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Reg. No. : ⬜⬜⬜⬜⬜⬜⬜⬜⬜⬜⬜⬜

Question Paper Code: U4A05

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2024

Fourth semester

Agriculture Engineering

21UAG405-SURVEYING AND LEVELLING

(Regulations 2021)

Duration: Three hours   Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. As per Is Recommendations, the length of each link in 30 m chain must be   CO1- U

    (a) 10 cm   (b) 20 cm   (c) 30 cm   (d) 15 cm

2. A 30 m chain is divided In to   CO1- U

    (a) 100 links   (b) 150 links   (c) 200 links   (d) 300 links

3. In plane table surveying the operation which must be carried out is   CO1- U

    (a) Resection   (b) intersection   (c) orientation   (d) traversing

4. The size of a plane table is   CO1- U

    (a) 750 mm × 900 mm   (b) 600 mm × 750 mm

    (c) 450 mm × 900 mm   (d) 700 mm × 600 mm

5. The least count of levelling staff is   CO1- U

    (a) 0.001m   (b) 0.005m   (c) 0.015m   (d) 0.002m

6. What differential leveling is done in order to connect a bench mark to the starting point of the alignment of any road ,railway, canal project it is called?   CO1- U

    (a) Profile levelling   (b) cross-section levelling

    (c) reciprocal levelling   (d) fly levelling

7. The suitable contour interval for a map with scale 1 : 10000 is   CO1- U

    (a) 2 m   (b) 5m   (c) 10m   (d) 20m

8. Two contour lines of different elevations unite to form one line only in the   CO1- U
case of

   (a) Hills   (b) Vertical cliff   (c) Horizontal cliff   (d) Overhanging Cliff

9. A receiver at GPS calculates the self-time and position basing on the   CO1- U
received data from the different

   (a) satellite   (b) radio waves   (c) automic clocks   (d) none of the above

10. Which is the latest development in a total station?   CO1- U

   (a) High resolution   (b) High accuracy   (c) Robotic   (d) Automatic

<center>PART – B (5 x 2= 10Marks)</center>

11. The downhill end of the 20 m tape is held 70 cm too low. What is the   CO2-App
horizontal length?

12. Change the following QB to WCB: CO2-App

   (a) S36° 30'W (b) S43° 40'E (c) N45° 30'E

13. List out the personal errors in levelling.   CO1- U

14. Calculate the contour interval on a map having the scale of 1:40.000.   CO2-App

15. Differentiate between latitude and departure.   CO1- U

<center>PART – C (5 x 16= 80Marks)</center>

16. (a) Describe with neat sketches how an obstacle which interrupts   CO1- U   (16)
chaining but not ranging can be crossed over the chain survey.

<center>Or</center>

   (b) Prepare a list of accessories required for a chain survey? Explain   CO1- U   (16)
the functions of each.

17. (a) The followings are the measured bearing of the lines of the   CO2-App   (16)
traverse ABCDEA with a compass in a place where local
attraction was suspected. Find the correct bearing of the line.

Line	FB	BB
AB	305°0'	125°30'
BC	75°30'	254°30'
CD	115°30'	297°0'
DE	165°30'	345°30'
EA	225°0'	44°0'

<center>Or</center>

<center>2</center>

(b) The followings are the measured bearing of the lines of the traverseABCDEA with a compass in a place where local attraction was suspected.find the correct bearing of the line.　　CO2 -App　(16)

Line	FB	BB
AB	45°45'	226°10'
BC	96°55'	277° 05'
CD	29°45'	209° 10'
DA	324°48'	144° 48'

18. (a) The following readings were observed with a levelling instrument, the instrument was shifted after 5th and 11th reading. 0.585, 1.010, 1.735, 3.295, 3.775(5th) 0.350, 1.300, 1.795, 2.575, 3.375　3.895 (11th), 1.735, 0.635, 1.605Determine the RLs of various points if the reduced level (RL) of a point on which the first reading was taken is 200.00 gives and applies the check.　　CO2-App　(16)

Or

(b) The following consecutive readings were taken with a dumpy level along a chain at a common interval of 15m.the first readings was at a chain age of 165m where the RL is 100.The instrument was shifted after the forth and ninth readings. 3.150,20245,1.125,0.860,3.125,2.760,1.835,1.470,1.965,1.225,2.390 and 3.035m.mark rules on a page of your notebook in the form of a level book page and enter on it the above readings and find the RL of all the points by The Height of collimation method.　　CO2-App　(16)

19. (a) Discuss the various characteristics and uses of contours with suitable examples.　　CO1-U　(16)

Or

(b) Explain in detail about the construction, characteristics and uses of MASS- HAUL diagram.　　CO1-U　(16)

20. (a) Explain in detail about various components of a transit theodolite with neat sketches　　CO1-U　(16)

Or

(b) Explain the various types of GPS devices and their uses.　　CO1-U　(16)

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