

Centre No.						Paper Reference	Surname	Initial(s)
Candidate No.						C B 2 0 4 / 0 1	Signature	

Paper Reference(s)

CB204/01

Edexcel

Principal Learning

Construction and the Built Environment

Level 2

Unit 4: Create the Built Environment:
Structures

Tuesday 13 January 2009 – Morning

Time: 1 hour

Materials required for examination

Nil

Items included with question papers

Nil

Examiner's use only

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Team Leader's use only

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Question Number	Leave Blank
1	
2	
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11	
12	
13	
Total	

Instructions to Candidates

In the boxes above, write your centre number, candidate number, your surname, initial(s) and signature. Check that you have the correct question paper.
Answer ALL the questions. Write your answers in the spaces provided in this question paper.
Do not use pencil. Use blue or black ink.
Some questions must be answered with a cross in a box (☒).
If you change your mind about an answer, put a line through the box (☒) and then mark your new answer with a cross (☒).

Information for Candidates

The marks for individual questions and the parts of questions are shown in round brackets: e.g. (2).
There are 13 questions in this question paper. The total mark for this paper is 60.
There are 28 pages in this question paper. Any blank pages are indicated.

Advice to Candidates

You are reminded of the importance of clear English and careful presentation in your answers. You are advised to read the questions carefully.

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Turn over

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Answer ALL the questions.

1. You have just started your new job working as a trainee site manager for a major construction company. You have been placed in the planning department. Your first task is to sort construction processes into order.

The Gantt chart below shows the different stages of a construction project. Five stages have not been identified in the first column.

CBE Diploma Technology Centre										
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct
1. Site set up										
2. Excavation and earthworks										
3.										
4. Structural steel frame										
5.										
6. Brickwork to external walls										
7.										
8. First fix										
9.										
10.										
11. Finishes and decorations										
12. External works and drainage										
13. Snagging and handover										

Identify the **five** missing stages in the first column of the Gantt chart by putting a cross (☒) next to the correct word in the following tables.

- (a) Stage 3 is:

A	Superstructures	☒
B	Carpentry and joinery	☒
C	Substructures	☒
D	Floor finishes	☒
E	Grouting	☒

(1)



Leave
blank

(b) Stage 5 is:

A	Suspended ceilings	<input type="checkbox"/>
B	Second fix	<input type="checkbox"/>
C	Glazing	<input type="checkbox"/>
D	Cladding and roofing	<input type="checkbox"/>
E	Painting and decorating	<input type="checkbox"/>

(1)

(c) Stage 7 is:

A	Internal walls and partitions	<input type="checkbox"/>
B	Door furniture	<input type="checkbox"/>
C	Alarm installations	<input type="checkbox"/>
D	Prefix	<input type="checkbox"/>
E	Plumbing installations	<input type="checkbox"/>

(1)

(d) Stage 9 is:

A	Substructures	<input type="checkbox"/>
B	Third fix	<input type="checkbox"/>
C	Inspections	<input type="checkbox"/>
D	Superstructures	<input type="checkbox"/>
E	Plastering and dry lining	<input type="checkbox"/>

(1)



Leave blank

(e) Stage 10 is:

A	Third fix	<input type="checkbox"/>
B	Second fix	<input type="checkbox"/>
C	Electrical installations	<input type="checkbox"/>
D	Plumbing installations	<input type="checkbox"/>
E	Glazing	<input type="checkbox"/>

(1)

Q1

(Total 5 marks)



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2. Working in the planning department you are investigating construction technologies used on site.

Place a cross (☒) in the box next to the correct word to complete the following sentences.

(a) A _____ strip foundation is needed when the ground has low bearing capacity.

A	lighter	<input type="checkbox"/>
B	wider	<input checked="" type="checkbox"/>
C	longer	<input type="checkbox"/>
D	heavier	<input type="checkbox"/>

(1)

(b) _____ can be used to transfer building loads through poor ground to a depth that has sufficient bearing capacity.

A	Rafts	<input type="checkbox"/>
B	Beams	<input type="checkbox"/>
C	Reinforcement	<input type="checkbox"/>
D	Piles	<input checked="" type="checkbox"/>

(1)

(c) Concrete is a mix of _____, fine aggregate, coarse aggregate and water.

