FIJI NATIONAL UNIVERSITY

COLLEGE OF AGRICULTURE, FISHERIES & FORESTRY
SCHOOL OF AGRICULTURAL SCIENCES

DEPARTMENT OF AGRICULTURAL ECONOMIC AND EXTENSION EDUCATION
FINAL EXAMINATION
TRIMESTER 3, 2016

TRADE DIPLOMA IN AGRICULTURE
AEG 402: Farm Surveying, Farm Structures and Post-Harvest Handling

Time Allowed : 3 hours plus (10 minutes reading time)

Instructions

1. You are allowed 10 minutes Extra reading time during which you are NOT to write.
2. Begin each Section on a fresh page and use both sides of the sheet.
3. Do not write your name on any answer sheet - only write your Id number in all Answer sheet.
4. Insert all written sheets, graph paper, drawing paper, etc. in their correct sequence And secure with string.
5. For all sheets of paper of which rough/draft work has been done, cross it through And you **MUST ATTACH** to your answer scripts.
6. Write clearly the number(s) of the question(s) attempted on the top of each sheet.
7. Non-programmable calculators are permitted
8. **TOTAL MARKS = 100**

SECTION	DESCRIPTION	Marks
SECTION A	Part I –Fill the Blanks Part II – True or False Part III– Definition **All question in this section are Compulsory**	10 5 5
SECTION B	Short Answer **All question in this section are Compulsory**	25
SECTION C	Diagrams **All question in this section are Compulsory**	10
SECTION D	Short calculation **All question in this section are Compulsory**	25
SECTION E	Long Calculation **All question in this section are Compulsory**	20
	TOTAL	**100**

SECTION A

All questions in this section are Compulsory

PART I **FILL IN THE BLANKS** **(l0marks)**

1. A branch of surveying concerned with the measurements and mapping of physical Features of the earth is known as_____

2. _____ is magnetic material such as iron which affects the compass needle.

3._____is a type of survey that relies only on linear measurements

4. The first reading taken from a compass to a survey station is known as_____.

5. The last reading taken from a dumpy level to a leveling staff before shifting the instrument is

Known as_____

6. _____is used to prevent the passage of moisture from entering through the foundation or floor slab into the building.

7. A _____indicates the relationship between a certain distance on the map and the corresponding distance on the ground.

8. A series of connected straight lines each joining two points is called _____.

9. _____ is the measurement of sides of a triangle whereas triangulation refers to the measurement of the angles of the triangle.

10. A branch of surveying in which the earth's curvature is taken into account when taking linear measurements are known _____

PART II **TRUE OR FALSE** **(10 X 0.5=5 marks)**

On your answer sheet, for each of the following statements write down whether it is **TRUE or FALSE**

1. Foresight is the first reading taken from a compass.

2. Triangulation refers to the measurement of the angles of the triangle.

3. Back sight is the first reading taken from a Dumpy level

4. Ln plane surveying the earth is treated as a flat surface over the survey area

5. A GPS assists in Navigation

6. The sum or difference between the fore and back bearing is always 180 degrees.

7. Fore bearing is the first reading taken from a dumpy level.

8. In chain survey only linear measurements taken.

9. Cadastral surveying is used for mapping property boundaries

10. Compass survey is ideal for an area having overhead power lines

PART III **DEFINATION** **(5marks)**

Define or explain five of the following terms

a) Geodetic surveying
b) Fore bearing
c) Back sight
d) Compass surveying
e) Scale

SECTION B: **SHORT ANSWERS** **(25marks)**

All questions in this section are Compulsory

1. Explain the term levelling? **(1.5marks)**
2. List two types of North Point? **(2mark)**
3. List three types of scales? **(1.5marks)**
4. List two causes of postharvest losses? **(2marks)**
5. Name two instruments used in leveling? **(2marks)**
6. List two types survey station in chain surveying?**(2marks)**
7. Explain the term geodetic surveying? **(2marks)**
8. List two sources of error in survey work.**(2marks)**
9. List the uses of each of the following instruments? **(3marks)**
    i. Compass
    ii. Tripod stand
    iii. Leveling staff
10. List any two uses of surveying in agriculture? **(2marks)**
11. Name any three instruments/equipment that is used during chain survey? **(2marks)**
12. Explain the cause's mechanical injury in farm produce? **(3marks)**

SECTION C **DIAGRAMS** **(10 marks)**

All questions in this section are Compulsory

1. Draw a neat, well labeled diagram of a timber wall showing the following structural members with their respective dimensions:

a) Top plate
b) Bottom plate
c) Stud
d) Brace
e) Corner posts

SECTION D **SHORT CALCULATION** **(25marks)**

All questions in this section are Compulsory

1. The length of a line was measured with a 20m chain and it was recorded as 530m. Later it was found that the chain was 4cm too long. What is the true length of the line? **(3marks)**

2.A trapezoidal area on a map having a RF scale of 1:10000 measure 75mm ,120mm as top and base width respectively. Calculate the area in hectares if the perpendicular distance between the top and the base is 80mm? **(3marks)**

3. A slope distance of 180m was measured of an area having a slope of 35^0.calculate the vertical distance? **(2marks)**

4.An included angle of 50^0 is made by two sides of a triangle measuring 28cm and 18cm drawn to a scale of 1:500.calculate its area**?(3marks)**

5. A trapezoid drawn to a scale of 1:800has a base length of 18cm and a top width of 12cm.calculate its area in hectare if the perpendicular distance is 15cm? **(3marks)**

6. The following perpendicular offsets in meters were taken from a chain line to a curved boundary at interval of 12m? **(4 marks)**

4.25, 5.83, 3.26, 6.45, 5.33, 8.87, 7.23, 9.85, 4.27

Apply trapezoidal rule and calculate the area between the chain line and the curved boundary?

7. Calculate the RF scale required to draw a ground distance of 5km on a paper length of 25 cm? **(2marks)**

8. Convert 75°38' degrees to Reduced Bearing? **(1 marks)**

9. The back bearing of a line is 325°. Calculate its fore bearing? **(1mark)**

10. Calculate the Back bearing of a triangle from the following data? **(3 marks)**

Side	Forbearing	Back bearing
AB	52	
BC	138	
CA	272	

SECTION E **LONG CALCULATION** **(20marks)**

All questions in this section are Compulsory

1. Calculate the amount of material required to construct a rectangular concrete floor 900cm long, 530cm wide and 10cm thick. A nominal mix of 1:3:5 is used. Assume there is 30% decrease in volume and 5% wastage 50kg of cement equal to 37 liters? **(10marks)**

2. The following consecutive reading was taken doing a differential leveling exercise on the crop farm. Now fill in the table given below. **Use Rise and Fall Method (10marks)**

SN	BS	IS	FS	RISE	FALL	RL	DISTANCE
1	0.850					100	0
2		0.875					15m
3		0.930					18m
4		0.450					24m
5		0.960					28m
6		0.325					35m
7		0.730					38m
8			0.560				40m
	∑BS		∑FS	∑RISE	∑FALL		

Arithmetic check

A) Calculate sum of∑ Back sight, ∑fore sight, ∑rise and ∑fall.

B) Calculate the Reduced level?

C) Find the slope percentage %?

The End