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**JOMO KENYATTA UNIVERSITY**

**OF**

**AGRICULTURE AND TECHNOLOGY**

 **UNIVERSITY EXAMINATIONS 2017/2018**

**YEAR II SEMESTER I EXAMINATION FOR THE DEGREE OF BACHELOR OF ARCHITECTURAL TECHNOLOGY**

**ABA 2201: BUILDING SERVICES**

**DATE: JANUARY 2018 TIME: 2 HOURS**

**INSTRUCTIONS: ANSWER QUESTION ONE AND ANY OTHER TWO QUESTIONS**

**QUESTION ONE (30 MARKS)**

1. Comment why it is necessary in the planning stage of a project to liaise with utility service providers like water boards, power and lighting companies urban councils in the initial application made by a developer for planning. [7 marks]
2. What is the purpose and objective of service ducts in high rise buildings? Describe the following types of service ducts;
3. Walk-in-vertical duct.
4. Built out vertical duct [11 marks]
5. What determines the waste handling system to be used in any particular situation? Comment on Hospital waste disposal systems. [8 marks]
6. Outline the principle of hot and cold water supply systems in buildings. [4 marks]

**QUESTION TWO (20 MARKS)**

1. How does an indirect cold water supply system in buildings work? State any disadvantages of the system. [8 marks]
2. Briefly explain the following systems of water supply to the buildings;
3. Constant system
4. Intermittent system
5. Private water supply system. [9 marks]
6. What is the principle requirements of a storage tank for drinking water? Illustrate by a simple line diagram. [3 marks]

**QUESTION THREE (20 MARKS)**

1. Describe a sanitary appliance, its functions and general requirements. [9 marks]
2. Comment on pipe connections requirements to sanitary appliances and traps in building installations. [5 marks]
3. Sketch and describe the following sanitary appliances;
4. Slop hopper
5. Washing fountain [6 marks]

**QUESTION FOUR (20 MARKS)**

1. Outline the following systems of drainage and comment on their preferences;
2. Combined drainage system
3. Partially separate system [8 marks]
4. What factors are likely to determine a layout for a small domestic drainage scheme? [2 marks]
5. What is FIRE PRECAUTION in buildings? Explain the term FIRE GRADING as used in fire resistance of building elements or components and illustrate with well annotated sketches the following;
6. One-Hour five check flush door with frame.
7. One-Hour fire resistance concrete beam.

 [10 marks]

**QUESTION FIVE (20 MARKS)**

1. Using a simple line diagram describe the sequence of electrical power supply control. [4 marks]
2. Differentiate ventilation from Air Conditioning in Building Installations. [6 marks]
3. Briefly specify how the following details of a building design affects natural indoor ventilations;
4. Geometrical configuration of the Building envelope
5. Location of openings
6. Total area openings in the pressure and sanction zone. [6 marks]
7. What are the three major Architectural considerations that require integration when planning for elevators? [4 marks]