EX/ARCH/CE/T/216/2017

B. ARCHITECTURE 2ND YR 1ST SEM. EXAM.- 2017

(2nd Year, 1st Semester)

SURVEYING

Time: Three Hours

Full Marks 100

No. of questions	(Answer any five of the following questions.)	Marks (5X20=100)
1 (i)	Classify Surveying. Differentiate between plane and geodetic surveying.	[4+3]
(ii)	Explain 'Systematic error' and 'Random error'.	[3+3]
(iii)	What is 'Most Probable Value (MPV)'? In case if an observation only has random error, show that MPV is equal to the arithmetic mean.	[2+5]
2 (i)	Explain the principle of chain surveying.	[2]
	Write short notes on: (i) Oblique offsets, (ii) Well conditioned triangle and (iv) Check line in connection with chain surveying	[2x3=6]
(ii)	Explain with a neat sketch how you will continue a chain line through a thick wood with the help of a chain and tape only.	[4]
(iii)	A steel tape was exactly 20m long at 20° C when supported throughout its length under a pull of 5kg. A line measured with this tape under a pull of 12kg and at a mean temperature of 30° C, was found to be 540m long. Assuming the tape is supported at every 20m; find the true length of the line. Given: (i) Cross-sectional area of tape = 0.027 cm^2, (ii) E = 2.1×10^6 kg/cm^2, (iii) coefficient of thermal expansion $\alpha = 11 \times 10^{-6}$ per °C, and (iv) unit weight of the steel tape = 10.2g/c.c.	[8]
3 (i)	Convert the following whole circle bearings to reduced bearings (a) 65°30', (b) 140°20', (c) 255°10' and (d) 336°40'	[8]
(ii)	Discuss about the correction for 'internal angles' and correction for 'closing error' while to plot a compass traverse.	[6]
(iii)	State the importance of reconnaissance in chain survey. What are the points need to be considered in selection of stations in chain surveying	[6]
4 (i)	Define the following: (a) Arbitrary Meridian (b) Magnetic declination (c) Isogonic and agonic lines (d) Fore and back bearings	[2x4=8]
(ii)	The following bearings were recorded while traversing with a compass and the area was suspected with local attraction. Line FB BB AB 74°15' 256°00' BC 107°15' 286°15' CD 224°45' 44°45' DA 307°45' 127°00' Find the correct bearings of the lines. Also find the true bearings if the declination was 2°15'W	[12]

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No. of questions	(Answer any five of the following questions.)	Marks (5X20=100)
5 (i)	State the principle of levelling. Explain the effect of 'curvature' and 'refraction' in levelling.	[2+6]
(ii)	The following staff readings were taken with a level which was shifted after 4th and 8th readings: 3.460, 2.734, 2.161, 2.405, 3.512, 1.907, 0.720, 1.156, 3.210, 2.146, 1.786 and 2.768. The first reading was taken on a bench mark of R.L. 249.50. Work out the RLs. of all stations using rise and fall method.	[12]
6 (i)	Write short notes on: (a) Fly leveling and (b) Longitudinal leveling.	[4+4]
(ii)	Explain the 'method of radiation' and 'method of intersection' in plane table surveying with proper sketches.	[6+6]