A	sand	<input type="checkbox"/>
B	cement	<input checked="" type="checkbox"/>
C	gravel	<input type="checkbox"/>
D	crushed rock	<input type="checkbox"/>

(1)



Leave blank

(d) Concrete finishes include steel float, wood float and _____.

A	tamped	<input type="checkbox"/>
B	tongued	<input type="checkbox"/>
C	aluminium	<input type="checkbox"/>
D	reinforced	<input type="checkbox"/>

(1)

(e) The strength of concrete is affected by the _____ ratio.

A	sand : water	<input type="checkbox"/>
B	sand : air	<input type="checkbox"/>
C	water : cement	<input type="checkbox"/>
D	air : water	<input type="checkbox"/>

(1)

Q2

(Total 5 marks)

7

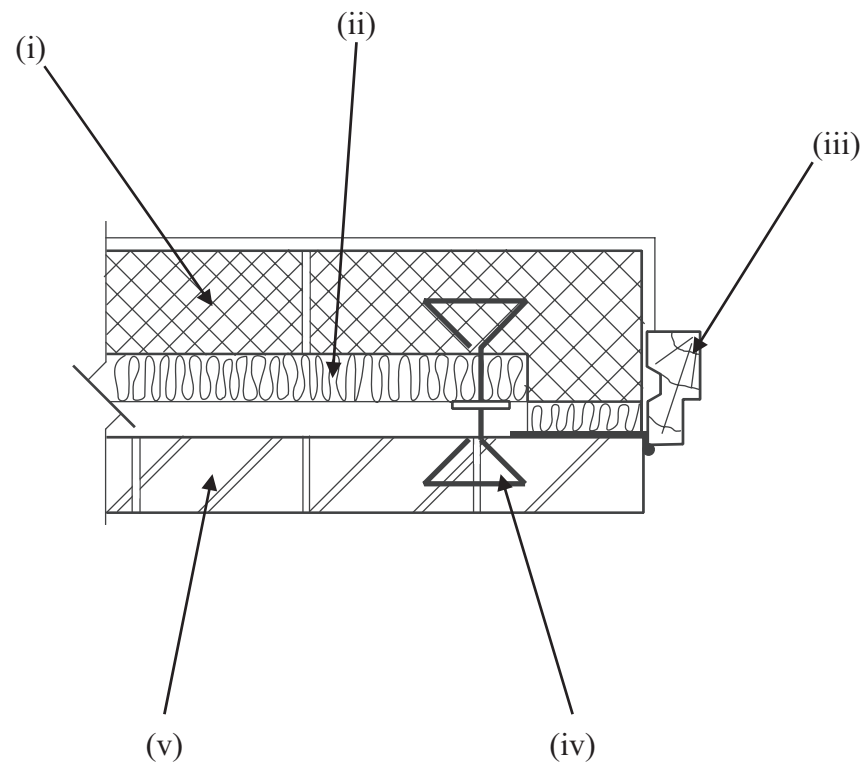
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H 3 5 7 4 8 A 0 7 2 8

3. You are now working as an assistant buyer. You will be scheduling materials/components and will need to be able to identify materials shown on construction drawings.

The diagram below shows a cross section detail of the jamb of a window opening.



Identify the different parts labelled (i) to (v) by placing a cross (☒) next to the correct answer.

(a) Label (i) shows:

A	plasterwork	<input checked="" type="checkbox"/>
B	blockwork	<input type="checkbox"/>
C	studwork	<input type="checkbox"/>
D	wire mesh	<input type="checkbox"/>

(1)



Leave
blank

(b) Label (ii) shows:

A	springs	<input type="checkbox"/>
B	chipboard	<input type="checkbox"/>
C	MDF	<input type="checkbox"/>
D	insulation	<input type="checkbox"/>

(1)

(c) Label (iii) shows:

A	softwood	<input type="checkbox"/>
B	UPVC	<input type="checkbox"/>
C	MDF	<input type="checkbox"/>
D	aluminium	<input type="checkbox"/>

