

Mark Scheme for January 2013

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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.

OCR will not enter into any discussion or correspondence in connection with this mark scheme.

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Question	Question/Answer	Mark	Guidance
1	<p>(a) “Please tell me about an engineering achievement you have researched”. (b) “Explain how people’s lives have changed as a result of this engineering achievement”.</p> <p>Band 1 Limited explanation – award one mark for talking about an engineering achievement and up to a further two marks for explaining how people’s lives have been changed as a result of this achievement.</p> <p>Band 2 Adequate explanation – award up to two marks for talking about an engineering achievement and up to a further four marks for including depth or breadth explaining how people’s lives have been changed as a result of this achievement.</p> <p>Band 3 Detailed explanation – award up to three marks for talking about an engineering achievement and up to a further seven marks for including depth and breadth explaining how people’s lives have been changed as a result of this achievement.</p> <p>Depth: Expansion of a single change. Breadth: Expansion involving multiple changes.</p> <p>Lower end of mark band just meets criteria. Middle of mark band adequately meets criteria. Upper end of mark band convincingly meets criteria. Part (a) and part (b) of this question can be treated independently ie It is possible to gain three marks for part (a) and zero marks for part (b).</p>	<p>Up to [3]</p> <p>Up to [6]</p> <p>Up to [10]</p>	<p>For all questions. For answers marked by level of response: To determine the level – Start at the highest level and work down until you reach the level that matches the answer To determine the mark within this level, refer to the chart in paragraph 10.</p>
2	<p>“Please tell me about any technical issues which had to be overcome during the development of the engineering achievement you have researched”.</p> <p>Band 1 Limited explanation – award one mark for identifying a single issue and up to a further two marks for relevant points.</p> <p>Band 2 Adequate explanation – award up to six marks for a response that considers at least two issues in depth or breadth.</p> <p>Band 3 Detailed explanation – award up to six marks for a response that considers at least two issues and up to a further four marks for including logical and relevant supporting evidence that demonstrates both depth and breadth.</p>	<p>Up to [3]</p> <p>Up to [6]</p> <p>Up to [10]</p>	

Question	Question/Answer	Mark	Guidance
	<p>Depth: Expansion of a single issue eg. properties of materials. Breadth: Expansion covering multiple issues eg. size and weight of components, material availability.</p> <p>Lower end of mark band just meets criteria. Middle of mark band adequately meets criteria. Upper end of mark band convincingly meets criteria.</p>		
3	<p>“Now, for any engineering sector, please tell me about the products or services they provide”.</p> <p>Band 1 Limited information – award up to three marks for a basic explanation, of a product or service provided by an engineering sector.</p> <p>Band 2 Adequate information – award up to six marks for an adequate explanation in breadth or depth, of a product or service provided by an engineering sector.</p> <p>Band 3 Detailed information – award up to ten marks for a detailed explanation in breadth and depth, of a product or service provided by an engineering sector.</p> <p>Depth: Expansion of a single product or service in a single sector eg. for the automotive sector (product – tyres), talking about the tread pattern, composition, sizes and reinforcement. (services – car services) oil check, brake check, filter changes. Breadth: Expansion of multiple products or services within a single sector.</p> <p>Lower end of mark band just meets criteria. Middle of mark band adequately meets criteria. Upper end of mark band convincingly meets criteria.</p>	<p>Up to [3]</p> <p>Up to [6]</p> <p>Up to [10]</p>	

Question	Question/Answer	Mark	Guidance
4	<p>“Describe the job role and responsibilities of a technical person within any engineering sector you have studied”.</p> <p>Band 1 Limited information – award up to three marks for a basic description of the job role and responsibilities of a technical person within an engineering sector.</p> <p>Band 2 Adequate information – award up to six marks for an adequate description in breadth or depth, of the job role and responsibilities of a technical person within an engineering sector.</p> <p>Band 3 Detailed information – award up to ten marks for a detailed description in breadth and depth, of the job role and responsibilities of a technical person within an engineering sector.</p> <p>Depth: Focussing on a single job role/responsibilities, eg. Engineering Materials Laboratory Technician being responsible for general laboratory and operational support including providing logistical support for samples and compound management, ordering supplies, and carrying out general bench work activities.</p> <p>Breadth: Multiple jobs in a single sector or, a single job in more than one sector, eg. laboratory technician, vehicle technician or electrical/electronic technician.</p> <p>Lower end of mark band just meets criteria. Middle of mark band adequately meets criteria. Upper end of mark band convincingly meets criteria.</p>	<p>Up to [3]</p> <p>Up to [6]</p> <p>Up to [10]</p>	
5	<p>“Please explain, giving examples, how the engineering industry could make use of renewable resources”.</p> <p>Band 1 Limited explanation – award up to three marks for explaining, with at least one example, how the engineering industry could make use of renewable resources.</p> <p>Band 2 Adequate explanation – award up to six marks for explaining, with more than one example, how the engineering industry could make use of renewable resources.</p> <p>Band 3 Detailed explanation – award up to ten marks for explaining, with at least three examples, how the engineering industry could make use of renewable resources.</p>	<p>Up to [3]</p> <p>Up to [6]</p> <p>Up to [10]</p>	

Question	Question/Answer	Mark	Guidance
	<p>An explanation could include reference to any renewable resources and/or all of the five principal renewable sources of energy: the sun, the wind, flowing water, biomass and heat from within the earth.</p> <p>Lower end of mark band just meets criteria. Middle of mark band adequately meets criteria. Upper end of mark band convincingly meets criteria.</p>		
6	<p>What can you tell Katherine about her terms of employment as a young person, with regard to pay and holiday entitlement?</p> <p>Band 1 Limited explanation – award up to three marks for explaining to Katherine that there is a basic minimum pay rate and a specific holiday entitlement. No specific detail on what these are.</p> <p>Band 2 Adequate explanation – award up to three marks for explaining to Katherine that there is a basic minimum pay rate and a specific holiday entitlement and up to a further three marks for further details on what these entitlements are.</p> <p>Band 3 Detailed explanation – award up to three marks for explaining to Katherine that there is a basic minimum pay rate and a specific holiday entitlement and up to a further three marks for further details on what these entitlements are and up to a further four marks for discussing rights and responsibilities with logical and relevant examples.</p> <p>Lower end of mark band just meets criteria. Middle of mark band adequately meets criteria. Upper end of mark band convincingly meets criteria.</p>	<p>Up to [3]</p> <p>Up to [6]</p> <p>Up to [10]</p>	

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