

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

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

Version: JUNE 2018

Mark Scheme

Q	Acceptable answer(s)	Guidance	Max Marks
1	C		1
2	B		1
3	B		1
4	A		1
5	B		1
6	B		1
7	A		1
8	B		1
9	B		1
10	C		1

11	Describe three different methods of reducing energy use, when designing and constructing new buildings.		
	Acceptable answer(s)	Guidance	Max mks
	<p>A description around any three of the following points for three marks, one mark for the design feature with a description. Maximum three marks</p> <p>If a list of design features are listed with no description, maximum one mark is awarded</p> <p>The use of design features such as</p> <ul style="list-style-type: none"> ● Air tightness ● PIR lighting ● Water harvesting. ● Air re-circulation ● Renewable energies ● Sustainable materials ● Insulation ● Draft excluders 		3
12	Describe one method used to plan work activities in construction.		
	Acceptable answer(s)	Guidance	Max mks
	<p>Gantt Chart (Bar Chart is also acceptable) or critical path analysis (CPA) (1 mark), each methods divides the work activity over period of the contract (1 mark), identifying labour and resource requirements (1 mark)</p>		3
13	State three types of projection used in graphical communication.		
	Acceptable answer(s)	Guidance	Max mks
	<p>Any three from the following, maximum of three marks one mark for each:</p> <ul style="list-style-type: none"> ● Orthographic ● Isometric ● Oblique ● Axonometric ● Planometric. 		3

14	Explain how joinery work is costed		
	Acceptable answer(s)	Guidance	Max mks
	<p>If the answer is a list with no detail a maximum of two marks should be awarded.</p> <p>To obtain the full six marks, candidate should justify each of their answers</p> <ul style="list-style-type: none"> • Drawings • Specification • Manufacturers information • Bill of quantities • Study information sources • Cube up timber quantities • Calculate linear quantities • Determine ironmongery and other sundry items • Square up meterage for panel products • Add % for waste • Consult manufacturers catalogues for prices • Contact suppliers for lead times • Use nominated suppliers if required • Vat • Profit 		6
15	Explain why CAD is considered to be the preferred method of producing drawings		
	Acceptable answer(s)	Guidance	Max mks
	<p>Answer could include the following for a maximum of six marks</p> <p>High quality drawings can be produced (1 mark), Drawings can easily be magnified on screen (1 mark). Standard details can be saved and reproduced as blocks when required (1 mark). Drawing layers can be produced enabling particular details to be extracted (1 mark). Objects can be viewed from any angle of the block rotated as required allowing normally concealed details to be seen (1 mark). Drawings can be attached as files and sent via email, three dimension virtual models and walkthroughs can be created as required (1 mark). Drawings can easily be amended and modified (1 mark). Attributes can be easily inserted (1 mark).</p>		6

16	State two legislative documents other than PUWER, that relates to the safe use of woodworking machinery.		
	Acceptable answer(s)	Guidance	Max mks
	Any two of the following for two marks, one mark for each <ul style="list-style-type: none"> ● ACOP ● The Control of Noise regulation ● COSHH ● Manual handling ● PPE regulations 		2
17	State two maintenance requirements that can be obtained from the manufacturer's instructions for a table saw.		
	Acceptable answer(s)	Guidance	Max mks
	Any two of the following for two marks, one mark for each <ul style="list-style-type: none"> ● Lubrication points and types of lubrication ● Removal and replacing of tooling ● Schedule and type of maintenance required ● Cleaning requirements ● Driving mechanisms 	If saw Blade size is given this is also acceptable	2
18	State four operations that can be carried out on a rip sawing machine.		
	Acceptable answer(s)	Guidance	Max mks
	One mark for each operation up to a maximum of four marks. <ul style="list-style-type: none"> ● Flating ● Deeping ● Bevel cutting ● Tapering ● Glue blocks ● Wedges 		4
19 a)	State on which machine are split feed rollers found		
	Acceptable answer(s)	Guidance	Max mks
	<ul style="list-style-type: none"> ● Thicknessing machine (1 mark) 	Feeding timber	1

