

CONFIDENTIAL



UNIVERSITI TUN HUSSEIN ONN MALAYSIA

**FINAL EXAMINATION
SEMESTER I
SESSION 2017/2018**

COURSE NAME : BUILDING SERVICES
TECHNOLOGY & DESIGN

COURSE CODE : BNB 31103

PROGRAMME CODE : BNB

EXAMINATION DATE : DECEMBER 2017 / JANUARY 2018

DURATION : 3 HOURS

INSTRUCTION : ANSWERS ALL QUESTIONS

THIS QUESTION PAPER CONSISTS OF **FOUR (4)** PAGES

CONFIDENTIAL

Q1 Developers who seek to develop lands and build houses for the market, must now ensure that all levels of their operations are managed in the most efficient manner if they are to continue to remain successful.

(a) Sketch the process of housing development and indicate each action taken by parties involved.

(10 marks)

(b) Each application processes are provided for under the various related legislation name including Uniform Building by Law, 1984. State **THREE (3)** other legislation regarding development process in Malaysia.

(3 marks)

(c) After the site possession by the main contractor, the construction work will start within allocated time agreed by both parties which are the owner and contractor. Elaborate next steps that had to be taken upon construction.

(5 marks)

(d) The Certificate of Completion and Compliance (CCC) system which came into force in all states within Peninsular Malaysia on 12 April 2007 effectively replaces the Certificate of Fitness for Occupation (CFO) previously issued by the local authorities under the Street, Drainage and Building Act 1974.

(i) Distinguish **THREE (3)** differences between Certificate of Completion and Compliance (CCC) and Certificate of Fitness for Occupation (CFO).

(6 marks)

(ii) Briefly describe **ONE (1)** benefit of the CCC.

(1 mark)

Q2 (a) The traditional Malay house is among the type of house found in Malaysia. Its unique design on stilts shows the ingenuity of the builders in solving the physical and natural constraints of the site. Explain what makes the traditional Malay house sustainable.

(5 marks)

(b) Building services are the systems installed in buildings to make them comfortable, functional, efficient and safe. This means that building services design must be integrated into the overall building design. Provide the importance of building services system on a department store or industrial buildings.

(5 marks)

(c) A technical drawing is the instruction manual for something that needs to be built or manufactured. It is exact in offering a visual representation of what it's intended to be, in detail.

(i) Differentiate an architectural drawing and an engineering drawing.

(6 marks)

(ii) Compose **THREE (3)** methods used in creating a technical drawing.

(3 marks)

- (iii) In a technical drawing, a 2D drawing and a 3D drawing is used to illustrate a flat image and a perspective image respectively. Create a simple drawing of a single storey house that pictures a 2D drawing and a 3D drawing.

(6 marks)

Q3 Cold water service consists of a pressurized piping distribution system incorporating a separate supply line from the tap in the existing outside water main to the equipment area inside the building.

- (a) Sketch an indirect cold water supply system of a double storey terraced house and its components.

(12 marks)

- (b) **Table Q3(b)** shows the provision of cold water to cover 24 hours interruption of supply. If a Hotel is designed to accommodate 350 guests, calculate the cold water storage capacity.

Table Q3(b) – Provision of Cold Water

Types of buildings (per resident)	Storage in liters
Dwelling house and flats	91
Hostels	91
Hotels	136
Offices without canteen	37
Offices with canteen	45
Restaurant	7
Day schools	27
Boarding school	91
Nurses homes and medical quarters	114

- (c) Prepare a sketch on a gravity and pumped combination water distribution system.

(9 marks)

Q4 (a) As a building owner you consider a design that is eco-friendly and uses as much renewable energy as you can. In a basic design, explain the components you need to include in your desired building along with the consideration of heating, cooling, lighting and ventilation.

(8 marks)

- (b) Architects are responsible in building design, however a building services technologist and engineer is needed when a building design is deemed very complex in building services requirements. As a professional Building Services Technologist, identify **SIX (6)** of your work activities. (6 marks)
- (c) Mr. Ahmad owns a terraced house and intend to renovate his house located within the jurisdiction of *Majlis Perbandaran Selayang*.
- (i) Point out **SIX (6)** steps that must be taken by Mr. Ahmad in order to submit an application for submission. (6 marks)
- (ii) In order to renovate a terraced house, Mr. Ahmad have to consider the setbacks of his house which is a corner lot unit. With an aid of a sketch, illustrate the size of setbacks for a corner lot unit. (5 marks)

-END OF QUESTIONS -

TERBUKA