

**Bachelor of Science in Fisheries and Marine Sciences Degree Examination 2016
(Level III, Semester II)**

LIM 3231 – Surveying and Leveling

Time 1 ½ hours

Answer all questions in part A and B

Part A

1. (a). Briefly explain the followings.

(i). Indirect Leveling

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(ii). Trigonometric Leveling

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(iii). Bench Mark

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.....
.....
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(iv). Horizontal Line

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.....
.....

(v). Line of Collimation

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.....
.....
.....

(30 Marks)

(b). A section of a level book which has recorded the readings of a grid leveling of a land for the preparation of a contour map is given in the table 01.

(i). Complete the height of collimation and the reduced levels columns in the table.

(40 Marks)

- (ii). Draw the contour lines (6, 8 and 10 m) in the given grid sheet using the reduced levels stated in the table 1.

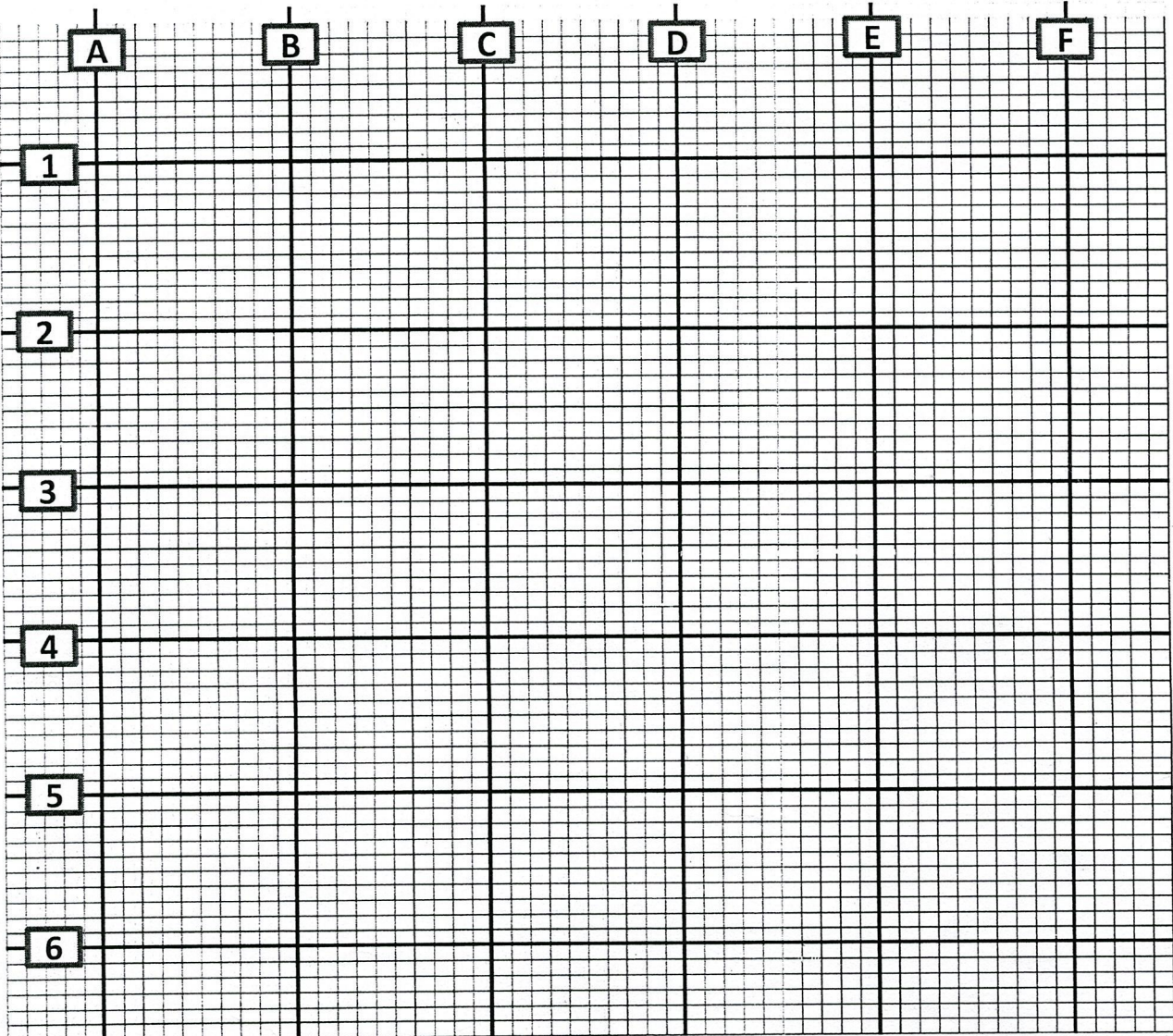
(30 Marks)

