



UNIVERSITI TUN HUSSEIN ONN MALAYSIA

**FINAL EXAMINATION
SEMESTER I
SESSION 2019/2020**

COURSE NAME : BUILDING SERVICES
TECHNOLOGY & DESIGN

COURSE CODE : BNB 31103

PROGRAMME CODE : BNB

EXAMINATION DATE : DECEMBER 2019 / JANUARY 2020

DURATION : 2 HOURS 30 MINUTES

INSTRUCTION : ANSWER ALL QUESTIONS

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THIS QUESTION PAPER CONSISTS OF FIVE (5) PAGES

- Q1** A building must be constructed based on regulation and guidelines provided by the Local Authority and common provision act such as Uniform Building By-Law 1984 (UBBL 1984).
- (a) Name the authorities involved in application for land matters in a development process. (1 mark)
 - (b) Explain the role of the town planner in the process of the chosen or acquired land in cases where the purpose of development is still in its agriculture status. (2 marks)
 - (c) With an aid of a table, differentiate **THREE (3)** aspects of building regulations and **THREE (3)** aspects of planning permission for building control process. (6 marks)
 - (d) In addition to dealing with Building Regulations, most Building Control sections also undertake a range of other duties. Elaborate **FOUR (4)** targets in carrying out inspections on site. (4 marks)
 - (e) Sketch the process flow of building plan approval. (12 marks)
- Q2** The process of brief and design development for building services is based on RIBA Plan of work.
- (a) Clarify the meaning of the design brief document. (2 marks)
 - (b) Clarify **FOUR (4)** information of the building services design brief details. (8 marks)
 - (c) Sketch the process flow of brief and design development for building services. (12 marks)
 - (d) The extent of any designer's contractual duties will be heavily influenced by the client's contract strategy for the project in which it has four main approach. Explain the contractual relationship on a management contract. (3 marks)

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Q3 Building services consists of electrical, plumbing, and mechanical systems in a building. For this reason they are also called MEP services.

- (a) The national grid system is the network of cables which transport electricity from the power stations to homes, factories and other places that require it. Construct a diagram that shows the sequence of the transmission and distribution system of electricity as a whole. (10 marks)
- (b) There are two types of internal distribution system which are direct supply system and indirect supply system. With an aid of a table, differentiate both of the systems. (6 marks)
- (c) Recommend and sketch a direct pumped water distribution system for a house located on a hill. (3 marks)
- (d) Recognize how Non-Revenue Water typically happen. (6 marks)

Q4 (a) Mr. Lim intends to install new fittings on his multi-storey office building. Provided in **Table Q4 (a)** is the list of quantity, fittings and storage / unit. The installation are made based on **Figure Q4 (a)**.

Table Q4 (a)

Quantity	Fittings	Storage/unit	Total water (l) (quantity x storage)
9	Sink	135	
8	Basin	90	
10	WC	180	
5	Shower	135	
9	Tap	135	
5	Bath tub	135	
Total demand storage :			

- (i) Calculate the total demand storage. (4 marks)
- (ii) Calculate the suction tank capacity (with the capacity of 1/3). (3 marks)
- (iii) Calculate the storage tank capacity (with the capacity of 2/3). (3 marks)
- (iv) Calculate the volume for the water storage tank. (1 mark)

- (b) Professional ethics are important to build trust and relationship between a professional and his / her clients in the building services field. Clarify **SIX (6)** main type of unethical behavior that building services technologist could be susceptible to.
(6 marks)
- (c) The adaptive reuse of a historic building should have minimal impact on the heritage significance of the building and its setting. In your opinion propose the rationale for reusing old buildings.
(3 marks)
- (d) In a situation where a homeowner wants to renovate his / her house, decide the next steps to be taken after he / she obtained an approval from the local authorities.
(5 marks)

– END OF QUESTIONS –

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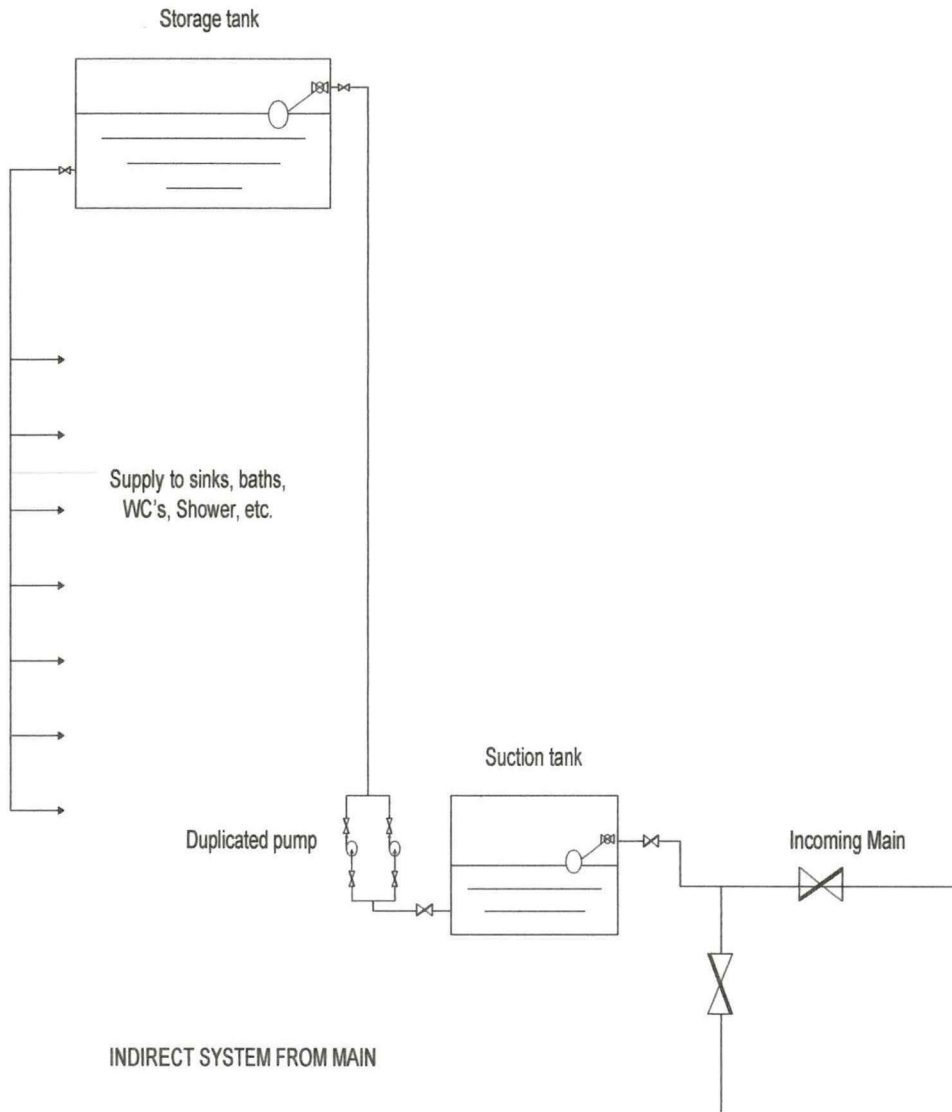


Figure Q4 (a)

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