UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
END Semester Examination, May 2019

Programme Name: B-TECH GSE & GIE **Semester : IV**
Course Name   : PLANNING & SURVEYING **Time   : 03 hrs**
Course Code   :   PEGS-2004 **Max. Marks: 100**
Nos. of page(s)   : 3

Instructions: All the questions of section A is compulsory. The Q 3, Q 4 & Q 5 is compulsory from Section B, Attempt i **OR** ii from Q.6. From section C Q.7 is compulsory, Q.8 i, ii,iii OR iv, v, vi C. Wherever necessary do with neat sketches.

SECTION A

S. No.		Marks	CO
Q 1	Write a brief note for the following terms: a) Erected eye piece b) Astrolabe c) Line ranger d) Blunder e) Diaphragm	10	CO1

Q 2	Fill in the blanks with suitable answer:
	  i. The closing error in a closed travers is adjusted by……………. rule
	  ii. ………………….. method is used in case of direct and indirect ranging is not possible in the thick forest area.
	  iii. The line passes through zero declination is known as the…………………..
	  iv. The size of theodolite specified by based on ………………. Size of theodolite
	  v. To find accurate relative elevations of two widely separated inter visible points --------------------leveling is being used
	  vi. The magnetic axis of the needle should be coincide with the ………….axis
	  vii. The least count of double folded Vernier is……….m
	  viii. The……………………is electro-optical instruments, which use light waves for distance measurements
	  ix. The length of a link in a Revenue chain is-----------
	  x. The diameter of the loop of arrow in cm………….
		10	CO2

SECTION B

Q 3	Distinguish between the following terms:
	  a) Face left & Face right in theodolite d) Cross staff and Optical square
	  b) Prismatic compass and Brunton compass e) Arrows and Pegs
	  c) Internal focusing telescope and external focusing telescope
		10	CO3

Q 4	Write a short note for the classification of following terms: i) Bearing ii) Meridian iii) Magnetic variation	10	CO4
Q.5	a) A survey line was measure to be 80m. It was found that there was misalignment and line was 1m off the straight line at the middle. Determine the correct length. b) Describe in brief the application of different type of leveling.	4+6	CO4 & CO3
Q 6	i) A steel tape of nominal length 20m was used to measure a line AB by suspending it between supports. If the measured was 39.35m when the slope, angle was 2° 45' and the mean length temperature and tension applied were respectively 30° C and 75 N, the standard length of the tape was 20.22m at 40° C and 55 N tension. The tape weighed 0.28 N/m and had a cross sectional area of 1.80mm^2. Find the correct horizontal length. E= 2×10^5 N/mm^2 α=1.14×10^{-5} per°C **OR** ii) Describe in brief the procedure, merit and demerit of different methods of plane table survey.	10 10	CO4 & CO5
	SECTION C		
Q.7	a) Explain in brief the application of theodolite parts with illustration. b) A compass traverse ABCDEA was run anticlockwise and following bearing were taken <table><tr><td>Line</td><td>FB</td><td>BB</td></tr><tr><td>AB</td><td>150° 0'</td><td>329° 45'</td></tr><tr><td>BC</td><td>77° 30'</td><td>256° 0'</td></tr><tr><td>CD</td><td>41° 30'</td><td>222° 45'</td></tr><tr><td>DE</td><td>314° 15'</td><td>134°45'</td></tr><tr><td>EA</td><td>220° 15'</td><td>40° 15'</td></tr></table> Determine the local attraction and correct all the bearings and angles.	9+11	CO5 CO6
Q.8	i) Describe in brief the procedure, advantages and disadvantages of different methods of theodolite survey. ii) The bearing of the lines OA, OB, OC, and OD are **30° 30', 140°15', 220° 45'& 310° 30'** respectively. Calculate the angles of ∠**AOB, ∠BOC and ∠COD.** **iii)** A metallic tape originally 30m now found to be 30.25m long. A house 50m X 40m to be laid out. What measurement must be made using this tape and what should the diagonal read. **OR**	11+5+4	CO4 CO6 CO5

iv)Find the missing reading and complete the level book with arithmetic check.

BS	IS	FS	Rise	Fall	HI	RL
?					?	?
	2.457			0.384		?
	?		1.02			?
3.21		4.45		?	?	?
?		2.051	?		?	?
	2.15			1.12		?
	3.82			?		?
	?			0.32		?
		3.65	?			150

v) A survey line CD was obstruct by a high building, to prolong the survey line, beyond the building a perpendicular DE 215m long is set at D. From E two line EF and EG are set out angles 40° and 50° respectively. Determine the length of EF and EG so that F and G are on the prolongation of CD and determine the distance of DF.

Vi) Draw a Vernier Scale of R.F = 1/40 to read centimeters. The length of the scale should be sufficient to read up to 6 meter.   Show length of 3.5 and 1.85 meters.

12+5+3   CO6

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