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Universiti Tun Hussein Onn Malaysia

UNIVERSITI TUN HUSSEIN ONN MALAYSIA

**FINAL EXAMINATION
SEMESTER II
SESSION 2021/2022**

COURSE NAME : TALL BUILDING CONSTRUCTION

COURSE CODE : BFB 40203

PROGRAMME CODE : BFF

EXAMINATION DATE : JULY 2022

DURATION : 3 HOURS

- INSTRUCTION
1. ANSWER ALL QUESTIONS
 2. THIS FINAL EXAMINATION IS AN **ONLINE ASSESSMENT** AND CONDUCTED VIA **CLOSE BOOK**.
 3. STUDENTS ARE **PROHIBITED** TO CONSULT THEIR OWN MATERIAL OR ANY EXTERNAL RESOURCES DURING THE EXAMINATION CONDUCTED VIA CLOSED BOOK.

THIS QUESTION PAPER CONSISTS OF **THREE (3) PAGES**

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- Q1** One of the main factors in the design of tall buildings is the consideration of lateral loading. Generally, the magnitude of lateral loading will increase significantly with the increase in the building height due to the influence of gravity load. In the case of a tall building to be built on a manmade island (reclaimed area with deep low bearing), evaluate how this factor will affect the construction method of the building's foundation. With appropriate sketches, explain your evaluation. (25 marks)
- Q2** Damper system is a structure that can dissipate energy that reacts as a pendulum in a tall building. The design of a damper system can have a significant effect on the response of buildings movement and should be considered at an early stage in the design. Based on mega/famous tall building projects around the world such as Burj Al Arab, Canton Tower, Taipei 101, KLCC, Marina Bay Sand Hotel and Burj Khalifah. Highlight key concepts of damper systems for a tall building that will be useful for future reference with appropriate sketches. (25 marks)
- Q3** Selection of the most appropriate structural system for tall buildings depends on many factors such as geographical location, construction skills, building height, plan dimensions, intended use, visual appearance and architectural requirements. Therefore, structural engineers need to pay particular attention to the position, size, lateral stability and overturning capacity in their design to propose the structural system. Based on **FIGURE Q3**, propose a comprehensive solution that can ensure the stability and integrity of the tall building's structural system. Provide suitable sketches to support your proposal. (25 marks)
- Q4** The construction of sky parks such as Marina Bay Hotel in Singapore has become a trend in the construction of tall buildings. The sky park (or sky bridge) becomes one of the attractions and serves as a link and also as a stabilizer between each building. However, this structure requires special attention, analysis and precise construction planning to avoid any difficulty during the construction method and also after completion. Based on your opinion, with appropriate sketches, emphasise critical factors for consideration in constructing the sky bridge. (25 marks)

– END OF QUESTIONS –

FINAL EXAMINATION

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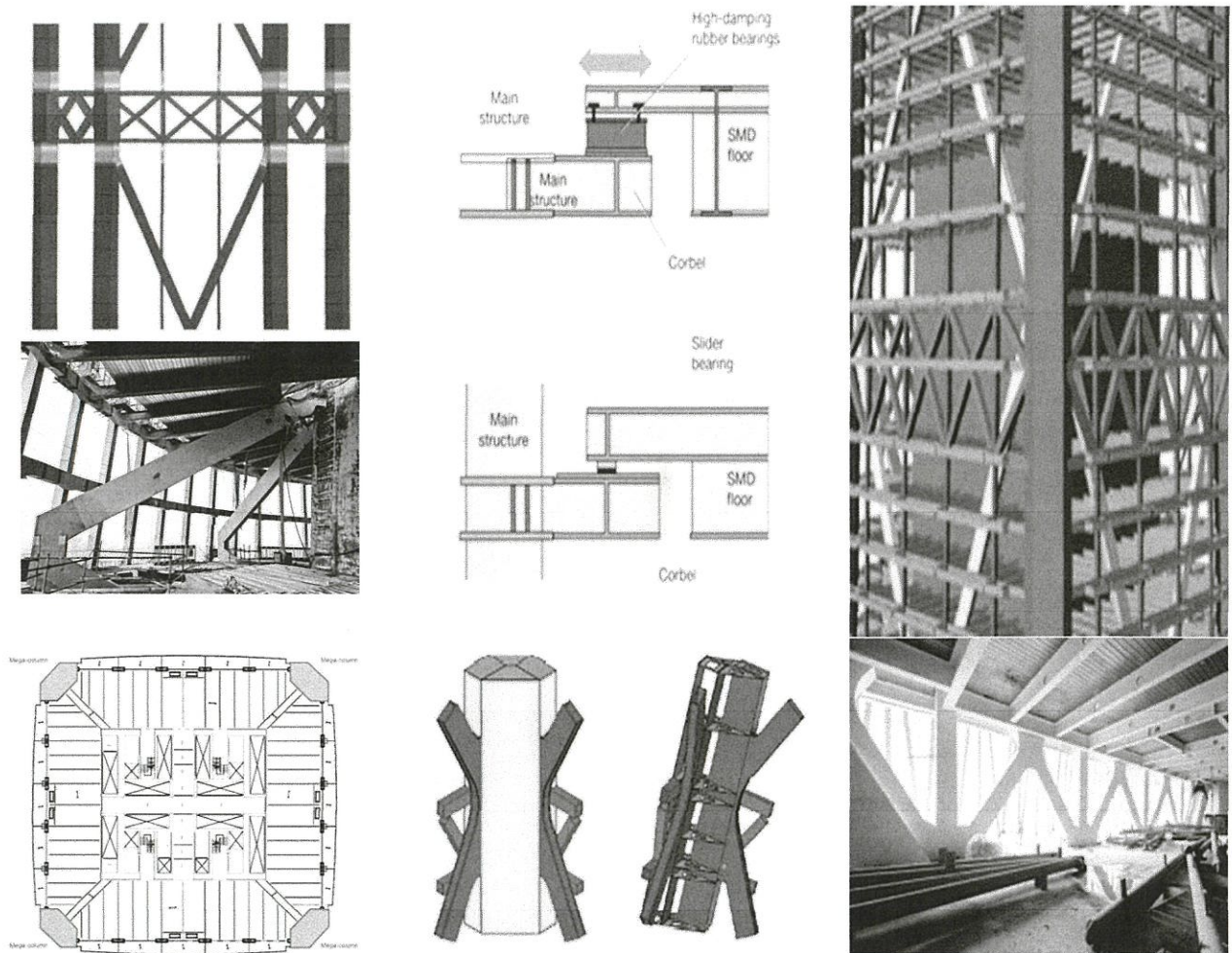


FIGURE Q3

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