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Total Number of Pages : 2

AR-17

B.TECH

3<sup>rd</sup> Semester (BACK PAPER) Examination-2019**BCEPC3030 SURVEYING-I**

CIVIL

Time : 3 Hours

Maximum : 100 Marks

Answer ALL Questions

The figures in the right hand margin indicate marks.

**PART – A: (Multiple Choice Questions) 10 x 2=20 Mark**Q.1. Answer All Questions

- a In chain surveying, perpendiculars to the chain line are set out by  
(a) a theodolite (b) a prismatic compass  
(c) a clinometer (d) an optical square
- b While measuring horizontal distance with chain on hills, it is better to measure the distance by  
(a) stepping down slope (b) stepping up slope  
(c) both of the above (d) suspending tape in air
- c In a metric chain, number of links per metre can be  
(a) 2 (b) 5 (c) 8 (d) 10
- d Bearing of a line is the horizontal angle it makes with  
(a) true meridian (b) magnetic meridian (c) arbitrary meridian (d) all of the above
- e Which of the following reference direction is used in a geodetic survey?  
(a) True (b) Magnetic (c) Arbitrary (d) Any of the above.
- f Which one of the following frequency regions is a part of sun's radiation?  
a) Ultraviolet frequency region b) Visible frequency region c) Infrared frequency region  
d) Radio frequency region
- g A metallic tape is made of  
a) steel b) invar c) linen d) cloth and wires
- h 3. For a well-conditioned triangle, no angle should be less than  
a) 20° b) 30° c) 45° d) 60°
- i Contour lines cross ridge or valley lines at  
a) 30 b) 45 c) 60 d) 90
- j In indirect method of contouring, the best method of interpolation of contours is  
a) by graphical method b) by arithmetical calculation c) by estimation d) all of these

**PART – B: (Short Answer Questions) 10X2=20 Marks****Q.2. Answer All questions**

- a What are the well-conditioned and ill conditioned triangles?
- b What is mean by representative fraction of scale?
- c Why is it necessary to draw a scale on the map at the time of Plotting?
- d State the conversion rule for W.C.B to R.B
- e What are methods of balancing the traverse?
- f Define magnetic declination. What are the types?
- g Define contour gradient.
- h Define horizontal and vertical control.
- i How it's possible for levelling, if the BM lies above the line of collimation.
- j What are the fundamental lines of a transit theodolite?

**PART – C: (Long Answer Questions) 4X15=60 Marks****Answer ALL questions**

- Q.3
- a 30m steel tape was standardized on the flat and was found to be exactly 3mm under no pull at 66°F. It was used in catenary to measure a base of 5 bays the temperature during the measurement was 92°F and the pull exerted during the measurement was 10 kg. The area of the cross section of the tape was 0.08 sq.cm and the specific weights of steel is 7.86 glee.  $A = 0.0000063$  per 1°F and  $e = 2.109 \times 10^6$  kg/sq.cm. Find the true length of the lline. 7
- b A 30m chain was found to be 0.1m too long after chaining 2400m. If the chain was correct before commencement of the work, find the true distance. 8
- OR
- c Explain different corrections that can be applied to chain or tape. 7
- d How chain can be done on an uneven ground or sloping ground? Point out the advantages and disadvantages of this method. 8
- Q.4
- a How closing error can be adjusted by using graphical method? 5
- b Differentiate prismatic and surveyor compass. 10
- OR
- c The following angles were observed in clockwise direction in an open traverse angle ABC = 124°15', angle BCD = 156°30' angle CDE = 102°0' angle DEF = 95°15' angle EFG = 215°30' magnetic bearing of line AB was 241°30'. what would be the bearing of line FG =? 7
- d Explain with neat sketches the different types of compasses. 8
- Q.5
- a Explain the different types of levels and staves with neat sketches. 5
- b The following consecutive readings were taken along AB with a 4m levelling staff on continuously sloping ground at intervals of 20m. 0.34m on A, 1.450,2.630,3.875,0.655, 1.745,2 .965,3.945, 1.125,2.475,3.865 on B. 10
- The elevation A was 60.350. enter the above readings in a level book form and work out RLs by rise and fall method. Also find the gradient of the line AB.
- OR
- c Explain , in details, the different types of levelling. 7
- d What is sensitiveness? How is it measured?Explain. 8
- Q.6
- a What is digital theodolite and explain its operation? 7
- b Difference between active & passive remote sensing? 8
- OR
- c Draw a neat sketch of total station show its parts and elaborate their functions? 7
- d What is remote sensing and write down its application? 8

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