

6720-040 and 540 March 2018

6720-34 Level 3 Advanced Technical Certificate in Constructing the Built Environment (360)

6720-36 Level 3 Advanced Technical Extended Diploma in Constructing the Built Environment (720)

Q	Acceptable answer(s)	Guidance	Max marks
1	Any two of the following at one mark each. <ul style="list-style-type: none"> • Dense monolithic concrete walls and floors. • Tanking (Bitumen). • Drained cavity systems. 	Do not accept DPM, DPC or techniques for dewatering the site, e.g. pumps.	2
2	Any two of the following at one mark for identification and one mark for a brief description as shown. <ul style="list-style-type: none"> • Tiles (ordinary roofing tiles, fitted as they would be to a sloping roof). • Timber boards (match boarding or shiplap fixed to horizontal or vertical battens). • Plastic board sections (proprietary, fixed in same way as timber boards). • Masonry (brickwork/blockwork/rendered). All other suitable answers.	n/a	4
3	Any two of the following at one mark each. <ul style="list-style-type: none"> • Higher quality product. • Controlled production costs. • Reduced build time on site. • Reduced labour requirement. • Better thermal insulation. • Better sound insulation. • Better airtightness. • Increases efficiency. 	Do not accept formulaic responses like 'time', 'cost' and 'quality' unless further developed. Reference to economy of scales will be accepted for one mark.	2
4	Marks as shown to a maximum of three . <ul style="list-style-type: none"> • The choice of foundation is not dependent on the bearing capacity of the ground here (1). • The deep strip would be preferred because fewer man-hours are required to create it (1). • Less-skilled trades are required or more cost effective (either for max one mark). • The use of ready-mix concrete is cleaner and easier to manage (1). • To aid future conversion (1). 	n/a	3

	<ul style="list-style-type: none"> No foundation blocks needed (1) <p>Or any other suitable answer.</p>		
5	<p>A linked explanation of the steps taken to address the relevant issues, up to four marks as shown.</p> <ul style="list-style-type: none"> Access for construction plant and cranes (1) (use mini-hoists, work at night and on Sundays) (1). Accommodating modular construction into non-modular buildings (1) (use bespoke modules) (1). Replacing traditional materials with modern materials (1) (sympathetic materials matching) (1). Use of Site Waste Management Plans or SWMP (1). <p>All other suitable answers.</p>	Do not accept conservation areas or similar. The answer must relate to modern methods of construction.	4
6	<p>A linked summary of the steps taken to address the relevant issues, up to three marks as shown.</p> <ul style="list-style-type: none"> Fire detection systems linked to positive actions: smoke alarms linked to sprinklers or closing doors (1). Compartmentation (1) Fire doors and components (1): Confinement/slowdown of fire/resist for a certain time. Material specification: choose low flammability materials (1) or treat flammable materials (1). <p>All other suitable answers.</p>	n/a	3
7	<p>Any two of the following at one mark each.</p> <ul style="list-style-type: none"> Local roads. Existing structures. Existing services. Trees or wildlife (either for max one mark) <p>All other suitable answers.</p>	n/a	2
8a)	Deep basements, underground stations, tunnel approaches, pumping stations (any 1).	n/a	1
8b)	Because the excavation is very deep and battered slopes are prohibitive (1).	n/a	1
9	<p>Any two of the following at one mark for identification and one mark for a descriptive statement, to a maximum of two marks per method.</p> <ul style="list-style-type: none"> Bolts (1): fitted into pre-drilled or punched holes (1), fitted to end plates or flanges (1), on-site (1). Rivets (1): fitted into pre-drilled or punched holes (1), still seen but no longer used (1), on-site (1). Welds (1): stronger (1), neater (1), high level of skill required (1), off-site (1). 	n/a	4

