GCSE

Construction

Single Award

January 2010

Mark Scheme

Issued: April 2010

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

MARK SCHEMES (2010)

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.

CONTENTS

Rewarding Learning

General Certificate of Secondary Education
January 2010

Construction:
Single Award

Unit 2: Construction Technology

[GSK21]

TUESDAY 12 JANUARY, AFTERNOON

MARK
SCHEME

Section A

AVAILABLE MARKS

1 **(i)** Cavity wall construction [1]

(ii) Sand
Cement
Concrete blocks
Insulation
PVC retainer disc
Wall ties
DPC
Water
Plaster
Brick

[1] per answer up to a maximum of 4 or any other relevant answer. [4] 5

2 A tolerance is allowed on scaled dimension of + or –100 mm
[1] For reading a dimension [2] for scaling a dimension.

(i) The length and width of the double garage.

Length = 7800 mm Width = 4150 mm [4]

(ii) The length and width of bedroom 3.

Length = 3650 mm Width = 2800 mm [4]

The overall width of the dwelling from the outside of the structure.

Width = 8300 mm [2]

(iv) The width and height of the window shown at B on the attached house plans.

Width = 1100 mm Height = 1000 mm [4] 14

3 **(i)** Roof valley or valley [1]

(ii) Rafter [1]

(iii) Fascia board [1]

(iv) Wall plate [1]

(v) Dormer window [1]

				AVAILABLE MARKS
	(vi)	Weather resistant Privacy Thermal insulation Low maintenance Sound insulation Durability Aesthetics Carry dead and imposed loads. [1] per answer up to a maximum of 5 or any other relevant answer.	[5]	10
4	**(i)**	Renewable energy is energy which is created without destroying fossil fuels or other fuels which cannot be replaced from the earth's natural resources. Renewable energy is "Meeting the needs of the present without compromising the ability of future generations to meet theirs" [2] for any suitable answer.	[2]	
	(ii)	Wind energy Geothermal ground pumps Biomass Water not tidal or wave [1] per answer up to a maximum of 2 or any other relevant answer.	[2]	4
5	**(i)**	Lead flashing used to waterproof the junction between roof and chimney and at roof valley.	[2]	
	(ii)	A damp-proof membrane is used to prevent the passage of damp at door and window openings. It can also be used 150 mm above ground level in a wall.	[2]	
	(iii)	Solar panels are used to generate electricity or heat water. They are usually found in the roof of buildings.	[2]	
	(iv)	A lintel is used over window and door openings to support the load.	[2]	
	(v)	Skirting is used to trim around the joint between the floor and the wall.	[2]	
		[1] per function and [1] per use up to a maximum of 2 or any other relevant answer.		10

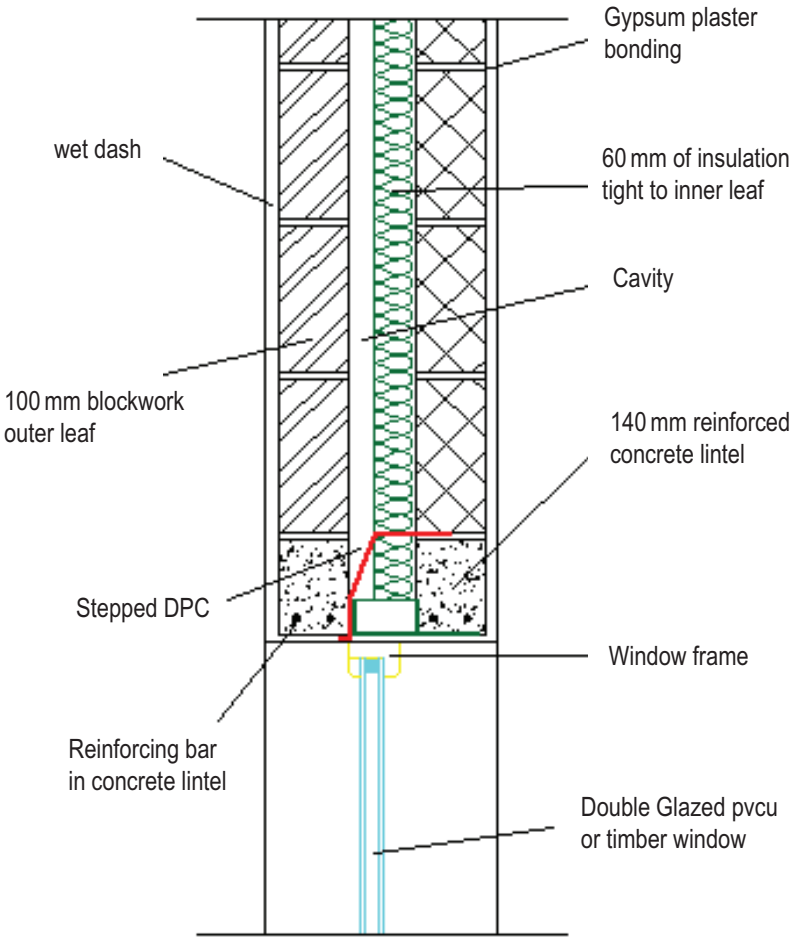
				AVAILABLE MARKS
6	(i)	**(a)** Softwood **(b)** Hardwood	[2]	2
7	(i)	Sheeting a stud wall Sheeting a timber ceiling Dry lining a building [1] per location up to a maximum of 2 or any other relevant answer.	[2]	
	(ii)	Specification for plastering the internal walls are as follows: one scratch coat of sand and cement one floating coat of sand and cement finish coat of gypsum plaster two coats emulsion paint. [1] per type of plaster/paint up to a maximum of 3 or any other relevant answer.	[3]	5
8	(i)	Protect the stair timbers from damage during the construction process.	[1]	
	(ii)	A temporary handrail should have been provided and infill below the handrail or suitable tread covers up	[2]	
	(iii)	The timber shown at A is called the stair string and it provides the structural support to the treads and risers for each step. [1] for the correct name called string and [2] for the correct function	[3]	
		Handrail Member parallel to the string and spanning between newels or fixed to the wall.	[1]	
		Baluster Vertical infill members between string and handrail.	[1]	
		Tread Upper surface of a step on which the foot is placed.	[1]	
		Riser The vertical member between two treads.	[1]	10
			Section A	**60**

