



UTHM

Universiti Tun Hussein Onn Malaysia

UNIVERSITI TUN HUSSEIN ONN MALAYSIA

**FINAL EXAMINATION
SEMESTER 1
SESSION 2021/2022**

COURSE NAME : APPLICATION OF GPS, GIS AND RS
TO CIVIL ENGINEERING

COURSE CODE : MFH 10303

PROGRAMME : MFA

TEST DATE : JANUARY/FEBRUARY 2022

DURATION : 3 HOURS

INSTRUCTIONS : 1. ANSWER ALL QUESTIONS
2. THIS FINAL EXAMINATION
IS AN **ONLINE** ASSESSMENT
AND CONDUCTED VIA
CLOSE BOOK

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

- Q1** (a) Referring to the components in **Figure Q1(a)**, explain with your own words about the satellites configuration and its effect on positioning observation. (10 marks)
- (b) As an engineer, you are asked to do monitoring in deformation potential of a high-rise building in Kuala Lumpur using GPS observation. Suggest and explain in detail the procedure of data acquisition and the GPS receiver network you have to design. (15 marks)
- Q2** (a) Remote sensing is a data observation technique that can capture images of large areas in a short period of time. List and briefly explain **FIVE** (5) applications of remote sensing in the field of civil engineering. (10 marks)
- (b) Remote sensing is an appropriate method used in environmental monitoring work. Suggest and explain in detail how remote sensing can help to overcome the problem of large-scale forest encroachment in Malaysia. (15 marks)
- (c) Satellite remote sensing may carry variable type of sensor such as optical, infrared or microwave sensor. Suggest what sensors are suitable for the purpose of planning new city development. (15 marks)
- Q3** (a) Geographical Information System (GIS) may be considered to have a major component. List of the component and describe them briefly. (10 marks)
- (b) A GIS planning is very importance at the beginning of project that will help to avoid hours of unnecessary work and redundant tasks. Describe the basic steps to carrying out a GIS project:
- i. Problem Identification (5 marks)
 - ii. Designing a data model (5 marks)

- Q4** UTHM campus is planned to expand by adding some new buildings. At the same time the campus management needs to know information about the existing buildings in campus area. The information should contain the location and height of each building and temperature of the area. Hence, explain how information above gathered and design an information system of building utilities and their functions

(15 marks)

-END OF QUESTIONS-

FINAL EXAMINATION

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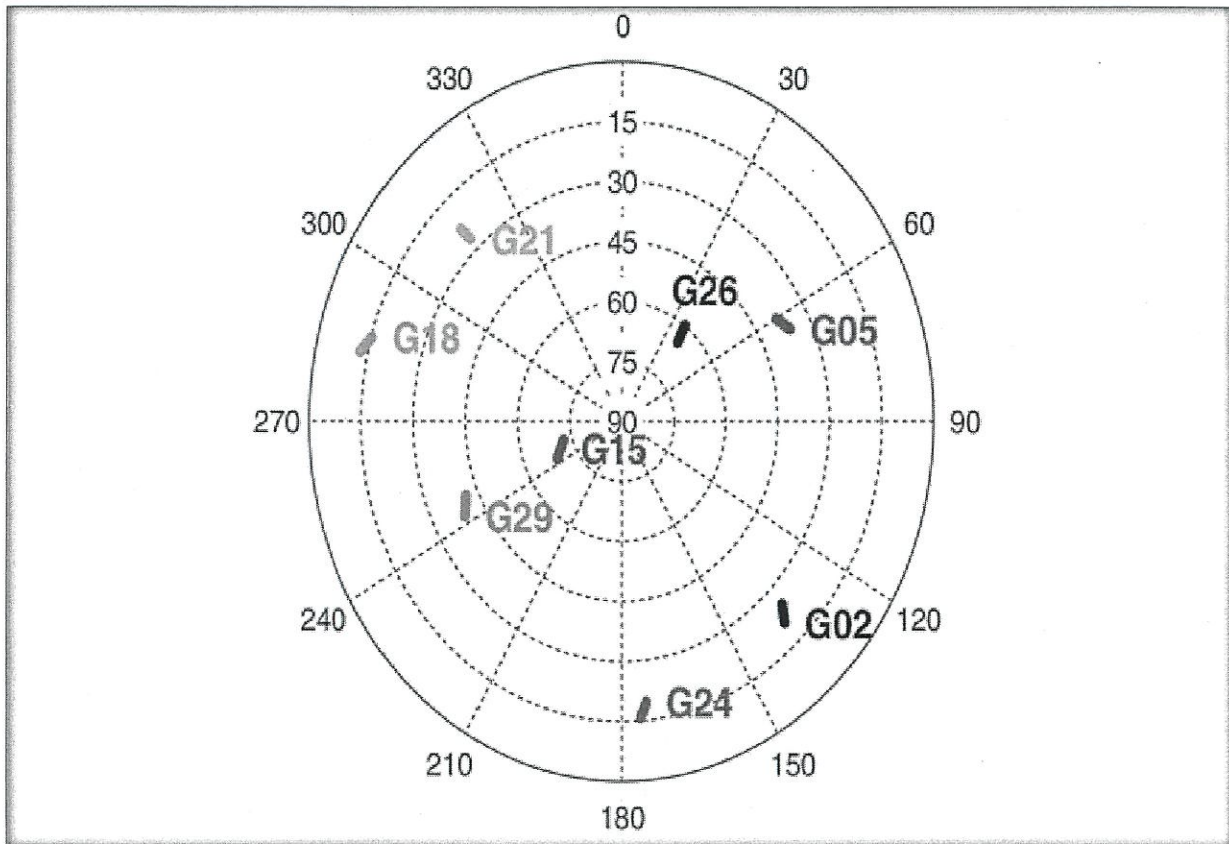


Figure Q1(a): Skyplot of GPS configuration