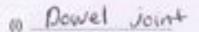
Product	Product Material	
Metalworking vice	Aluminium Cast.iron Pewter	Ferrous metal Non ferrous metal
Electrical socket	Urea formaldehyde Polystyrene Acrylic	Thermosetting plastic Thermoplastic
Mafet	Chipboard Beech Balsa	Hardwood Softwood Manufactured board

(c) State the correct name of the two Knock Down Fittings (KDFs) shown below.











(ii) nut and bolt

(iii) Describe one advantage to the consumer of buying products that are assembled using Knock Down Fittings (KDFs). [2]

It is good it a product that is assembled using knock Down Fittings as when something needs taking home the product con be dussasurabled (taken apart) and tecken nome

(d) (i) State the correct name of one smart material that you have studied.

[1]

Knitanol

 Describe how the properties of the smart material named above can be used in a specific product.

The properties of knitarod can be used for transpolines as it can stretch then go back to its origional shape/form it has a menory.

13

- 6. This question is about Materials and Components. It is worth a total of 15 marks.
 - (a) Metal alloys are a mixture of two or more metals. Correctly match the following alloys to the metals from which they are made.
 [4]

(b) Complete the table by underlining the correct words from each list. (The first product has been completed as an example.)

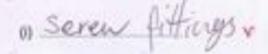
[4]

Product	Material	(Classification	
Metalworking vice	Aluminium Cast iron Pewter	Ferrous metal Non ferrous metal	
Electrical socket	Urea formaldehyde Polystyrene Acrylic	Thermosetting plastic, Thermoplastic	
Mallet	Chipboard Beech Balsa	Hardwood Softwood Manufactured board	

(c) State the correct name of the two Knock Down Fittings (KDFs) shown below.



specific product.





n screw in

it is able to be disasembled wood ajoints

(ii) State the correct name of one smart material that you have studied.

[1]

POllymorf

(ii) Describe how the properties of the smart material named above can be used in a

point so can be shaped just by heating in boiling water. this could be used to make custom handlegs or grips

- 6. This question is about Materials and Components. It is worth a total of 15 marks.
 - (a) Metal alloys are a mixture of two or more metals. Correctly match the following alloys to the metals from which they are made. [4]

Stainless steel Brass Duralumin Bronze
Metals Alloy

(b) Complete the table by underlining the correct words from each list. (The first product has been completed as an example.)

[4]

Product	Material	Classification
Metalworking vice	Aluminium Cast iron Pewter	Ferrous metal Non ferrous metal
Electrical socket	Urea formaldehyde Polystyrene Acrylic	Thermosetting plastic. Thermoplastic
Mallet	Chipboard Beech Balsa	Hardwood Softwood Manufactured board

(c)	State the correct name of the two Knock Down Fittings (KDFs) shown below. [2]	O
		<u>}</u>
	1) Seren fittings v m screw in	
	it is able to be disasembled to the consumer of buying products that are assembled using Knock Down Fittings (KDFs). [2]	2
	oxun like glewed wood ajoints	
(d)	(i) State the correct name of one smart material that you have studied. [1] POllymore	1
	point so can be shaped just by heating in boiling water.	2
	this could be used to make custom handlegs or grips	

0	This avection is about ICT		Customs and Drassess	It is worth a total of 15 montes
o.	This question is about ic i,	CAD, CAIVI,	Systems and Processes.	It is worth a total of 15 marks.

(a) Place **one tick** (✓) for **each** finish to indicate if it is suitable for use on wood or metal or both. [3]

Finish	Wood	Metal	Both
Teak oil			
Plastic coating			
Paint and Primer			

	Paint and Primer				
(b)	Correctly name the	following wood join	ts.		[2]
	Name:		Name:		
(c)	The design of the n Discuss the feature	nould is crucial to the sthat are required	e process of vacuu for a high quality va	m forming. cuum forming mould	. [3]
(d)	Explain how the use a resistant material	e of CAD (Computer s project.	Aided Design) can	be beneficial when w	orking on [3]

(e) The item shown below has been cast in pewter.



	Discuss t	uss the important factors that would ensure a successful pewter casting.			[4]	

•••••					 	

- 8. This question is about ICT, CAD, CAM, Systems and Processes. It is worth a total of 15 marks.
 - (a) Place one tick (/) for each finish to indicate if it is suitable for use on wood or metal or both.
 [3]

Finish	Wood	Metal	Both
Teak oil	/		
Plastic coating		/	
Paint and Primer			1

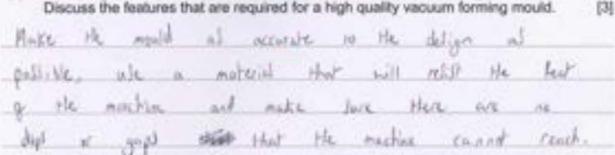
(0)	Correctly	name the	e folio	wing	wood	joints.
1-5	- maring					No.



Name: Slit jaint

Name: Agle goir

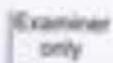
(c) The design of the mould is crucial to the process of vacuum forming. Discuss the features that are required for a high quality vacuum forming mould.



(d) Explain how the use of CAD (Computer Aided Design) can be beneficial when working on a resistant materials project. [3]

It can give you a good reproduction of the product you must to start and the product you must to deligate it can also allow you to sport any family or problem that may occur.

(e) The item shown below has been cast in pewter.





