UTHM
Universiti Tun Hussein Onn Malaysia

UNIVERSITI TUN HUSSEIN ONN MALAYSIA

FINAL EXAMINATION
SEMESTER I
SESSION 2021/2022

COURSE NAME	:	APPLIED GEOMATICS
COURSE CODE	:	BFG 40703
PROGRAMME CODE	:	BFF
EXAMINATION DATE	:	JANUARY / FEBRUARY 2022
DURATION	:	3 HOURS
INSTRUCTION	:	1. ANSWER **ALL** QUESTIONS.
		2. THIS FINAL EXAMINATION IS AN **ONLINE** ASSESSMENT AND CONDUCTED VIA **CLOSE BOOK**.

TERBUKA

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

Q1   (a)   Provide appropriate justification for why the map projection should be carried out.

(3 marks)

(b)   With the help of appropriate diagrams, explain the process of map projection.

(5 marks)

(c)   The area of Greenland is 2.166 million sq km while the area of China is 9.597 million sq km. But if you refer to the world map Greenland looks much larger than China visually. Referred to map projection explain why the areas was differences.

(7 marks)

Q2   (a)   Two straights AP having gradient g1 = 1.6 and PB having gradient g2=--2.0. The tangent point A reduce level 121.45 m, lies on AP at chainage 1964.00 m, and B, reduce level 120.65 m, lies on PB at chainage 2364.00 m. The vertical curve must pass through at point M. The length of curve is 400 m. Design the curve, with 40 m interval.

(15 marks)

(b)   List out the type of setting out with circular curve

(5 marks)

Q3   (a)   From two stations A and B the clockwise horizontal angles to a station C were measured as $\angle BAC = 50°05'26''$ and $\angle ABC = 321°55'44''$. The coordinates of two stations A, B, are respectively E 1000.00 m, N 1350.00 m, E 1133.50 m, N 1450.00 m. Determine the coordinates of C.

(15 marks)

(b)   Reduced levels must be transferred several times during the second stage setting out operations as the construction proceeds from floor to floor. Normal levelling methods can be used to transfer levels on each floor. Alternatively, if there are cast-in situ stairs present. Explain the procedures with appropriate diagram.

(5 marks)

Q4   (a)   Using drones allows the process of obtaining and collecting data run faster for mapping in many applications such as, disaster management, traffic monitoring, construction, land surveying and environmental studies. Explain briefly the following **TWO (2)** applications only.

(6 marks)

(b)   What are the **TWO (2)** limitations of using drones for mapping applications?

(2 marks)

(c)   Justified the type of the drones

(5 marks)

(d)   What is the purpose of Ground Control Point (GCP)

(2 marks)

Q5   (a)   Explain with the help of appropriate diagrams the principle of GPS.

(3 marks)

(b)   Give your opinion and describe along with the relevant facts on the use of GPS replacing the total station to establish a control traverse.

(4 marks)

(c)   GPS is a technology that can determine the position of a point accurately based on GPS satellite observations. List and briefly explain four (4) applications of GPS in the field of civil engineering.

(8 marks)

Q6   (a)   Remote sensing is not a foreign technology, it has been widely used in various fields. Explain in detail what is remote sensing.

(3 marks)

(b)   Give **ONE (1)** example of how remote sensing can help in the field of civil engineering. Explain in detail how this process is carried out.

(7 marks)

(c)   With the help of appropriate diagrams explain the process of remote sensing observation.

(5 marks)

-   **END OF QUESTIONS -**