(1)

(d) Label (iv) shows:

A	restraint strap	<input type="checkbox"/>
B	double hook	<input type="checkbox"/>
C	spacer	<input type="checkbox"/>
D	wall tie	<input type="checkbox"/>

(1)





(e) Label (v) shows:

A	stonework	<input type="checkbox"/>
B	blockwork	<input type="checkbox"/>
C	brickwork	<input type="checkbox"/>
D	ashlar walling	<input type="checkbox"/>

(1)

(Total 5 marks)

Leave blank

Q3



Leave
blank

4. You are now working in the construction department and are gaining knowledge of the materials and components used in different types of roof structure.

In the left hand column is a list of different materials and components that could be used in roof structures. Place a cross (☒) in the box that indicates whether the material or component is used in the construction of flat roofs, pitched roofs, both or neither.

	Flat roof	Pitched roof	Both	Neither
(a) Trussed rafters	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
(b) Insulation	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
(c) Wall plates	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
(d) Lintels	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
(e) Firrings	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Q4

(Total 5 marks)



5. You are now looking at ways of improving sustainability and are gaining knowledge of good sustainable practices.

Place a cross (☒) in the box next to the correct word to complete the following sentences.

(a) The _____ Constructors Scheme which promotes good practice to minimise the impact of construction on the local community.

A	Essential	<input type="checkbox"/>
B	Good	<input type="checkbox"/>
C	Considerate	<input type="checkbox"/>
D	Major	<input type="checkbox"/>

(1)

(b) A method known as _____ down prevents the transfer of airborne dust.

A	placing	<input type="checkbox"/>
B	running	<input type="checkbox"/>
C	setting	<input type="checkbox"/>
D	damping	<input type="checkbox"/>

(1)



Leave
blank

(c) The _____ of waste makes it easier to recycle.

A	segregation	<input type="checkbox"/>
B	storage	<input type="checkbox"/>
C	cleaning	<input type="checkbox"/>
D	reduction	<input type="checkbox"/>

(1)

(d) Use of _____ walls around storage tanks prevents ground contamination should a leakage occur.

A	block	<input type="checkbox"/>
B	bund	<input type="checkbox"/>
C	brick	<input type="checkbox"/>
D	low	<input type="checkbox"/>

(1)

(e) Local sourcing of materials helps to reduce transport _____ and depletion of fossil fuels.

A	effectiveness	<input type="checkbox"/>
B	maintenance	<input type="checkbox"/>
C	emissions	<input type="checkbox"/>
D	training	<input type="checkbox"/>

(1)

Q5

(Total 5 marks)



6. You are now working as a site engineer and have commenced work on the project shown in the picture.



Place a cross (☒) in the box next to the correct word to complete the following sentences.

(a) In the picture there is a mobile working platform known as a _____.

A	tower scaffold	<input checked="" type="checkbox"/>
B	lifting arm	<input checked="" type="checkbox"/>
C	cherry picker	<input checked="" type="checkbox"/>
D	forklift	<input checked="" type="checkbox"/>
E	personnel hoist	<input checked="" type="checkbox"/>

(1)



Leave
blank

(b) Over the surface of the site there is a bed of crushed stone known as _____.

A	concrete	<input type="checkbox"/>
B	hardcore	<input type="checkbox"/>
C	gravel	<input type="checkbox"/>
D	chippings	<input type="checkbox"/>
E	oversite	<input type="checkbox"/>

(1)

(c) The building under construction in the picture is a _____ structure.

A	shell	<input type="checkbox"/>
B	cellular	<input type="checkbox"/>
C	cross wall	<input type="checkbox"/>
D	monolithic	<input type="checkbox"/>
E	frame	<input type="checkbox"/>

(1)

(d) The steelwork is connected to the foundations using holding down _____.

A	bolts	<input type="checkbox"/>
B	ties	<input type="checkbox"/>
C	hangers	<input type="checkbox"/>
D	straps	<input type="checkbox"/>
E	grout	<input type="checkbox"/>

(1)



Leave blank

(e) The steelwork has to be _____, to be used as a school building.

