

KATHMANDU UNIVERSITY
End Semester Examination
February/ March, 2019

Marks Scored:

Level : B. Arch

Course : ARCH 205

Year : II

Semester: I

Exam Roll No. :

Time: 30 mins.

F. M. : 10

Registration No.:

Date **12 MAR 2019**

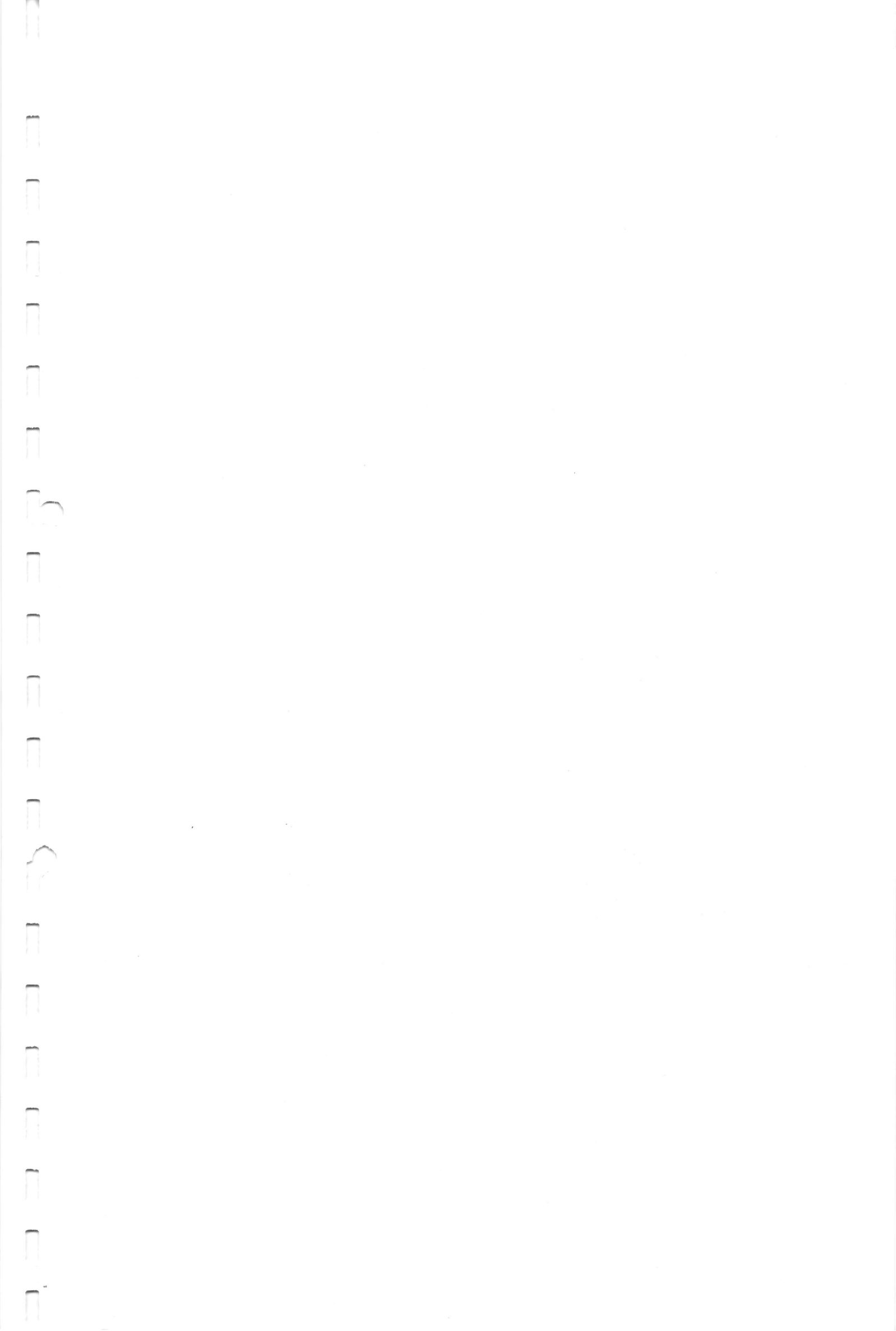
SECTION "A"

[20 Q. × 0.5 = 10 marks]

Choose and encircle the most appropriate answer among the given choices.

- In geodetic surveys higher accuracy is achieved, if
 - curvature of the earth surface is ignored.
 - curvature of the earth surface is taken into account.
 - angles between the curved lines are treated as plane angles.
 - angles between the plane lines are treated as curved angles.
- Inattention and carelessness of surveyor falls under the type of
 - random error
 - compensating error
 - gross error
 - systematic error
- The correct statement from the following is
 - Width of linen tape is 10 mm.
 - Width of steel tape vary from 6 to 12 mm.
 - Width of invar tape is 6 mm.
 - Arrows are made of tempered steel wire of diameter 6 mm.
- The correction due to reduction to Mean Sea Level (MSL) is defined by
 - $h^*(L/R)$
 - $L^*(h/R)$
 - $R^*(L/h)$
 - $h^*(R/L)$
- In Engineer's chain, tallies are provided at every
 - 0.66 ft.
 - 1 ft.
 - 6.6 ft.
 - 10 ft.
- In chain surveying, tie lines are primarily provided
 - to check the accuracy of the survey.
 - to take offsets for detail survey.
 - to avoid long offsets from chain lines.
 - to increase the number of chain lines.
- The accuracy of measurement in chain surveying does not depend upon
 - length of the offset
 - scale of the plotting
 - importance of the features
 - general layout of the chain lines
- We incorporate the relation $RB = WCB - 180^\circ$, when WCB is between
 - 0° and 90°
 - 180° and 270°
 - 90° and 180°
 - 270° and 360°