Table 01:

Back Sight	Intermediate Sight	Fore Sight	Rise	Fall	Reduced Level	Remarks*
2.8						A1 (BM Start)
	1.2					A2
	1.8					B1
2.9		0.7				C1 (C.P. 1)
	1.7					D1
	0.5					E1
	2					B2
	1.5					C2
	0.7					D2
	1.5					A3
	0.5					A4
2.8		0.8				B3 (C.P. 2)
	2					C3
	1.8					B4
	0.8					A5
	0.2					A6
	0.5					B5
	0.3					B6
	1.5					C4
	1.3					D3
	0.5					E2
	0.7					F1
	0.1					F2
	0.2					E3
	0.3					F3
	1.2					D4
	1.4					E4
	1.3					F4
	1.8					F5
	1.5					F6
2.8		0.5				E5 (C.P. 3)
	2.3					E6
	2.1					D5
	2					C5
	2.3					C6
		2.5				D6 (End)

* Vertical and horizontal line in the grid are denoted by letters (A to F) and figures (1 to 6), respectively.

Grid Sheet



02. (a) (i) The following instruments given in figure 1 are used for chain surveying

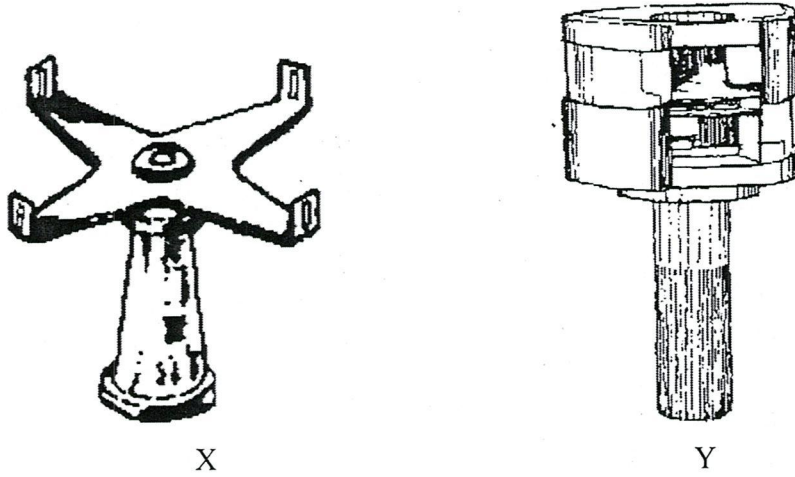


Figure 1

Identify the instruments X and Y.

X-.....

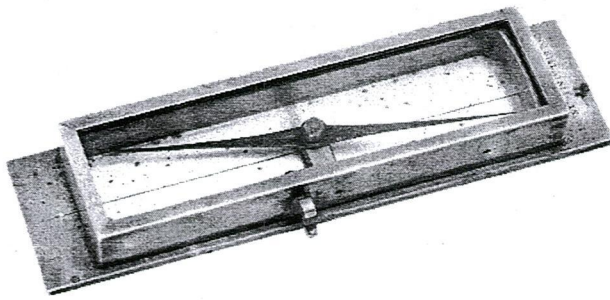
Y-.....

(5 marks)

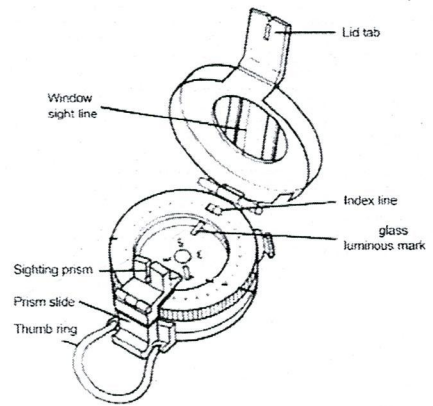
(ii) What is the purpose of these instruments?

.....

(5 marks)



A



B

Figure 2

(b) (i) Identify the instrument A and B given in the above figure 2.

A-.....

B-.....

(5 marks)

(ii) Differentiate the use of A & B in land surveying

A-.....

.....

B-.....

