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GCSE

Construction

Single Award

January 2009

Mark Scheme

Issued: April 2009

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NORTHERN IRELAND GENERAL CERTIFICATE OF SECONDARY EDUCATION (GCSE)
AND NORTHERN IRELAND GENERAL CERTIFICATE OF EDUCATION (GCE)

MARK SCHEMES (2009)

Foreword

Introduction

Mark Schemes are published to assist teachers and students in their preparation for examinations. Through the mark schemes teachers and students will be able to see what examiners are looking for in response to questions and exactly where the marks have been awarded. The publishing of the mark schemes may help to show that examiners are not concerned about finding out what a student does not know but rather with rewarding students for what they do know.

The Purpose of Mark Schemes

Examination papers are set and revised by teams of examiners and revisers appointed by the Council. The teams of examiners and revisers include experienced teachers who are familiar with the level and standards expected of 16- and 18-year-old students in schools and colleges. The job of the examiners is to set the questions and the mark schemes; and the job of the revisers is to review the questions and mark schemes commenting on a large range of issues about which they must be satisfied before the question papers and mark schemes are finalised.

The questions and the mark schemes are developed in association with each other so that the issues of differentiation and positive achievement can be addressed right from the start. Mark schemes therefore are regarded as a part of an integral process which begins with the setting of questions and ends with the marking of the examination.

The main purpose of the mark scheme is to provide a uniform basis for the marking process so that all the markers are following exactly the same instructions and making the same judgements in so far as this is possible. Before marking begins a standardising meeting is held where all the markers are briefed using the mark scheme and samples of the students' work in the form of scripts. Consideration is also given at this stage to any comments on the operational papers received from teachers and their organisations. During this meeting, and up to and including the end of the marking, there is provision for amendments to be made to the mark scheme. What is published represents this final form of the mark scheme.

It is important to recognise that in some cases there may well be other correct responses which are equally acceptable to those published: the mark scheme can only cover those responses which emerged in the examination. There may also be instances where certain judgements may have to be left to the experience of the examiner, for example, where there is no absolute correct response – all teachers will be familiar with making such judgements.

The Council hopes that the mark schemes will be viewed and used in a constructive way as a further support to the teaching and learning processes.

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Rewarding Learning

General Certificate of Secondary Education
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Unit 2: Construction Technology

[GSK21]

FRIDAY 9 JANUARY, AFTERNOON

MARK SCHEME

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			AVAILABLE MARKS
1	**(a)** Cavity wall construction	[2]	
	(b) Meadowland	[2]	
	(c) 1:20	[2]	
	(d) Plaster and skim finish	[2]	
	(e) 35 mm	[2]	10
2	**(a)** [1] for each correct performance requirement up to a maximum of	[5]	
	● Weather Exclusion ● Security ● Fire Resistance ● Provide resistance to air penetration in the form of drafts ● Thermal and Sound Insulation ● Privacy ● Durability		5
3	**(a)** [1] for each correct reason why you would plaster the internal walls of Lecture Theatre up to a maximum of	[2]	
	Good appearance Smooth surface Sound absorption properties Provide a good surface which is easily decorated. Low maintenance		
	(b) [2] for each correct technical term used in the correct sequence up to a maximum of	[8]	
	12mm thick sand & cement scratch coat (Floating coat *may not be included*) gypsum plaster finish which plasterers will trowel smooth Wall will be allowed to dry out Finish to walls, emulsion paint which will allow the wall to dry out Paper walls at a later stage.		10

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AVAILABLE MARKS

4 A tolerance of + or – 100 mm will be allowed for full marks.
A tolerance of + or – 200 mm will be allowed for half full marks.
Half marks will be given if the wrong units have been used.

(a) The length and width of Exhibition area 2

Length 14 900 mm Width 8675 mm [4]

(b) The length and width of Conference Room 2

Length 14 635 mm Width 11 470 mm [4]

(c) The overall width of the Visitors' Centre

Width 30 000 mm [2]

(d) How many wash basins are in the ground floor gents toilets of the Visitors' Centre?

A tolerance of + or – 1 wash basin will allow half marks.

Number of wash hand basins in ground floor gents toilets is 4 [2]

(e) How thick is the floor insulation that has been specified for the Visitors' Centre?

The insulation for the floor screed in the Visitors' Centre is 50 mm thick. [3] 15

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AVAILABLE MARKS

5 **(a)** [1] for the correct type of dwelling shown

Semi-Detached (Two storey house)

The distinguishing characteristics of the dwelling maximum of [2] marks

Two dwellings under the one roof which are occupied by separate families.

(b) [1] for the correct type of dwelling shown

Terraced houses (Two storey house)

The distinguishing characteristics of the dwelling maximum of [2] marks

A row or street of houses occupied by different tenants.
Terraced dwellings may be one, two or three storeys high.

(c) [1] for the correct type of dwelling shown

A bungalow.

The distinguishing characteristics of the dwelling maximum of [2] marks

Detached single storey dwelling – This is a building which is not connected to any other buildings.

9

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AVAILABLE MARKS

6 **(a)** State what you understand by the term Double Glazing.

Any two of the following points [1] mark each up to a maximum of [2]

Double glazing is two sheets of glass placed parallel to each other with about 10 mm between them.
A vacuum is created between the two sheets of glass.
Double glazing not only reduces the heat loss from within the building but it also reduces the amount of sound entering the building.
Double glazed windows must have good draft excluders fitted.
If double glazed windows are to work efficiently they should also be close fitting.

2

7 **(a)** [1]-[3] marks depending on the clarity of the definition.