A	annealed	<input checked="" type="checkbox"/>
B	hardened	<input type="checkbox"/>
C	fire clad	<input type="checkbox"/>
D	pre-stressed	<input type="checkbox"/>
E	tempered	<input type="checkbox"/>

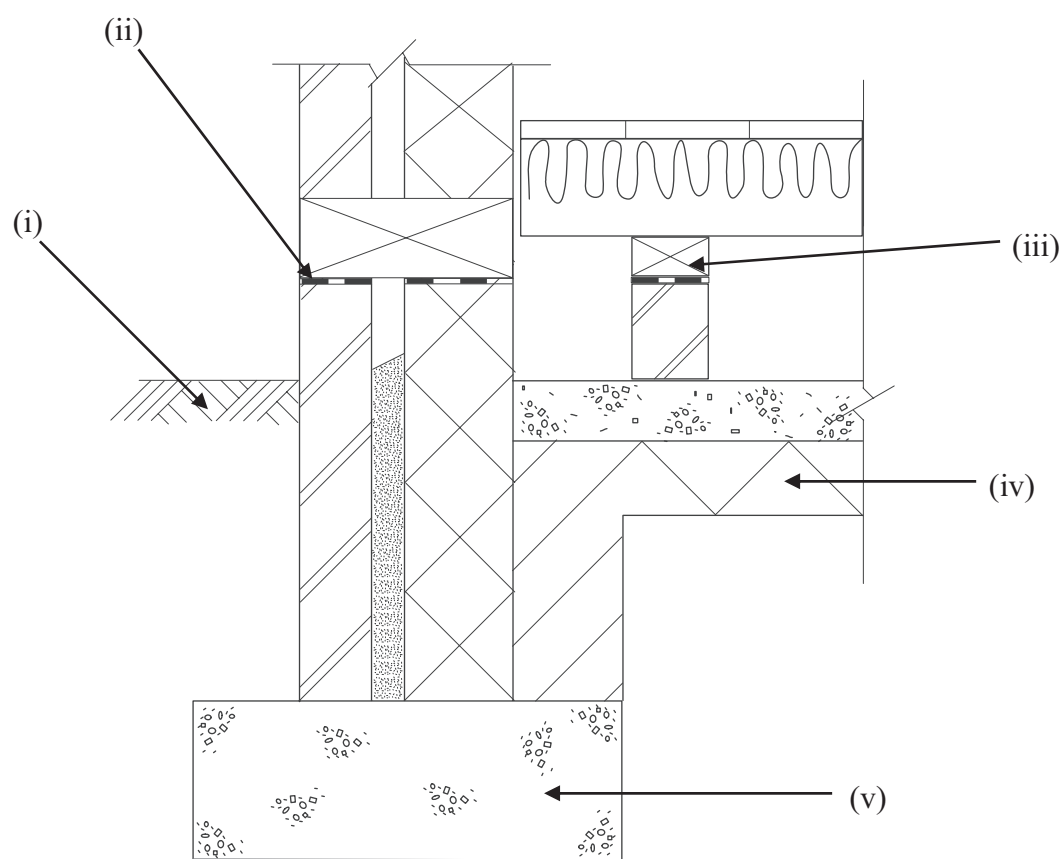
(1)

Q6

(Total 5 marks)

7. As an assistant buyer you will be scheduling materials and will need to be able to identify materials and components shown on construction drawings.

Below is a substructure detail.



Identify the parts labelled (i) to (v) by placing a cross (☒) next to the correct answer.



Leave
blank

(a) Label (i) shows:

A	hardcore	<input type="checkbox"/>
B	tarmac	<input type="checkbox"/>
C	asphalt	<input type="checkbox"/>
D	subsoil	<input type="checkbox"/>
E	sand cement screed	<input type="checkbox"/>

(1)

(b) Label (ii) shows:

A	damp proof course	<input type="checkbox"/>
B	wall tie	<input type="checkbox"/>
C	restraint strap	<input type="checkbox"/>
D	damp proof membrane	<input type="checkbox"/>
E	insulation	<input type="checkbox"/>

(1)

(c) Label (iii) shows:

