

Qualification Title: Level 3 Advanced Technical Diploma in Architectural Joinery (7906-31)

Exam Title: 7906-003 and 503 Level 3 Architectural Joinery –Theory exam

Version: March 2018

Mark Scheme

Q	Acceptable answer(s)	Guidance	Max mks
1	D		1
2	C		1
3	A		1
4	D		1
5	D		1
6	B		1
7	B		1
8	C		1
9	D		1
10	A		1
11	<p>Any three from the following for three marks Any other suitable answer accepted</p> <ul style="list-style-type: none"> • Renewable energy sources • Design feature • Energy saving lighting • PIRs 		3

	<ul style="list-style-type: none"> • Double glazing • TRV • Programmable timers 		
12 a	<ul style="list-style-type: none"> • An estimate is a guide price that can be changed. (1 mark) • A quote is a fixed price. (1 mark) 	If 'Guess' is given in context, this is an acceptable answer	2
12 b	<p>1 mark for correct formula 1 mark for converting to metres 3 marks for volume calculation 1 mark for the correct cost</p> <p>$16 \times 2 \times 0.225 \times 0.063 = 0.4536 \text{ m}^3$ $0.4536 \times 450 = \text{£}204.12$</p>		6
13	<p>Any three from the following for three marks</p> <p>Any other suitable answer accepted</p> <ul style="list-style-type: none"> • Labour • Materials • Overheads • Plant and equipment • Profit • VAT 	If 'transport' is given in context this is also an acceptable answer	3
14	<p>Answer could include any of the following for seven marks with reasons for their answer</p> <p>Any other suitable answer accepted</p> <ul style="list-style-type: none"> • High quality drawings can be produced • Drawings can easily be magnified, manipulate and amended • Standard details can be saved and reproduced as any new contract required • Drawings layers can be produced enabling particular details to be extracted • Objects can be viewed from any angle • Drawings can be archived without taking up valuable space • Drawings can be attached as files and sent via email. 		7

	<ul style="list-style-type: none"> • Three-dimensional virtual models and walkthroughs can be created <p>CAD can be used with other compatible software products to prepare schedules, specifications and CAM (computer-aided manufacturing) to products by machine</p>		
15	<ul style="list-style-type: none"> i) 8 mm. (1 mark) ii) 80 dB. (1 mark) iii) 10 seconds. (1 mark) iv) 1200 mm. (1 mark) 		4
16	<ul style="list-style-type: none"> i) Ripping (or flatting) (1 mark) ii) Deeping (1 mark) 		2
17	<ul style="list-style-type: none"> i) 300 mm (1 mark) ii) 450 mm (1 mark) 		2
18	<p>Any three of the following for three marks, one mark for each</p> <ul style="list-style-type: none"> • wedge cutting • taper cutting • cutting arris rail • bevelled cutting • trimming/square edges 		3
19	<p>Candidate will be awarded a maximum of four marks if a list is given rather than an explanation for each component</p> <p>Candidate will be given up to the maximum of six marks if an explanation is given for each component</p> <p>Any other suitable answer accepted</p> <ul style="list-style-type: none"> • Safety • Producing/using appropriate jig • Producing/using appropriate safety aids • Set up machine • Pre-start checks • Safe use of machine specific to each operation • House keeping 		6

20	<p>Candidate will be given up to the maximum of five marks for an explanation given Any other suitable answer accepted</p> <p>The greater the circumference of the saw blade the greater the peripheral speed (cutting speed) (1 marks) and this bears no relationship with the motor RPM (1 mark). 50 m/second is recommended speed for safe and efficient cutting of timber (1 marks). If a saw blade is fitted with a blade less than the minimum diameter required, the cutting action will be inefficient (1 marks), cause a danger and overload the motor, possibly causing it to overheat (1 mark).</p>		5
21	<p>Explanation to include the machines required for two marks. A further three marks explaining the process of machining and jointing up prior to panel raising.</p> <p>Machines</p> <ul style="list-style-type: none"> • Resaw/rip saw • Surface planer • Thicknesser • Combination/four sided planer. <p>Process</p> <ul style="list-style-type: none"> • Cutting of the material to length on the crosscut saw, ripping to width, facing and edging on a surface planer and bring to thickness and width using an appropriate method. • When jointing timber, reverse grain to minimise distortion, match timber for best visual effect, use a stopped loose tongue or plain butt joint to ensure joint does not show on the end grain of the panel raising. Use of reverse cramping to maintain flat panels brought to final overall size and thickness. 		5
22	<p>Levels marking</p> <p>Intention: <i>The aim of the question is to check the candidates understanding of pre-planning and manufacturing process for a batch run of joinery products.</i></p> <p>Band 1 (1 – 4 marks) Response shows limited understanding of the considerations and planning processes required. Some</p>	<p>Indicative content</p> <p>Considerations</p> <ul style="list-style-type: none"> • Can the doors be produced in the timescales required? • Is there sufficient labour available to undertake the work? 	12

	<p>construction process are given without details, possibly out of sequence. Does not link to each part of the process. No justification given to the proper order of processes. In order to access higher marks response shows details of one of the considerations with justification.</p> <p>Band 2 (5 – 8 marks) Response shows good understanding of the considerations required. Most of the considerations, planning requirements and construction process is given in the correct sequence with some detail, may not link each part of the process. Some justification of ordering the processes correctly. In order to access higher marks response good detail linking each part of the process.</p> <p>Band 3 (9 – 12 marks) Response shows extensive understanding of the considerations and planning required. The construction process is thoroughly discussed and the correct order/sequence of construction process is given. In order to access higher marks, the response will include strong attention to detail through a cohesive and thorough discussion</p>	<ul style="list-style-type: none"> • Is there sufficient space in the mill to cope with this volume of timber? • Does the company have the machinery required to manufacture the doors? • What additional tooling will be required? • Will and additional training be required? • Any other suitable consideration <p>Planning requirements</p> <ul style="list-style-type: none"> • Can the Ash be sourced and delivered at the correct M/C? • Can jigs and aids be produced to ensure the batch run is efficiently produced? • Will additional tooling be required and what is the lead time to order it? • Will additional pallets be required to move and store component parts during the manufacturing process? • Is there sufficient storage space for the kiln dried timber without risking its stability, bearing in mind that only shorts will be required • Any other suitable planning requirement 	
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