- D m	esth	Sid,	So	that	the	mould	72	
a.	61, 61	(w/uPt)	d	fallite.				

k	X)	ø	h	ø	w	ø
	-		ä			

8. This question is about ICT, CAD, CAM, Systems and Processes. It is worth a total of 15 marks.

(a) Place one tick (/) for each finish to indicate if it is suitable for use on wood or metal or both.
[3]

Finish	Wood	Metal	Both
Teak oil	/		
Plastic coating		/	
Paint and Primer			

(b) Correctly name the following wood joints.



[3]



Name: SET jaint



Name: Age goir

(c) The design of the mould is crucial to the process of vacuum forming. Discuss the features that are required for a high quality vacuum forming mould.

Plake the mould all accurate to the delign all possible, use a moterial that will resist the feat of the marking and make sure there are no digit or good state that the markine cannot reach.

(d) Explain how the use of CAD (Computer Aided Design) can be beneficial when working on a resistant materials project. [3]

It can give you a good representation go the project you want to start and the product you to sport many familes or problem that may occur.

(e) The item shown below has been cast in pewter.

Examine



Discuss the important factors that would ensure a successful pewter casting. [4]

Smith Judy So Half the mould to

a) a country of gallitie.

- This question is about ICT, CAD, CAM, Systems and Processes. It is worth a total of 15 marks.
 - Place one tick (/) for each finish to indicate if it is suitable for use on wood or metal or both.

Finish	Wood	Metal	Both
Teak oil	/		
Plastic coating			
Paint and Primer			/

(b) Correctly name the following wood joints.





housing



Dove tall

(c) The design of the mould is crucial to the process of vacuum forming. Discuss the features that are required for a high quality vacuum forming mould.

[3]

The plastic necests to be I morpes object have to be put in safely the plastic needs be heated just enough then lower over the moved (e.g. chocolate box)

(it) Explain how the use of CAD (Computer Aided Design) can be beneficial when working on a resistant materials project.

CAD GAMA Can be beneficial as peaces or products can be designed sext to a war cotter and cut mm persect also you can also engreue designs ving the CAD down the System (e) The item shown below has been cast in pewter.



Discuss the important factors that would ensure a successful pewter casting. [4]

The pewter would have to be be better

exorgh so it covid Flow easily into the mobily.

The Model would have to not have any mobile in beause hot pewter could Flow out other
Wise.

- 8. This question is about ICT, CAD, CAM, Systems and Processes. It is worth a total of 15 marks.
 - (a) Place one tick (/) for each finish to indicate if it is suitable for use on wood or metal or both.

Finish	Wood	Metal	Both
Teak oil	/		
Plastic coating			
Paint and Primer			/

(b) Correctly name the following wood joints.



[3]



Name: housing



Name: Dave tout

(c) The design of the mould is crucial to the process of vacuum forming. Discuss the features that are required for a high quality vacuum forming mould.

object have to be put in savely the plastic needs to be heated just enough then it has trays to be lower over the mould (e.g. chocolate bon)

(it) Explain how the use of CAD (Computer Aided Design) can be beneficial when working on a resistant materials project. [3]

CAD CAD COMP Can be beneficial as

perces perces or products can be

designed sext to a love cotter and cut

mm percent also you can also engrave designs

viry the CAD compon to System.

(e) The item shown below has been cast in pewter.



Discuss the important factors that would ensure a successful pewter casting. [4]

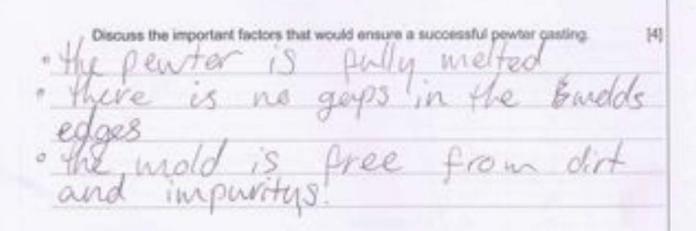
The pewter would have to be not every so it could Flow easily into the mobile of the Mould would have to not have any mobile in because hot pewter could Flow out other-W152.

- 8. This question is about ICT, CAD, CAM, Systems and Processes. It is worth a total of 15 marks.
 - (a) Place one tick (/) for each finish to indicate if it is suitable for use on wood or metal or

Finish	Wood	Metal	Both
Teak oil	/		
Plastic coating			10
Paint and Primer		/	

	Teak oil				
	Plastic coating			15	
	Paint and Primer		/		
(b)	Correctly name the fo	ollowing wood joir	nts.	1/	[2]
	Name but jo	at		dove tail	
	,				
	The design of the mo	that are required	he process of vac for a high quality	vacuum forming.	ould. [3]
dos		owned to		the plastice	newls
To	have so			to Avoid	7 it
ST (8)	bking. Inco ngles to g Explain how the use a resistant materials	of CAD (Compute	or Aided Design) c	an be beneficial wh	degry en working on
0	nd if t	See huy.	how px	lo, be	t togethu altered
4	on can	n allso	test	hon	differnt





(0)	Place one tick (/) for both.	r each finish to inc	icate if it is suitab	le for use on wood o	or metal or [3]
	Finish	Wood	Metal	Both	
	Teak oil	//			C
	Plastic coating			15	
	Paint and Primer		/		
	Ht in	at		dove toil	
(c) +15	Name: but jo	uld is crucial to the that are required fo	process of vacuu	m forming moul	d. [3
K) to	The design of the mo Discuss the features	uld is crucial to the that are required for	process of vacuu	im forming.	a. 13
(c) #10 ST 50 PD	The design of the mo Discuss the features	suld is crucial to the that are required to control to	process of vacuus a high quality vi	m forming moule placed to Avoid ast 93" o	news it leggy

(e) The item shown below has been cast in powter.

Examine



" the penter is fully melted "there is no good in the builds of the mold is free from dirtant impuritys."