A	planed softwood	<input type="checkbox"/>
B	brickwork	<input type="checkbox"/>
C	sawn softwood	<input type="checkbox"/>
D	steel	<input type="checkbox"/>
E	aluminium	<input type="checkbox"/>

(1)



Leave blank

(d) Label (iv) shows:

A	subsoil	<input type="checkbox"/>
B	hardcore	<input type="checkbox"/>
C	concrete	<input type="checkbox"/>
D	gravel	<input type="checkbox"/>
E	sand	<input type="checkbox"/>

(1)

(e) Label (v) shows:

A	gravel	<input type="checkbox"/>
B	crushed rock	<input type="checkbox"/>
C	concrete	<input type="checkbox"/>
D	hardcore	<input type="checkbox"/>
E	cobbles	<input type="checkbox"/>

(1)

Q7

(Total 5 marks)



Leave
blank

8. Working in the construction department, you are reflecting upon the knowledge that you have gained.

Place a cross (☒) in the box next to the correct word to complete the following sentences.

- (a) A(n) _____ field site is one that has previously been developed.

A	green	<input type="checkbox"/>
B	yellow	<input type="checkbox"/>
C	red	<input type="checkbox"/>
D	brown	<input type="checkbox"/>
E	old	<input type="checkbox"/>
F	existing	<input type="checkbox"/>

(1)

- (b) Concrete is strong in _____ but much weaker in tension.

A	torsion	<input type="checkbox"/>
B	hot weather	<input type="checkbox"/>
C	cold weather	<input type="checkbox"/>
D	the ground	<input type="checkbox"/>
E	shear	<input type="checkbox"/>
F	compression	<input type="checkbox"/>

(1)



(c) The mechanisation of the construction industry has made it possible to build large buildings quickly. An example of this is the _____ crane.

A	building	<input type="checkbox"/>
B	tall	<input type="checkbox"/>
C	sky	<input type="checkbox"/>
D	construction	<input type="checkbox"/>
E	tower	<input type="checkbox"/>
F	big	<input type="checkbox"/>

(1)

(d) Tile hanging, timber, profiled steel, concrete, glazed and brick are **all** terms that can be used to describe types of _____.

A	wall	<input type="checkbox"/>
B	structure	<input type="checkbox"/>
C	cladding	<input type="checkbox"/>
D	fire protection	<input type="checkbox"/>
E	internal partition	<input type="checkbox"/>
F	roof covering	<input type="checkbox"/>

(1)



(e) Materials used for roof coverings include built up felt, non-ferrous metals, tile, slate and _____.

A	MDF	<input type="checkbox"/>
B	plywood	<input type="checkbox"/>
C	epoxy resin	<input type="checkbox"/>
D	mastic asphalt	<input type="checkbox"/>
E	ABS	<input type="checkbox"/>
F	tool steel	<input type="checkbox"/>

(1)

Q8

(Total 5 marks)

Leave blank



9. The site manager has decided to test your knowledge of construction terminology.

The following are photographs taken on construction projects. Identify the items shown by placing a cross (☒) next to the correct word.

(a)

A	Shoring	<input type="checkbox"/>
B	Formwork	<input type="checkbox"/>
C	Scaffolding	<input type="checkbox"/>
D	Earthwork support	<input type="checkbox"/>
E	Flooring	<input type="checkbox"/>
F	Mobile tower	<input type="checkbox"/>



(1)

(b)

A	Second fix	<input type="checkbox"/>
B	Service fix	<input type="checkbox"/>
C	Initial fix	<input type="checkbox"/>
D	Third fix	<input type="checkbox"/>
E	First fix	<input type="checkbox"/>
F	Starter fix	<input type="checkbox"/>



(1)



Leave blank

(c)

