| Reg. No. | | | | | | | | | | | | | | | |
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| Question Paper Code | 12740 |
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**B.E. / B.Tech. - DEGREE EXAMINATIONS, APRIL / MAY 2024**

Sixth Semester

**Civil Engineering**

**20CEEL606 - ADVANCED SURVEYING**

Regulations - 2020

Duration: 3 Hours | Max. Marks: 100

**PART - A (10 × 2 = 20 Marks)**

Answer ALL Questions

| | | Marks | K – Level | CO |
|---|---|---|---|---|
| 1. | What are the various corrections involved in Astronomical surveying? | 2 | K1 | CO1 |
| 2. | Compare apparent solar time and mean solar time. | 2 | K2 | CO1 |
| 3. | Differentiate between tilted and oblique photograph. | 2 | K2 | CO3 |
| 4. | Write the advantages and disadvantages of photogrammetric. | 2 | K1 | CO3 |
| 5. | Outline the principle of EDM instruments. | 2 | K2 | CO4 |
| 6. | How does total station measure distance? | 2 | K2 | CO4 |
| 7. | List out various segments in GPS surveying. | 2 | K1 | CO5 |
| 8. | What are the limitations in GPS surveying? | 2 | K1 | CO5 |
| 9. | What are the various stages of conducting field survey for any project? | 2 | K1 | CO6 |
| 10. | Define hydrographic surveying. | 2 | K1 | CO6 |

**PART - B (5 × 13 = 65 Marks)**

Answer ALL Questions

| | | | Marks | K – Level | CO |
|---|---|---|---|---|---|
| 11. | a) | Describe the different time systems used in astronomy. | 13 | K2 | CO1 |
| | | **OR** | | | |
| | b) i) | Construct the rrelationship between altitude of the pole and latitude of the observer. | 6 | K3 | CO1 |
| | ii) | Develop the relationship between latitude of observer and declination an altitude of a point on the meridian. | 7 | K3 | CO1 |
| 12. | a) i) | Define the following terms:<br>(1) Focal length (2) Flying height (3) Exposure station and<br>(4) Fiducial marks | 8 | K2 | CO3 |
| | ii) | Discuss the various features of Aerial Photographs. | 5 | K2 | CO3 |
| | | **OR** | | | |
| | b) | Derive an expression for relief displacements on a vertical photograph. | 13 | K2 | CO3 |

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|---|---|---|---|---|---|
| 13. | a) | Explain in brief about the working of an electronic distance measurement device using transit time method and phase comparison method. | *13* | *K2* | *CO4* |
| | | **OR** | | | |
| | b) i) | Describe the different sources of errors which are encountered in a total station. | *8* | *K2* | *CO4* |
| | ii) | Bring out the important precautionary measures and maintenance of total station instrument. | *5* | *K2* | *CO4* |
| 14. | a) | Examine in detail the History of GPS and Technical Specifications of its orbits. | *13* | *K2* | *CO5* |
| | | **OR** | | | |
| | b) | What are the types of GPS receiver? Explain in detail. | *13* | *K2* | *CO5* |
| 15. | a) | What is meant by soundings? Describe briefly any four methods of locating soundings. | *13* | *K2* | *CO6* |
| | | **OR** | | | |
| | b) | Summarize the various types of tide gauges used in hydrographic surveying. | *13* | *K2* | *CO6* |

**PART - C (1 × 15 = 15 Marks)**

| | | | | | |
|---|---|---|---|---|---|
| 16. | a) | Calculate the sun's azimuth and hour angle at sunset at a place in latitude is 42° 30' N, when its declination is (a) 22° 12'N (b) 22° 12'S. | *15* | *K3* | *CO2* |
| | | **OR** | | | |
| | b) | Find the LMT of observation at a place from the following data:<br>(i) LAT of observation = 15h12m40s<br>(ii) Equation of time at GMN = 5m10.65s, additive to apparent time and increasing at 0.22s/h<br>(iii) Longitude of the place = 20°30' W | *15* | *K3* | *CO2* |