

No. of Printed Pages : 4
Roll No. 180733/170733/
120733/030733

**4th Sem / Branch : Civil Engineering/ Brick Tech,
Const Mgmt, Highway Engg.**

Subject:- SURVEYING-1

Time : 3Hrs. M.M. : 100

SECTION-A

Note: Multiple choice questions. All questions are compulsory
(10x1=10)

- Q.1 For a well conditioned triangle, no angle should be less than..... (CO1)
a) 20° b) 30°
c) 45° d) 60°
- Q.2 The maximum tolerance in a 20m chain is (CO2)
a) $\pm 2\text{mm}$ b) $\pm 3\text{mm}$
c) $\pm 4\text{mm}$ d) $\pm 5\text{mm}$
- Q.3 The main object of running a tie line is (CO2)
a) To take offsets for detailed surveying
b) To take accuracy of work
c) To take detailed of nearby objects
d) None of these
- Q.4 Local attraction in compass surveying may exist due to (CO3)
a) Presence of magnetic substance near the instrument
b) Loss of magnetism of the needle
c) Incorrect leveling of the magnetic needle
d) Friction of needle at the pivot
- Q.5 A gate cap is fitted with..... (CO3)
a) Cross staff
b) Level
c) Chain
d) Prismatic compass
- Q.6 A negative declination shows that the magnetic meridian is to the..... (CO3)
a) Western side of the true meridian
b) Southern side of the true meridian
c) Eastern side of the true meridian
d) None of these

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- Q.7 The following sights are taken on a "Turning Point" (CO4)
a) Backsight only
b) Foresight only
c) Foresight and Backsight
d) Foresight and intermediate sight
- Q.8 For a line AB (CO4)
a) The fore sight of AB and back sight of BA differ by 180°
b) The fore sight of AB and back sight of AB differ by 180°
c) Both (a) and (b) are correct
d) None is correct
- Q.9 The type of surveying which requires least office work is (CO5)
a) Trigonometrical leveling
b) Tacheometry
c) Plane table surveying
d) Theodolite surveying
- Q.10 "Three Point Problem" can be solved by (CO5)
a) Tracing paper method
b) Bessels method
c) Lehman's method
d) All of the above

SECTION-B

Note: Objective type questions. All questions are compulsory.
(10x1=10)

- Q.11 An invar tape is made of an alloy of..... (CO1)
(Nickel & Steel / Nickel & Brass)
- Q.12 The correction for sag is.....(Always additive / Always subtractive) (CO2)
- Q.13 The length of a chain is measured from outside of one handle to.....(Inside of other handle / Outside of other handle) (CO2)
- Q.14 The correction for slope is required when the points of supports are not at the same level. (True/False) (CO2)
- Q.15 The horizontal angle between the true meridian and magnetic meridian at a place is called (CO3)
(Magnetic bearing / Declination)

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- Q.16 Sensitiveness of a level tube is designated by (Length of level tube / radius of level tube) (CO4)
- Q.17 Axis of telescope is an imaginary line joining the center of the eye piece and the optical center of the (Object-glass / leveling staff) (CO4)
- Q.18 In an internal focusing type of telescope, the lens provided is (Concave/ Convex) (CO4)
- Q.19 The instrument used for accurate centering in plane table survey is..... (U-fork / Alidade) (CO5)
- Q.20 The size of plane table is..... (600mm x 750mm /300mm x 450mm) (CO5)

SECTION-C

Note: Short answer type questions. Attempt any twelve questions out of fifteen questions. (12x5=60)

- Q.21 Name the different classification of surveying based on nature of field survey and describe any one of them (CO1)
- Q.22 What is the importance of surveying in civil engineering projects? (CO1)
- Q.23 A field was surveyed by a chain and the area was found to be 127.34 hectares. if the chain used in the measurement was 0.8 percent too long, what is the corrected area of the field ? (CO2)
- Q.24 Differentiate between chain surveying and compass surveying (CO2)
- Q.25 Convert the following WCB to QB: (CO3)
- a) $142^{\circ}30'$ b) $223^{\circ}15'$
c) $60^{\circ}10'$ d) $287^{\circ}15'$ e) $12^{\circ}45'$
- Q.26 Write the various source of error in compass surveying (CO3)
- Q.27 Write a short note on reciprocal leveling (CO4)
- Q.28 Describe the effect of refraction in leveling. (CO4)
- Q.29 Explain the process of temporary adjustment of a dumpy level (CO4)
- Q.30 Find the combined correction for curvature and refraction for distance of (CO4)
- a) 5205 meters b) 3.23 Km

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- Q.31 An angle of elevation was observed from a station A as $3^{\circ}30'30''$. Determine its true value if the height of instrument at A is 1.5m and height of signal at another station B is 6.25m. The two station are 6200m apart. Take the value of $R \sin 1''$ as 30.88m. Take $m=0.08$ (CO4)
- Q.32 Write any five advantages of plane table surveying. (CO5)
- Q.33 Write a short note on orientation of plane table by through compass. (CO5)
- Q.34 What do you understand by strength of fix in plane table surveying (CO5)
- Q.35 Name the different equipments used for plane table surveying (CO5)

SECTION-D

Note: Long answer type questions. Attempt any two questions out of three questions. (2x10=20)

- Q.36 Explain the mechanical method for solving the three point problem. (CO5)
- Q.37 The following bearings were observed while traversing with a compass:

Line	FB	BB
AB	$80^{\circ}45'$	$260^{\circ}00'$
BC	$130^{\circ}30'$	$311^{\circ}35'$
CD	$240^{\circ}15'$	$60^{\circ}15'$
DA	$290^{\circ}30'$	$110^{\circ}10'$

Mention which stations were affected by local attraction and determine the corrected bearings. (CO3)

- Q.38 The following staff reading were observed successively with a level, the instrument having been moved after 4th, 7th and 10th reading: 2.655, 3.745, 3.830, 2.275, 2.645, 0.385, 0.960, 1.640, 2.845, 3.845, 2.680 and 3.265 meters. Enter the above readings in a page of a level book and calculate the RL of points using rise and fall method, if the first reading was taken with a staff held on a bench mark of 105.050m. (CO4)

Note: Course Outcome (CO) mentioned in the question paper is for official purpose only.

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