

**ADVANCED GCE
DESIGN AND TECHNOLOGY**

2525/02(DT)

Unit 8: Systems and Control Technology 2

JUNE 2008

To be opened on receipt



INFORMATION FOR CENTRES

Page 2 of this sheet includes the design thinking themes to assist candidates in the preparation for the examination.

2525/02 assesses the abilities of candidates to make immediate design thinking responses to a given theme. It is intended to be a discriminator in identifying those candidates who can effectively use their experiences and knowledge gained through the course in designing and making to 'self start' successfully on a design task.

Candidates are required to:

- identify the criteria that a successful solution must satisfy;
- present initial ideas that will address the given situation;
- justify a proposed route for development.

Candidates are not required to produce a fully developed final solution ready for prototype production. Up to **three** design themes are posed. Candidates are required to respond to **one**. The themes posed have a common mark structure and guidance is printed on the question paper indicating the allocation of marks.

Outlines of each given theme are sent to Centres in advance of the examination date. Candidates should make themselves aware of the given themes by exploring the background and nature of each.

Candidates may **not** take into the examination room any prepared material. The preparation for the examination should be carried out by the candidate. **It is not intended that the preparatory work should be formally taught.**

This document consists of **4** printed pages.

Candidates should make themselves aware of the following given themes by exploring the background and nature of each.

Candidates are required to respond to **one** theme in the examination.

Candidates **may not** take into the examination room any prepared material.

Section B – Question themes

1 Theme: The greenhouse.

2 Theme: Warning devices.

3 Theme: Cycling.



The following generic mark scheme (see page 3) will be used to assess 2525/02.

Mark Scheme

2008

QUESTION 1,2,3,4,5 1,2,3	GENERIC MARK SCHEME FOR SECTION B UNIT 2524/02 UNIT 2525/02		MARKS AVAILABLE
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SPECIFICATION POINTS (SP) A3 Sheet 1 of 4

SP	<p>8 Specification Points which are qualified and justified 2 marks each.</p> <p>8 clear statements which are specifically related to the focussed topic</p> <p>8 clear and relevant justification points</p> <p>A clear relevant statement 1 mark</p> <p>A clear relevant justification 1 mark</p> <p>Any generic statements that are not explicitly related to the focus = 0 marks</p> <p>A point repeated or a simple repetition of information already stated in the question is awarded a circled lower case 'r'.</p> <p>A circled lower case 'r' = 0 marks</p>	<p>8 x 1</p> <p>8 x 1</p>	16
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INITIAL IDEAS (ID) A3 Sheet 2 of 4 and A3 Sheet 3 of 4

R	<p>Range of ideas</p> <p>0-2 No-weak range of initial ideas (superficial change of shape lacking any depth or detail)</p> <p>3-4 Limited-some evidence of variation and range of ideas logically laid out</p> <p>5-6 Good range of different ideas clearly laid out and understood by a third party.</p> <p>7-8 Good range of appropriate innovative significantly different ideas</p> <p>9-10 A wide range of appropriate innovative significantly different ideas</p>		10
S	<p>Design ideas relating to the functional aspects of the specification</p> <p>0-1 No-little functional aspects of the specification identified or considered</p> <p>2-3 Limited-some functional aspects of the specification identified or considered</p> <p>4-5 Clear-detailed evidence of the majority of the functional aspects have been considered in some depth</p>		5
V	<p>Quality of design thinking relating to volume production and wider market issues.</p> <p>0-1 No-little consideration given to market issues or volume production in the design thinking</p> <p>2-3 Limited-some superficial consideration given to market issues or volume production in the design thinking</p> <p>4-5 Clear-detailed evidence that consideration has been given to market issues or volume production in the design thinking</p>		5
C	<p>Detail Consideration of construction.</p> <p>Methods/construction/component/assembly detail, appropriate to the product and the chosen materials. Knock down fittings and relevant fixings will be given credit</p> <p>0-1 No-little consideration given to suggested appropriate (alternative) methods of construction or assembly</p> <p>2-3 Limited-some consideration given to suggested appropriate (alternative) methods of construction or assembly</p> <p>4-5 Clear-detailed evidence has been considered in relation to appropriate (alternative) methods of construction or assembly</p>		5
M	<p>Consideration of specific materials and components (may include calculations or specific values for components).</p> <p>Generic terms not acceptable:</p> <p>Plastics-thermoplastics, thermosetting.</p> <p>Wood-hardwood, softwood,</p> <p>Cloth-natural fibre, synthetic fibre</p> <p>Metal-ferrous, non-ferrous</p> <p>Paper, card and board</p> <p>0-1 No-little mention of relevant and appropriate specific materials and components</p> <p>2-3 Some consideration given to relevant and appropriate specific materials</p> <p>4-5 Clear evidence of relevant and appropriate specific materials and components</p>		5
D	<p>Consideration of dimensional detail (may include calculations).</p> <p>Overall dimensions plus some detailed dimensions required (circuit diagrams/layouts, systems diagrams, flow diagrams.)</p> <p>0 No indication of scale, dimensions or calculations</p> <p>1 Limited indication of scale, dimensions or calculations</p> <p>2 Evidence of general sizes of scale, dimensions and calculations</p> <p>3 Detailed sizes given in component parts or sub parts of the design</p>		3

E	Evaluation of the suitability of the ideas with reference to the specification. 0-1 No-little evidence of evaluation commentary 2-3 Limited-some evidence of subjective evaluation commentary 4-5 Clear-detailed evidence of evaluation commentary (may-must include some objective content) Look for intellectual depth of design analysis and formative thinking		5
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FEATURES SUITABLE FOR DEVELOPMENT (FD) A3 Sheet 4 of 4.

F	Appropriate features identified and clearly described. All major aspects of the design should be evident; this may be in the form of annotation of a final drawing or part drawings, or may be in the form of expanded text e.g. bullet point-listing. Candidates could refer to the design features in terms of strengths and weaknesses. Ideally there should be at least three different features identified 0 No-little features identified-concept drawing only, superficial commentary 1-2 Limited-some internal and or external appropriate features identified. Lacks realistic proposals and detail. 3-4 Clear-detailed evidence of internal and or external appropriate features identified. Contains constructive and realistic proposals and detail.		4
J	Appropriate justification of the choices made With reference to the specification 0 No-evidence of justification made, (descriptive, superficial and subjective) 1-2 Limited-some evidence of justification (superficial descriptive statements with elements of objectivity) 3-4 Clear-detailed intellectual constructive justification is evident. Justification is fluent objective and appropriate		4

EFFICIENT COMMUNICATION (CS) A3 Sheets 1-4

CS	Communication skills and techniques 0 No-weak level of graphical skill/annotation evidenced by poor use of communication methods no apparent quality 1-2 Low level of graphical skill/annotation 3-4 Limited-some graphical skill/annotation evidenced by one form of communication method (e.g. 2D only) lacking appropriate techniques of detail. 5-6 Reasonable evidence of variation and range of graphical techniques/annotation appropriately used 7-8 Fluent range of a variety of graphical presentation techniques in evidence with some annotation 9-10 Fluent design thinking that is evident and expressed coherently and cohesively and easily followed and understood by a third party. (Circuit diagrams, systems diagram, exploded views, sectional views 2D and 3D views enlarged detail views and fluent annotation are appropriately used)		10
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[Total : 72]

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