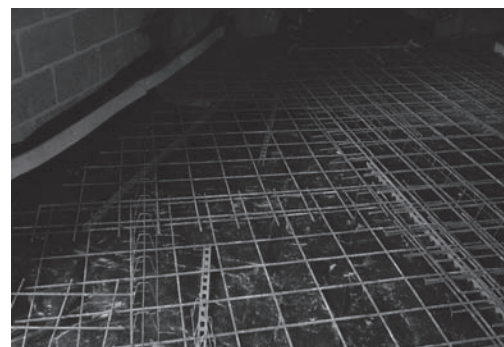
A	Curtain walling	<input checked="" type="checkbox"/>
B	Stud wall	<input checked="" type="checkbox"/>
C	Earthwork support	<input checked="" type="checkbox"/>
D	Diaphragm wall	<input checked="" type="checkbox"/>
E	Cladding	<input checked="" type="checkbox"/>
F	Formwork	<input checked="" type="checkbox"/>



(1)

(d)

A	Falsework	<input checked="" type="checkbox"/>
B	Steel grid	<input checked="" type="checkbox"/>
C	Mesh reinforcement	<input checked="" type="checkbox"/>
D	Underfloor heating	<input checked="" type="checkbox"/>
E	Steel decking	<input checked="" type="checkbox"/>
F	Foundation	<input checked="" type="checkbox"/>



(1)

Q9

(Total 4 marks)



10. You are now working as a document controller and need to know about different types of construction documentation.

Place a cross (☒) in the box next to the correct word to complete each following sentence.

(a) A specification that states what results must be achieved, e.g. thermal efficiency, is known as a _____ specification.

A	materials	<input type="checkbox"/>
B	performance	<input type="checkbox"/>
C	dedicated	<input type="checkbox"/>
D	architects'	<input type="checkbox"/>
E	workmanship	<input type="checkbox"/>
F	surveyors'	<input type="checkbox"/>

(1)

(b) A document that is used by the estimator to price construction work in order to produce a tender is known as the _____.

A	Preambles	<input type="checkbox"/>
B	Preliminaries	<input type="checkbox"/>
C	Material Schedule	<input type="checkbox"/>
D	Construction Register	<input type="checkbox"/>
E	Estimate	<input type="checkbox"/>
F	Bill of Quantities	<input type="checkbox"/>

(1)



Leave
blank

(c) PC sum is an abbreviation for _____ sum.

A	particular cost	<input type="checkbox"/>
B	preliminary cost	<input type="checkbox"/>
C	post cost	<input type="checkbox"/>
D	prime cost	<input type="checkbox"/>
E	personal cost	<input type="checkbox"/>
F	principal cost	<input type="checkbox"/>

(1)

(d) Monthly _____ are produced by a Quantity Surveyor in order to make an interim payment to the contractor.

A	accounts	<input type="checkbox"/>
B	valuations	<input type="checkbox"/>
C	schedules	<input type="checkbox"/>
D	forecasts	<input type="checkbox"/>
E	reports	<input type="checkbox"/>
F	requests	<input type="checkbox"/>

(1)

Q10

(Total 4 marks)

25

Turn over



H 3 5 7 4 8 A 0 2 5 2 8

Leave
blank

11. You have been asked to compare two different foundations; one is a raft, the other is a strip.

Consider the two foundations and then examine statements (a) to (d). Place a cross (☒) in the box to indicate whether the associated statement (a) to (d) applies to the raft only, the strip only, to both or to neither.

	Raft	Strip	Both	Neither
(a) Spreads building load over the ground floor area	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
(b) Is constructed of concrete	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
(c) Is suitable for domestic construction of dwellings	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
(d) Uses friction to support the structure	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

(Total 4 marks)

Q11



Leave
blank

12. You are now working in the planning department and have been awarded a contract to build a number of outlets for a well-known fast food chain. These buildings will be prefabricated and delivered to site ready for erection.

Consider this method of construction and state **four** advantages that it has over traditional construction methods.

1

.....

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2

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.....

3

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4

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Q12

(Total 4 marks)



13. You are now working in the construction department and learning about different construction details.

The details of two different internal walls are shown below. You have been asked to compare Type 1 against Type 2 and state **four** advantages Type 1 has over Type 2.

Type 1
A stud partition comprising softwood studs, sole plates, head plates and noggings with a plasterboard lining to both sides.



Type 2
A traditional blockwork partition wall with two coat plasterwork to both sides.



1

2

3

4

Q13

(Total 4 marks)

TOTAL FOR PAPER: 60 MARKS

END

