National Research Tomsk Polytechnic University

Fundamentals of geodesy and topography

Course — 3

Department — GLM Institute of Natural Resources

Examination ticket number 1

1 Tell about device theodolite. Appointment of the scheme, the basic units and handles (screws). (5 points)
2 What is the terrain measured vertical angle? Write working formulas. (10 points)
3 How does the magnetic azimuth directional move to the corner? Draw a diagram. (10 points)
4 Identify the geographic, rectangular coordinates of a point on the map. (15 points)

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"16" November 2014

Examination ticket number 2

1 Describe the rules for handling optical surveying instruments. (5 points)
2 What is the terrain measured vertical angle? Write working formulas. (10 points)
3 How does the azimuth magnetic azimuth to go? Draw a diagram. (10 points)
4 Determine the azimuth of the geographical azimuth and magnetic azimuth line, if the magnetic EPIRB: CB decline meridian east, convergence of meridians east. Make a drawing. (15 points)

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Examination ticket number 3

1. Describe the rules for handling optical surveying instruments. (5 points)
2. Draw a diagram of measurements and x's plus points for leveling the road. What is called the nexus. (10 points)
3. Determine the azimuth and the geographical azimuth, if the magnetic azimuth is 261 ° 33 '. Convergence of meridians west 3 ° 11 'east declination meridians 6 ° 38'. Make a drawing. (10 points)
4. Fill in the cross-scale and lay length of the segments in the following scale:
1: 5000 155,7m;
1: 1000 53,90m.
(15 points)

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Examination ticket number 4

1. What is called leveling? List and describe the kinds of leveling. (5 points)
2. Describe the device theodolite. Draw an appointment of the scheme, the basic units and handles. (10 points)
3. Show the figure the relationship between directional angles, azimuths and rumba. What of the azimuths and directional angles pass to rhumbas. (10 points)
4. Measure the length of the three given lines on a map scale of 1: 25,000. (15 points)

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Examination ticket number 5

1. The device theodolite. (5 points)
2. Identify types of leveling. Draw a diagram of leveling “forward” and give the formula for calculating the excess. (10 points)
3. Deal with the technical journal leveling. (1 station) (10 points)
4. Explain the converted coordinates of the point, if it is true coordinates are: x = 6066.01 km, y = - 188.98 km, and east longitude meridian 78 °. (15 points)

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Examination ticket number 6

1. What methods of producing geometric leveling (lead circuit and formula). (5 points)
2. What is called the vertical interval, horizontal distance, and slope? (10 points)
3. Build a profile of the terrain in a given direction (the map scale of 1: 25,000). (10 points)
4. Describe how to work in the measurement of a theodolite right along the horizontal angles way receptions. Calculate the right corner, if given samples (lead circuit to show the position of zero limb):

KL v.2 110 ° 05 'KP v.2 290 ° 03,5' vol.12 193 ° 12 'm. December 13 ° 09,5'. (15 points)

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Examination ticket number 7

1. What is the slope and how it is determined? How to express it as a percentage and ppm? How to draw a graph of the pledged for slopes and how to hold the line on the map given slope? (5 points)
2. Describe how to work in the measurement of a theodolite right along the horizontal angles way receptions. Calculate the right corner, if given samples (lead circuit to show the position of zero limb):
KL v.2 296 ° 18 'KP v.2 116 ° 22'
v.9 18 ° 29 'v.9 198 ° 32'
(10 points)
3. What is taken as the axis "x" in Gauss — Kruger. What occur when this distortion. (10 points)
4. Oblique line length, measured on the ground is 156 m. Determine the length of this segment on the plan scale 1: 2000, if the steepness of slope is 45 °. (15 points)

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Examination ticket number 8

1. What is called the contours of the shooting? What is different from the contour outline tachometry theodolite? (5 points)
2. Explain schemes measuring horizontal and vertical angles. (10 points)
3. Coordinate systems used in geodesy. Bring their characteristics. The coordinates are represented on the maps? (10 points)
4. The length of a segment on the plane of the scale of 1: 2000 is equal to 5.5 cm. Determine the length of the line on the ground, if the slope of the line is about 25 %. (15 points)

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Examination ticket number 9

1. Tell about types of geometric leveling (lead circuit and write a working formula). Which one is more accurate and why? (5 points)
2. What kind of orientation angles more convenient to use when navigating the terrain? What is the direction of the amendment? (10 points)
3. Describe how to work in the measurement of a theodolite right along the horizontal angles way receptions. Calculate the right corner, if given samples (lead circuit to show the position of zero limb):

KL v.2 110 ° 05 'KP v.2 290 ° 03,5'
m. 12 193 ° 12 'vol.12 13 ° 09,5'.

(10 points)

4. Determine the azimuth of the geographical azimuth and magnetic azimuth line if the EPIRB magnetic 80 ° 10 ': NW decline meridian east of 6 ° 12', the convergence of the meridians west of 2 ° 20 '. Make a drawing. (15 points)

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Examination ticket number 10

1. Tell about the sequence of measurements at the station at leveling the road and calculate elevation. (5 points)
2. What it is called the geodetic network? What types of geodetic networks have on the ground? (10 points)
3. Build a profile of the terrain in a given direction (the map scale of 1: 25,000). (10 points)
4. Describe how to work in the measurement of a theodolite right along the horizontal angles way receptions. Calculate the right corner, if given samples (lead circuit to show the position of zero limb):

KL v.2 296 ° 18 'KP v.2 116 ° 22';
v.9 18 ° 29 'v.9 198 ° 32'.
(15 points)

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Examination ticket number 11

1. What methods are used in the shooting situation Geodesy? Give them the characteristics given their limitations? (5 points)
2. Give a complete description of the magnetic declination. (10 points)
3. What is the difference leveling “from the middle” and “forward”. Bring schemes and working formulas. (10 points)
4. Identify the geographic, Cartesian coordinates, a point on a map scale of 1: 25,000. (15 points)

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Examination ticket number 12

1. Show the figure the relationship between directional angles, azimuths and rumba. What of the azimuths and directional angles pass to rhumbs. (5 points)
2. Give a schematic diagram of a theodolite telescope. Name the axis of the telescope and let their characteristics. (10 points)
3. Determine measurements of vertical angles theodolite. (10 points)
4. Describe how to work in the measurement of a theodolite right along the horizontal angles way receptions. Calculate the right corner, if given samples (lead circuit to show the position of zero limb):

KL v.2 296 ° 18 'KP v.2 116 ° 22';
v.9 18 ° 29 'v.9 198 ° 32'.

(15 points)

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Examination ticket number 13

1. Explain schemes measuring horizontal and vertical angles theodolite. Provide diagram of a theodolite telescope. Name the axis of the telescope and let their characteristics. (5 points)
2. How to move from the measured magnetic azimuth on the plane or on a corner of the directional line (circuit formula goes)? What is the direction of the amendment and why do you need to know? (10 points)
3 Give a schematic diagram of a theodolite telescope. Name the axis of the telescope and let their characteristics. (10 points)
4 How does the magnetic azimuth directional move to the corner? Draw a diagram. (15 points)

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