UNIVERSITI TUN HUSSEIN ONN MALAYSIA

FINAL EXAMINATION
SEMESTER II
SESSION 2009/2010

SUBJECT NAME	:	GEOGRAPHIC INFORMATION SYSTEM
SUBJECT CODE	:	BPF 3213
COURSE	:	3 BPD
EXAMINATION DATE	:	APRIL / MAY 2010
DURATION	:	3 HOURS
INSTRUCTION	:	ANSWER **ALL** QUESTIONS
		USE A DIAGRAM OR DRAWINGS SHOULD YOU THINK NECESSARY TO SUPPORT YOUR EXPLANATION TO ANY QUESTION.

Q1   GIS data can be in raster or vector format. Explain the advantages and disadvantages
       of these two data format.   (10 marks)

Q2   Aerial photographs/images and satellite images are two important sources of data for
       GIS. A big GIS project normally uses them and even other data sources combined. In
       general, however, aerial images/photos and satellite have different characteristics.

       Explain methods to combine them in one GIS system.
                                                                              (10 marks)

Q3   Google Earth provides abundant of detailed satellite images covering major part of the
       world.

       (a)   Explain why you cannot use the data right away for your GIS.
                                                                              (5 marks)

       (b)   Explain how the data from Google Earth can be applied in GIS.

                                                                              (5 marks)

Q4   Another major source of data for your GIS is existing analog map.

       (a)   Explain what an analog map is.
                                                                              (3 marks)

       (b)   Explain steps to use an analog map as input for your GIS.
                                                                              (7 marks)

Q5   Explain what you have to consider in combining all these analog maps for your GIS
       data if you have more than one map sheets.
                                                                              (10 marks)

Q6   Explain the basic management system for GIS data.
                                                                              (10 marks)

Q7   Explain **THREE** (3) different methods for generating DTM data.
                                                                              (10 marks)
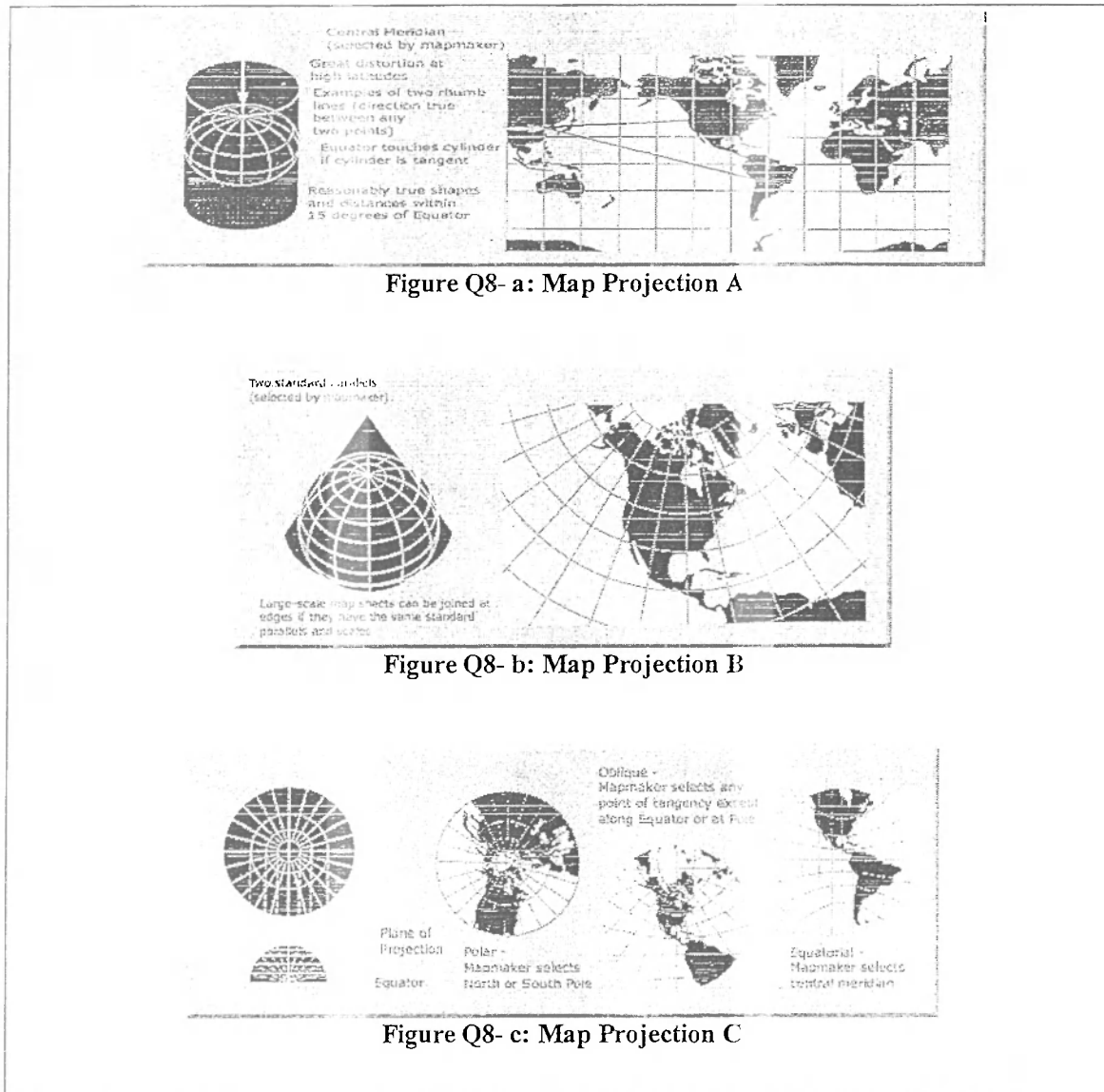
Q8   Compare these three map projection systems (see Figures Q8-a, Q8-b, Q8-c).

