UPES

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES

End Semester Examination, May 2018

Program: B-Tech GSE & GIE	Semester – IV
Subject (Course): Planning and Surveying	Max. Marks : 100
Course Code : GNEG-263	Duration : 3 Hrs
No. of page/s:3	

All the questions of section A & B are compulsory. Attempt any TWO questions from section. C. Wherever necessary do with neat sketches.

SECTION –A

Q.1 Write a note on the following terms.   **2 x 5 = 10 M**

   a) Cadastral survey b) GTS c) Type of Vernier's d) Offset rod e) Pegs and Arrows

Q. 2 Fill in the blanks with suitable word   **1 x 10 = 10 M**

   i.   The surface tangential to a level surface is said to be a ----------------------.

   ii.   In chain surveying tie lines are primarily provided to avoid --------------------from chain lines

   iii.   An ideal vertical curve to join two gradients, is ------------------

   iv.   The real image of an object formed by the objective, must lie in the plane of --------------------

   v.   The accuracy of measurement in chain surveying, does not depend upon general layout of the ----------------------.

   vi.   Invar tape has very low coefficient of thermal expansion is………………..Per 'F'

   vii.   The length of a human foot was measured from the heel to the tip of the big toe is equal to ………..mm.

   viii.   -----------------------was the first recorded standard linear measurement. Defined by the distance from the tip of the forefinger to the middle of the elbow.

   ix.   ----------------- does not reveal the magnitude of systematic errors.

   x.   ……………. Chain is 33ft long and has 16 links and used in cadastral survey.

SECTION –B

Q.3 Define levelling? Discuss in briefly the classification of levelling and its importance in Surveying. **8 M**

Q.4 Write a short note on the following terms and their significance in planning;
a) Scale of chord b) Datum c) Accuracy and Precision **8 M**

Q.5 a) Draw a Vernier scale **R.F=1/60** to read centimeter. The length of the scale should be sufficient to read up to 8 meters. Show lengths representing **5.5 m** and **1.5 m.** **4 M.**

b) Construct a diagonal scale of **R.F. = 1/8000** to show meters. The scale should be long enough to measure up to **800 m** and show **640 m and 350 m** on that scale. **4 M.**

Q.6 a) The plan of an area has shrunk such that a line originally **11 cm** now measure **10.5 cm.** If the original scale of the plan was **1cm =10M**. Determine the shrinkage factor, shrunk scale, correct distance corresponding to measured distance of **100 M and area of 80m².**

5 M

b) The measured slope distance of a line AB is **345.55ft** with a slope of **5°.00'**. If the actual slope of line is **4°.00**, Find out the correct slope of line AB. **3 M**

Q.7 Justify in briefly the significance of following terms in context with Plan & Surveying Types of Ranging survey and Obstacle in chaining and its solution **8 M.**

SECTION –C

ANSWER ANY TWO QUESTIONS **2 x 20 = 40 M**

Q. 8 a) A steel tape of nominal length 30 mts was used to measure a line AB by suspending it between supports. If the measured length was **26.35mts** when the slope, angle was **3° 45'** and the mean temperature and tension applied were respectively **20° C** and **100 N,** the standard length of the tape was **30.228mts** at **30° C** and **60 N** tension. The tape weighed **0.28 N/m** and had a cross sectional area of **1.70mm².** Find the correct horizontal length. $E= 2x10^5 N/mm^2$ $\alpha=1.14x10^{-5} per°C$ **9 M.**

b) Surveyors measure a distance of point CD as **49.56 ft** using break chaining. The tape was not accurately level and the plum bob end is **2ft** lower than actual positions.

Calculate the correct distance of the line CD.
3 M.

c) Enumerate with suitable diagram of parts of theodolite and their application. **8 M.**

Q.9 i) Define Plane table? Discuss briefly the types of plane table and their significance. **8 M**

ii) Discuss briefly procedure, merits and demerits of the different methods of plane table surveying   used   in   linear   measurement   and   planning **12 M.**

OR

Q.10. i) The river is flowing from east west. The surveyor fixes the base line **AB** on the southern bank of the river and measured length between **AB** is **100m**. The bearing of a assumed point **C** on the northern bank to set a triangle and using compass reading was taken from **A to C is 40°** and **B to C is 320°** respectively. Determine the width of river. **5M.**

ii) The following readings were observe with a dumpy level the instrument was shifted after 5th and 10th reading. Determine the Reduce level of all the points using both HI (height instrument) and rise and fall methods if the assumed **BM/RL is 200 M.** **0.585, 1.010, 1.735, 3.295, 3.775, 0.350, 1.300, 1.795, 2.575, 3.375, 3.895, 1,735 and 0.635. 15 M**

Q.No.	1	2	3	4	5	6	7	8	9
COS	1	2	3	4	5	5	5, 4	4,5,6	1, 4.6

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