.....(10 marks)

(c) (i) Identify the Instrument given in figure 3.....(5 marks)

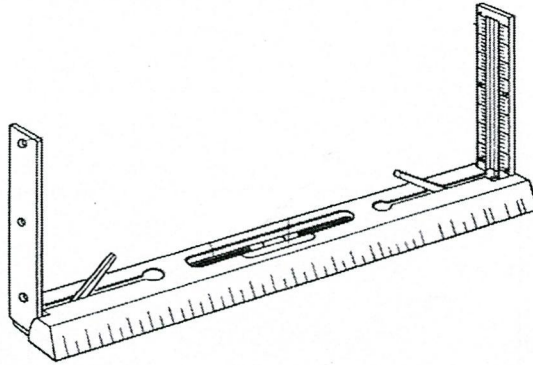


Figure 3

(ii) List three survey methods which are used above instrument.

1.....

2.....

3.....

(15 marks)

(d) (i) Identify the given sketch in figure 4..... (5 marks)

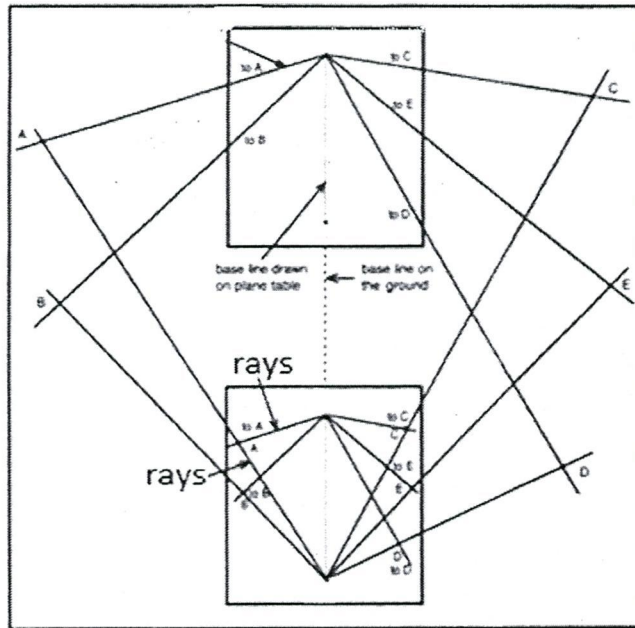


Figure 4

(ii) Name the different locations of collecting data in the given diagram 4. (10 marks)

(iii) Sketch the outline of the activity in the given diagram (Figure 4). (15 marks)

(e) Give whole circle bearing and the reduced bearing of line PA, PB, PC and PD in figure 5 using Greek symbols.

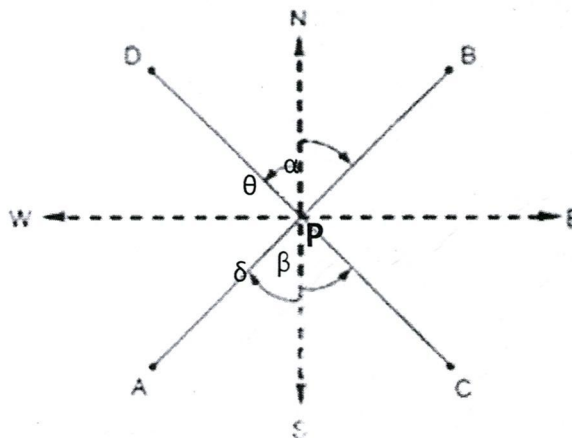


Figure 5

Line	Whole circle bearing	Reduced bearing
PA		
PB		
PC		
PD		

(25 marks)

Part B

1. (a) Briefly explain the importance of profile leveling and area leveling. (20 Marks)
 - (b) List the basic steps to be followed when you perform a profile leveling. (20 Marks)
 - (c) How do you improve the accuracy of readings taking at the field in leveling operations? (20 Marks)
 - (d) What is the “two peg” test? Briefly explain. (20 Marks)
 - (e) What are the important steps you should follow when recording the data in leveling operations? (20 Marks)
02. (i) Differentiate the followings.
- a. Plane surveying and geodetic surveying
 - b. Trigonometry and triangulation in surveying
 - c. Ground distance and Planimetric distance
- (30 marks)
- ii. The local government authority asked to prepare a map of a thick jungle in their administration area.
 - iii. Write down the steps to fulfill the above requirement. (25 marks)
 - iv. List the instruments required for this activity. (20 marks)
 - v. An abandoned large pond was observed inside the jungle along their path way. How do you face to that situation for continuing your work? (25 marks)