19 b)	Explain the function of the split feed rollers.		
	Acceptable answer(s)	Guidance	Max mks
	The purpose to allow more than one piece of timber to be safely fed at a time.(1 mark) The infeed roller is split into sections (1 mark) allowing each to lift independently (1 mark) accommodating slight variances in timber thicknesses.(1 mark)		4
20	State a suitable mortice chisel size for a a) 34 mm sash stock b) 45 mm panelled door.		
	Acceptable answer(s)	Guidance	Max mks
	a) $\frac{3}{8}$ " or 10 mm (1 mark) b) $\frac{1}{2}$ " , 12 or 14 mm (1 mark)		2
21	Describe two requirements of PUWER in relation to Regulation 9 (Training).		
	Acceptable answer(s)	Guidance	Max mks
	Description could include any two of the following points for two marks each, maximum four marks <ul style="list-style-type: none"> ● Every employer shall ensure that all persons who use work equipment have received adequate training for purposes of health and safety (machine specific). (1 mark) ● Every employer shall ensure that any of his employees who supervises or manages the use of work equipment has received adequate training (1 mark) for purposes of health and safety. ● You should ensure that training is provided for machine operators (1 mark) and those who help in the machining process, eg in taking off, feeding and/or loading workpieces etc. (1 mark) 	4	

22	Explain how the riving knife is set up after a circular saw blade has been changed, to prevent binding on the saw blade.		
	Acceptable answer(s)	Guidance	Max mks
	<p>Explanation could include any three of the following for three marks, one mark for each.</p> <ul style="list-style-type: none"> • The riving knife is selected approximately 10% thicker than the saw blade. • The riving knife is secured ensuring the gap between the blade and the saw does not exceed 8 mm at table level. • Where the saw blade is less than 600 mm the vertical distance between the top of the riving knife and the top of the blade should not exceed 25 mm. • The riving knife should project at least 225 mm above the table, where the blade exceeds 600 mm diameter. • Check condition of blade • Housekeeping • Spanner size 		3
23	Explain the factors to consider prior to changing a saw blade.		
	Acceptable answer(s)	Guidance	Max mks
	<p>To obtain the full five marks, candidate should explain each factor If the candidates just provides a list with no explanation, only two marks are to be awarded</p> <p>Candidates explanation may include the following, but is not limited to the factors below:</p> <ul style="list-style-type: none"> • Ensure authorisation • Ensure manufacturers guidance/service manuals available • Ensure correct tools are available • Ensure the correct saw blade is available • Ensure the machine is Isolated • Follow the recommended sequence of the method statement • Pre-start check to ensure the machine is in safe working order • Complete maintenance log as appropriate • PPE • Blade spins freely • Guarding 		5

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An architect has decided to incorporate an elliptical window into the design of a new build development of 50 houses as shown in Figure 1.



Figure 1

Discuss the planning and machine considerations required to construct the frames for the production run.

Acceptable answer(s)	Guidance	Max mks
<p>Band 1 (1 – 4 marks) Response shows limited understanding of the considerations required around the design and architects brief, no evidence of communication and negotiation with the architect. No or minimal planning/ machine requirements considered for the production run and not supported with reasons. 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 some understanding of the considerations required around the design and architects brief, some evidence of communication and negotiation with the architect. Basic planning/ machine requirements considered for the production run and supported with some reasons. In order to access higher marks response good detail linking each part of the production run.</p>	<p>Indicative content</p> <p>Planning requirements</p> <ul style="list-style-type: none"> • Communication/negotiation with architect around construction and appearance of final product • Pseudo ellipse versus True ellipse • Glazing bars incorporated into the cavity of the glazed unit or bonded to the face • Time • Timber • Storage • Tooling • Solid or laminated construction • Method of opening 	<p>12</p>

	<p>Band 3 (9 – 12 marks) Response shows extensive understanding of the considerations required around the design and architects brief, detailed evidence of communication and negotiation with the architect. The planning/ machine requirements for the production run are thoroughly considered and justified. 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"> • Classical machines or CNC is acceptable, the manufacturing process will be relative to the selected method of machining • Use the architect’s details and the site survey information set out a full-size elevation and sections of the frame. • Determine how the curved sections are to be constructed and show the construction and jointing arrangements. • Indicate the width of the blanks required to produce the curved frame components. • Cutting list and any other orders required for the project. • Templates for curved components and glazing. • Jigs for safe machining of curved components. <p>Machine requirements</p> <ul style="list-style-type: none"> • Machinery to allow for economic conversion and planing of component parts, including: Band re-saw, rip saw, cross cut saw • Machinery to allow for economic planing to finished sizes including: High performance Four sided planer or through moulder. Classical machinery such as: surface planer, combination planer, panel planer /Thicknesser. • Machinery to allow for shaping of components including: bandsaw, vertical spindle moulder, CNC router, High frequency overhead router, inverted router. • Machinery to sand components and finished frames, including: Hand pad sander, bobbin sander, speed/drum sanders 	
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		<i>For no awardable content, award 0 marks.</i>	
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