

## **Principal Learning**

## **Engineering**

Unit **F548**: The engineered world

OCR Level 2 Principal Learning

## **Mark Scheme for January 2014**

OCR (Oxford Cambridge and RSA) is a leading UK awarding body, providing a wide range of qualifications to meet the needs of candidates of all ages and abilities. OCR qualifications include AS/A Levels, Diplomas, GCSEs, Cambridge Nationals, Cambridge Technicals, Functional Skills, Key Skills, Entry Level qualifications, NVQs and vocational qualifications in areas such as IT, business, languages, teaching/training, administration and secretarial skills.

It is also responsible for developing new specifications to meet national requirements and the needs of students and teachers. OCR is a not-for-profit organisation; any surplus made is invested back into the establishment to help towards the development of qualifications and support, which keep pace with the changing needs of today's society.

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.

© OCR 2014

Question	Question/Answer	Mark	Guidance
1	<p><b>(a) Please tell me about an engineering achievement you have researched.</b>  <b>(b) Explain how people's lives have changed as a result of this engineering achievement.</b></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 <b>all</b> questions.  For answers marked by level of response:  <b>To determine the level –</b>  Start at the highest level and work down until you reach the level that matches the answer  <b>To determine the mark within this level,</b>  refer to the chart in paragraph 10.</p>
2	<p><b>Please tell me about any issues which had to be overcome during the development of the engineering achievement you have researched.</b></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><b>Please tell me what you have found out about the merits or advantages of a registration scheme such as those for the gas, water and electricity trades.</b></p> <p>Band 1 Limited information – award one mark for identifying a registration scheme and up to a further two marks for explaining the merits or advantages of a registration scheme.</p> <p>Band 2 Adequate information – award one mark for identifying a registration scheme and up to a further five marks for explaining in breadth or depth the merits or advantages of a registration scheme.</p> <p>Band 3 Detailed information – award one mark for identifying a registration scheme and up to a further nine marks for explaining in breadth and depth the merits or advantages of a registration scheme.</p> <p>Depth: Expansion of a registration scheme in a single sector eg. Gas Safe.            Breadth: Expansion of multiple registration schemes within a single sector eg. Gas Safe and UK Plumbing Heating &amp; Mechanical Engineering Services (UK-PHMES) Registration Scheme..</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><b>Describe education and training opportunities for a young person entering the engineering industry.</b></p> <p>Band 1 Limited information – award up to three marks for a basic description of the education and training opportunities for a young person entering the engineering industry.</p> <p>Band 2 Adequate information – award up to six marks for an adequate description in breadth or depth, of the education and training opportunities for a young person entering the engineering industry.</p> <p>Band 3 Detailed information – award up to ten marks for a detailed description in breadth and depth, of the education and training opportunities for a young person entering the engineering industry.</p> <p>Depth: Expansion of a single issue in education or training. Breadth: Expansion covering multiple issues in education and training.</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><b>Please explain, giving examples, how the engineering industry uses recyclable materials.</b></p> <p>Band 1 Limited explanation – award up to three marks for explaining, with at least one example, how the engineering industry uses of recyclable materials.</p> <p>Band 2 Adequate explanation – award up to six marks for explaining, with more than one example, how the engineering industry uses recyclable materials.</p> <p>Band 3 Detailed explanation – award up to ten marks for explaining, with at least three examples, how the engineering industry uses recyclable materials.</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
6	<p><b>What can you tell Michelle about her responsibilities as a young person using chemicals and the responsibilities of her employer.</b></p> <p>Band 1 Limited explanation – award up to three marks for outlining the responsibilities of a young person or outlining the responsibilities of the employer or a combination of both.</p> <p>Band 2 Adequate explanation – award up to three marks for an adequate explanation of the responsibilities of a young person and up to three mark for an adequate explanation of the responsibilities of the employer.</p> <p>Band 3 Detailed explanation – award up to five marks for an in-depth explanation of the responsibilities of a young person and up to five marks for an in-depth explanation of the responsibilities of the employer.</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>	

**OCR (Oxford Cambridge and RSA Examinations)**  
**1 Hills Road**  
**Cambridge**  
**CB1 2EU**

**OCR Customer Contact Centre**

**Education and Learning**

Telephone: 01223 553998

Facsimile: 01223 552627

Email: [general.qualifications@ocr.org.uk](mailto:general.qualifications@ocr.org.uk)

**[www.ocr.org.uk](http://www.ocr.org.uk)**

For staff training purposes and as part of our quality assurance programme your call may be recorded or monitored

**Oxford Cambridge and RSA Examinations**  
**is a Company Limited by Guarantee**  
**Registered in England**  
**Registered Office; 1 Hills Road, Cambridge, CB1 2EU**  
**Registered Company Number: 3484466**  
**OCR is an exempt Charity**

**OCR (Oxford Cambridge and RSA Examinations)**  
**Head office**  
**Telephone: 01223 552552**  
**Facsimile: 01223 552553**

© OCR 2014