Section B

AVAILABLE MARKS

9 [2] for completing the two heads correctly
[1] for the correct location of the window frame
[2] for completing the DPC correctly (1 for vertical and 1 for horizontal section)
[1] for completing the double glazing
[1] for completing the window frame
[2] for completing the insulation correctly including above head
[1] for general appearance [10]

[1] for each correctly added annotation up to a maximum of 10



[10] 20

AVAILABLE MARKS

10 **(i)** Steel portal framed structure [2]
Portal or steel framed structure [1] for either [2]

(ii) Factories
Shopping centres
Warehouses
Agricultural buildings

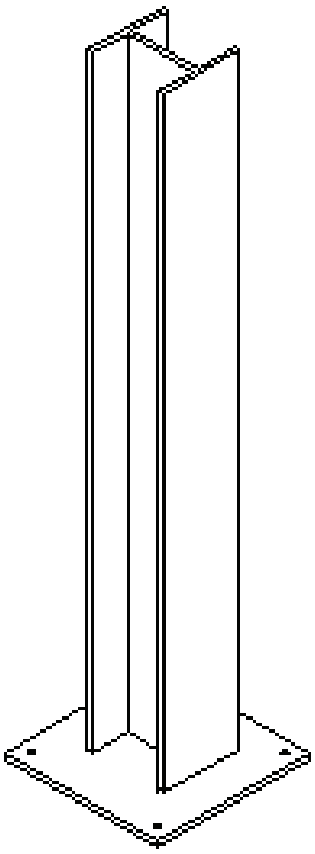
Or any other appropriate answer.

[1] for each correct answer up to a maximum of [4] [4]

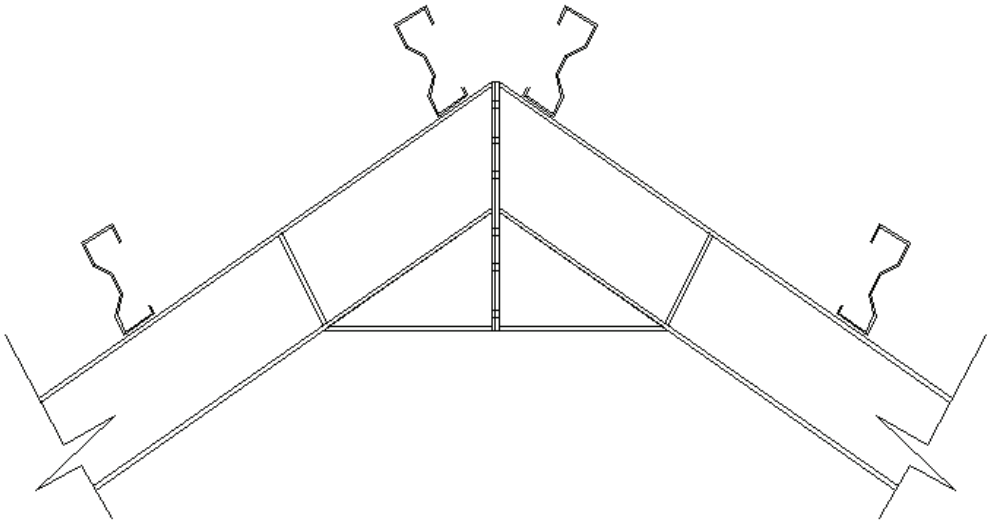
(iii) Diagonal bracing is used to help strengthen the framework and prevent movement. [2]

(iv) The network of roof members and columns are joined together with bolts. [2]

(v) [5] for a completed drawing.
completing vertical lines [1]
line at base of column [1]
front of base [1]
back and side of base [1]
bolt holes [1]



[5]

	AVAILABLE MARKS
(vi) [5] for a completed drawing. complete rafters [1] web stiffener [1] gusset plate [1] completion of ridge joint [2]	
	
[5]	20
Section B	**40**
Total	**100**