9. The true bearing of a line CD is $210^{\circ} 15'$. What will be its magnetic bearing if the declination is $8^{\circ} 45' W$?
- a) $201^{\circ} 30'$ b) $202^{\circ} 30'$ c) $218^{\circ} 00'$ d) $219^{\circ} 00'$
10. The bearing of line AB is $152^{\circ} 30'$ and angle ABC measured clockwise is $124^{\circ} 28'$. The bearing of BC is
- a) $28^{\circ} 02'$ b) $96^{\circ} 58'$ c) $148^{\circ} 08'$ d) $186^{\circ} 58'$
11. The intercept of a staff
- a) is maximum if the staff is held truly normal to the line of sight.
b) is minimum if the staff is held truly normal to the line of sight.
c) decreases if the staff is tilted away from the normal.
d) increases if the staff is tilted towards normal.
12. Which of the following levelling method is used for the reconnaissance of the area and for the approximate checking of the levels?
- a) Profile levelling b) Cross-section levelling
c) Check levelling d) Fly levelling
13. The rise and fall method
- a) is less accurate than height of instrument method
b) is not suitable for levelling with tilting levels
c) provides a check on the reduction of intermediate point levels
d) quicker and less tedious for large number of intermediate sights
14. While viewing through a level telescope and moving the eye slightly, a relative movement occurs between the image of the levelling staff and the cross hairs. The instrument is
- a) correctly focused b) not correctly focused
c) said to have parallax d) free from parallax
15. The method of plane tabling commonly used for establishing the instrument stations only is a
- a) method of radiation b) method of intersection
c) method of traversing d) method of resection
16. While working on a plane table, the correct rule is
- a) draw continuous lines from all instrument stations.
b) draw short rays sufficient to contain the points sought.
c) intersection should be obtained by actually drawing second rays.
d) take maximum number of sights as possible from each station to distant objects.



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Level : B. Arch.
Year : II
Time : 2 hrs. 30 mins.

Course : ARCH 205
Semester : I
F. M. : 40

SECTION "B"

[4 Q. × 4 = 16 marks]

Attempt *ANY FOUR* questions.

1. Define Surveying. Explicate how you find Surveying important for Architecture. [1+3]
2. You are supposed to carry out chain surveying in an area where chaining is free but vision is obstructed. Furthermore, the both ends are not visible from any intermediate point. In such case, how will you perform chain surveying? Explain with neat sketch. [4]
3. Differentiate between (*ANY TWO*) [2+2]
 - a) Prismatic Compass and Surveyor's Compass
 - b) Rise and Fall method and Height of Collimation method
 - c) Cross Staff and Optical Square
4. Write short notes on (*ANY TWO*) [2+2]
 - a) Accuracy and Precision
 - b) Geometry of the Transit
 - c) Two peg test
5. State the principle of EDM. While aligning a survey line, due to obstruction, the surveyor followed the bent line. Derive the expression which shows the correction applied for such alignment. [1+3]

SECTION "B"

[4 Q. × 6 = 24 marks]

Attempt *ANY FOUR* questions.

6. Define Control Survey. Explain the principles of Surveying and classify it on the basis of consideration of the curvature of the earth. [1+5]
7. A student wants to determine the elevation of the tall tower nearby his town. Which method of levelling would you recommend him/her to adopt and why?
The following readings were observed successively with a levelling instrument. The instrument was shifted after 3rd, 7th and 9th readings.
0.98, 1.24, 0.69, 0.35, 1.75, 2.35, 1.91, 1.78, 0.62, 0.53 and 0.32
Draw up a page of level book and determine the R.L. of various points if the R.L. of the point on which the first reading was taken is 87.920. [2+4]

8. What are the sources of error in Plane Tabling? How is orientation process carried out in Plane Table Survey? Explain both the methods with neat sketches. [2+4]
9. Define magnetic declination. The following are the bearings observed in traversing, with a compass, an area where local attraction was suspected. Calculate the interior angles of the traverse and correct them if necessary. [1+5]

Line	Fore Bearing (FB)	Back Bearing (BB)
	150°00'	330°00'
	230°30'	48°00'
	306°15'	127°45'
	298°00'	120°00'
	49°30'	229°30'

10. Explain the steps for temporary adjustment of the theodolite. If you are assigned to carry out the traversing of certain area, how would you carry out the field work? Discuss the stages of field work. [2+4]