(a)   Explain main characteristics of each map projection.

(5 marks)

(b)   Explain advantages and disadvantages of each map projection system.

(5 marks)

Figure Q8- a: Map Projection A

Figure Q8- b: Map Projection B

Figure Q8- c: Map Projection C

Q9   Figure Q9 (a) shows the position and the orientation of a projection plane with respect to earth being mapped. Whilst Figure Q9 (b) shows map a part of the earth projected onto the projection plane.

(a)   Name the map projection in Figure Q9.

(5 marks)

(b)   Explain **THREE (3)** main characteristics of this map projection system.
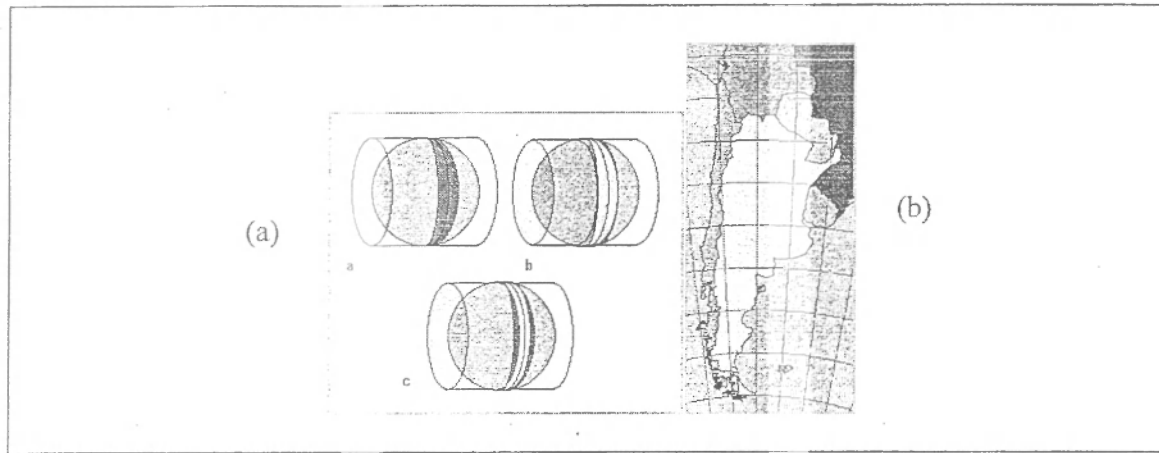
(5 marks)

Figure Q9   : Map Projection D

Q10   The following is a list of some different ellipsoids used in the world.

Datum	Equatorial Radius meters (a)	Polar Radius meters (b)	Flattening (a-b)/a	Use
NAD83/WGS84	6,378,137	6,356,752.3142	1/298.257223563	Global
GRS 80	6,378,137	6,356,752.3141	1/298.257222101	US
WGS72	6,378,135	6,356,750.5	1/298.26	NASA, DOD
Australian 1965	6,378,160	6,356,774.7	1/298.25	Australia
Krakovsky 1940	6,378,245	6,356,863.0	1/298.3	Soviet Union
Hayford (1909)	6,378,388	6,356,911.9	1/297	Global except as listed
Clarke 1880	6,378,249.1	6,356,514.9	1/293.46	France, Africa
Clarke 1866	6,378,206.1	6,356,583.8	1/294.98	North America
Airy 1830	6,377,563.4	6,356,256.9	1/299.32	Great Britain
Bessel 1841	6,377,397.2	6,356,079.0	1/299.15	Central Europe, Chile, Indonesia
Everest 1830	6,377,276.3	6,356,075.4	1/300.80	South Asia

Table Q10   : A list of different ellipsoids used worldwide

(a)   Name the most widely used ellipsoid for modern mapping tasks.

(5 marks)

(b)   Explain the reason for Q10 (a).

(5 marks)

END OF QUESTION PAPER