10	<p>A coherent justification that includes two of the following arguments.</p> <ul style="list-style-type: none"> • Primary schools = children, children eat soil (pica), which must therefore be uncontaminated/ particular susceptibility of young children.(1) • Those working on the site should not be exposed to dangerous chemicals in contaminated land.(1) • Working on contaminated land may release leachates into water table (1). • Dusts or vapours released during construction can be dangerous both then and afterwards (1). • Low availability of land means brownfield sites need to be remediated (1). • Or any other suitable answer. 	n/a	2
11	<p>A coherent explanation that includes three of the following points.</p> <ul style="list-style-type: none"> • Glulam is more sustainable than steel. • Glulam has lower embedded energy than steel. • Glulam is more aesthetically pleasing than steel. • Glulam can more easily be formed in a curved shape. • Glulam does not corrode, but steel does. • Glulam can be treated to behave better in fire than steel will. • Glulam is an electrical insulator, no need for bonding. 	n/a	3
12a)	<p>A coherent explanation of the following. Marks as shown to a maximum of two marks in total.</p> <p>A DPM below the concrete protects the concrete bed (1) from the ingress of moisture (1) and harmful salts (1) whereas placing the DPM above the concrete is simpler (1).</p>	n/a	2
12b)	<p>A coherent explanation of the following. Marks as shown to a maximum of three marks in total.</p> <p>There is a risk of damage (1) to the DPM during placement of the concrete (1) whereas if the DPM is placed above this will not happen (1) but concrete is at risk from moisture and salts (1).</p>	n/a	3
13a)	<p>Any two of following at one mark each.</p> <ul style="list-style-type: none"> • High winds • Heavy rain • Low temperatures, e.g. snow/ice (max one mark) • High air temperatures • Excessive sunshine • Fog (poor visibility). 	n/a	2

13b)	Any one of following at one mark. <ul style="list-style-type: none"> • Noxious fumes • Reduced oxygen levels • Fire • Flooding/drowning • Asphyxiation due to dust, grain or other contaminants. 	n/a	1
14a)	Any one of the following at one mark for identification. <ul style="list-style-type: none"> • Concrete breakers and pokers (used to break-up concrete and to compact fresh concrete). • Sanders, grinders, disc cutters (used to smooth off surfaces or remove irregularities). • Hammer drills (used to drive items into solids and to create holes). • Chainsaws (used to reduce the size of large pieces of timber and similar). • Scabblers, needle guns (used to roughen the surface of concrete). • Wacker plate. 	Do not accept drill or electrical drill.	1
14b)	Any two of the following for one mark. <ul style="list-style-type: none"> • Special low-vibration tools. • Anti-vibration gloves. • Limit daily exposure. • Regular monitoring of workers. Any other suitable answer.	n/a	2
15	A coherent explanation of the following. Marks as shown to a maximum of three marks in total. They will be complying with the law (1), they can see where they are doing well and where they are doing less well (1), they will be able to correlate activities with incidents (1), they will have information to support changes in working practices (1), they will be able to monitor the changed working practices (1) and they will have the data needed by the HSE in case of an investigation (1).	Accept: Improving the firm's image (1) Reducing insurance costs (1) Training (1)	3
16	A coherent explanation of the following. Marks as shown to a maximum of three marks in total. The construction process involves the use of many materials which are hazardous to health (1). The responsible people must find out what the health hazards are (1), assess the risks involved (1), provide control measures to reduce harm to health (1), and make sure that they are used (1) or they may be legally liable (1).	n/a	3
17	Intention:	Indicative content: sub and superstructure forms, primary and	12

	<p>The aim of this question is to allow candidates an opportunity to demonstrate knowledge and understanding of the sustainable methods and techniques used to construct a new build commercial building and convert an existing domestic building to provide access, both to and within that building, for elderly and disabled persons, using good health and safety practices.</p> <p>Band 1 (1 – 4 marks) The learner identifies a limited number of the construction methods to be used for both buildings, but there is little in the way of description. The learner’s response lacks detail and is not clearly linked to the scenario. To access higher marks in this band, learners must present the methods to be used in the correct chronological order.</p> <p>Band 2 (5 – 8 marks) The learner identifies a wide range of the construction methods to be used for both buildings and supports this with brief descriptions of at least one building. The learner’s response is detailed but incomplete and has clear links to the scenario in most cases. To access higher marks in this band, learners must provide clear and accurate evidence of the good health and safety practices used in the construction methods described.</p> <p>Band 3 (9 – 12 marks) The learner identifies a comprehensive range of the construction methods to be used for both buildings and supports this with in-depth descriptions of both buildings. The learner’s response is detailed and complete and has clear and accurate links to the scenario. To access higher marks in this band, learners must provide evidence of having considered the relative cost and efficacy of the methods specified.</p>	<p>secondary elements, components and materials, performance expectations, environmental issues, access and disability issues, sustainable construction techniques, risk assessment, practical implementation of health and safety regulations.</p> <p><i>For no awardable content, award 0 marks.</i></p>	
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