

UNIVERSITY OF BOLTON

SCHOOL OF ENGINEERING

BSc(HONS) IN CONSTRUCTION MANAGEMENT

SEMESTER ONE EXAMINATION 2018/2019

SUSTAINABLE CONSTRUCTION

MODULE NO: CAS6004

Date: Thursday 17th January 2019

Time: 14:00 – 16:00

INSTRUCTIONS TO CANDIDATES:

There are **FIVE** questions.

Answer **ANY THREE** questions.

All questions carry equal marks.

School of Engineering
BSc (Hons) in Construction Management
Semester One Examination 2018/2019
Sustainable Technology
Module No. CAS6004

Background Scenario relates to the five question

On 2nd January 2017, the Government announced plans for number of new Garden Villages and Towns across the country. These new settlements are to provide a modern take on the traditional Garden Cities movement that has its roots in the late 19th Century.

The idea of the Garden City was first suggested by Sir Ebenezer Howard in his book 'Garden Cities of To-morrow' during a time of rapid industrialisation across the country. At its core, the Garden City intended to marry together the best bits of living in a thriving, urban community with the health and wellbeing benefits of living in the countryside. By planning and designing more greenery into a new city, it was considered that residents would have the best of both worlds. There would be good access to jobs and services, as well as opportunities to socialise, coupled with the chance to breathe fresh air, drink clean water and enjoy open, green spaces. The concept was first introduced with Letchworth Garden City, and it has been a major influence on town planning across the world ever since.

For the 21st Century, Garden Villages continue to focus on providing excellent access to services and jobs within a healthy, well connected and green environment. The term continues to be internationally recognised as sign of prestigious design and environmental quality.

St Cuthbert's Garden Village was identified as a broad location for growth in the Carlisle District Local Plan, adopted in November 2016.

The Council submitted a Garden Village Expression of Interest in late 2016 and in January 2017, St Cuthbert's was designated as a Garden Village as part of the Government's Garden Towns and Villages Programme.

PLEASE TURN THE PAGE....

School of Engineering
BSc (Hons) in Construction Management
Semester One Examination 2018/2019
Sustainable Technology
Module No. CAS6004

1. Carlisle City Council owns six apartment blocks eighteen stories high constructed in the early 1970s. The authority refurbished two tower blocks in 2016 to make them more sustainable, by introducing a thermal envelope in the form of retro-fit cladding with new window system and upgrading the services. The intention was to continue to refurbish the other four blocks between 2018-2020. Discuss the issues associated with the refurbishment of the tower blocks and advise the council regarding their current situation

[25 marks]

2. The Government have designated a number of locations across the country to develop Garden Villages. One of those designated is on the outskirts of Carlisle in Cumbria, green belt land on the south side of the city. Critically review the concept of “modern methods of construction” as an alternative to traditional brick and block construction for the scheme.

[25 marks]

3. Critically appraise three types of renewable sources of energy that could be adopted as part of the overall development of the garden village scheme given its location on the south side of the city of Carlisle Cumbria.

[25 marks]

4. The council advocate a strong desire for building companies to develop contemporary natural buildings in the countryside as part of their sustainable agenda. Critically review two types of natural building material currently used in the market, that could be used in this part of the world taking into account the construction methods, local climate and natural resources that may be available.

[25 marks]

5. The area around the City of Carlisle and the City itself has seen extensive flooding over a fifteen year period. Advise the council how design solutions and flood defence systems could be incorporated into the design of existing and new housing schemes to prevent and mitigate against the worst flood events.

[25 marks]

END OF PAPER