Primer
Primer is the first coat of paint applied to any background in preparation for painting. Adheres well to the background and evens out the surface porosity. With ferrous metals, controls rust. Care must be taken to choose suitable primer for the material to be covered.

Undercoat
Adheres to the primer, builds up the paint thickness and obliterates surface irregularities. The undercoat should bring the surface to a suitable colour for receiving the finishing coat. Two coats of undercoat are usually required.

Gloss coat
Adheres to the undercoat and provides a protective layer, colour and surface texture.
Leaves the desired finish i.e. gloss.
Provides a waterproof barrier to prevent moisture penetrating into the underlying structure ie wood, plaster etc.

9

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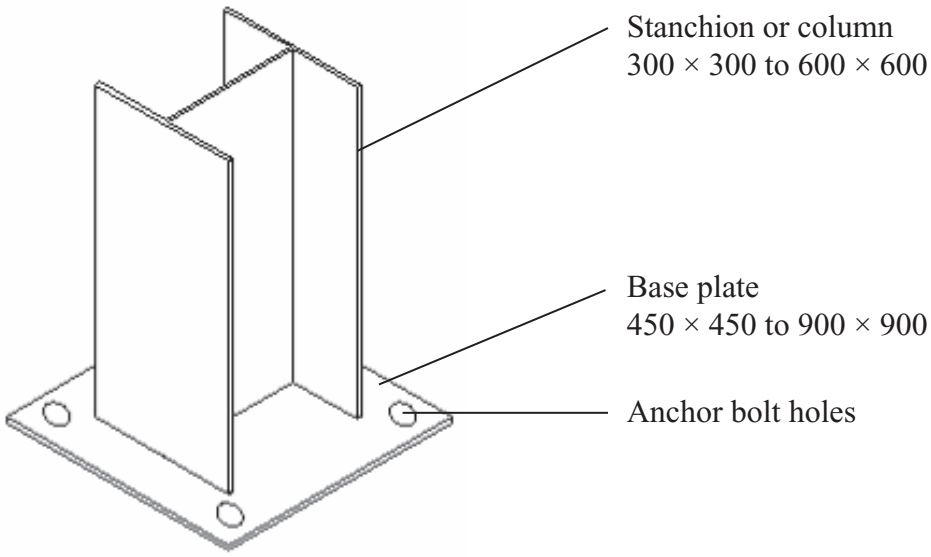
AVAILABLE MARKS

8 The central hall of the Visitors' Centre shown in the pre-release materials is constructed from a steel Portal Frame.

(a) The name of the structural joint shown at A is
base plate or sole plate [2]

(b) Partially completed drawing [3] marks
Completed drawing [6] marks
Completed drawing with one correct annotation [7] marks
Complete drawing of base plate joint with two annotations [8] marks. [8]



(c) [1] for each correct advantage up to a maximum of [5]

Advantages

- Speed and ease of erection
- Building can be quickly closed in and made watertight
- Framework prefabricated in a workshop and not affected by weather
- Site works such as drainage, roads etc can be carried out until framework is ready for erection
- No weather hold up during erecting the framework
- Connected together in factories by welding
  Site connections should be bolted
- Large unobstructed floor space

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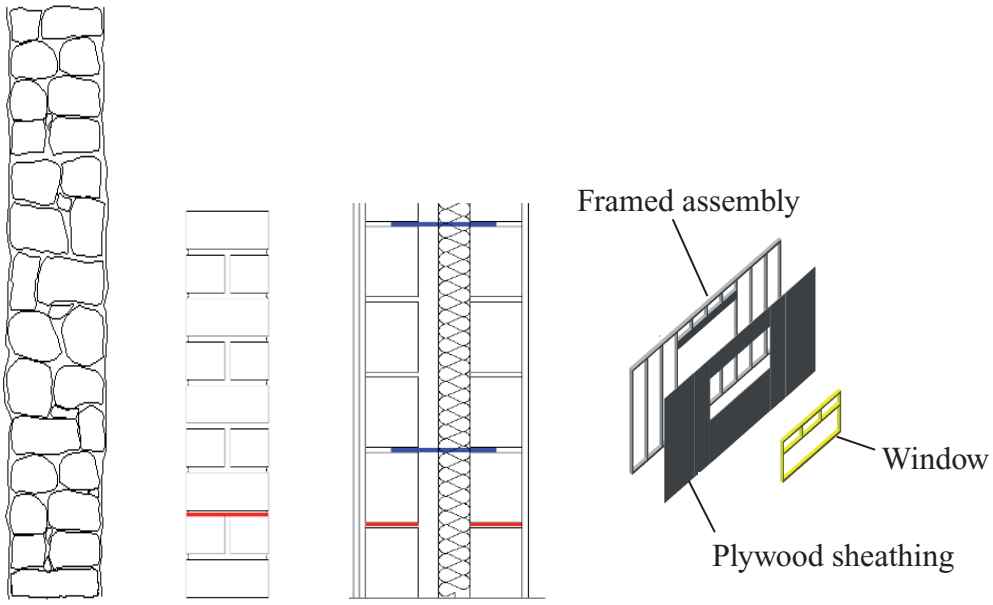
			AVAILABLE MARKS
(d)	[1]-[5] marks depending on the clarity of answer. One for each point listed below or any other appropriate answer. Infill panels Diagonal braces for wind Wire and tubular ties to prevent sagging Cladding rails Metal cladding panels Gusset pieces	[5]	20
9	Stone wall Stone walls with lime plaster One brick walls DPC Cavity walls with no insulation Cavity walls with insulation Timber framed. Walls of the future? Curtain walls		
			20
	[2] marks for each of the above teams correctly used/explained or a well annotated drawing up to a maximum of [20] marks		
	Total		**100**

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