22377

24225

3 Hours / 70 Marks Seat No. | | | | | | | | |

Instructions : (1) All Questions are *compulsory.*

(2) Illustrate your answers with neat sketches wherever necessary.

(3) Figures to the right indicate full marks.

(4) Assume suitable data, if necessary.

(5) Use of Non-programmable Electronic Pocket Calculator is permissible.

(6) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1. Attempt any FIVE of the following : **10**

(a) Enlist the main parts of Theodolite.

(b) Define Correlation.

(c) Compare simple curve and compound curve in brief.

(d) State the uses of Total station.

(e) Define G.I.S.

(f) State the difference between in WCB & R.B.

(g) State the uses of G.P.S.

2. Attempt any THREE of the following : **12**

(a) Describe the procedure for setting up a theodolite for surveying.

(b) Describe the steps involved in conducting an underground traverse.

(c) Draw a neat sketch of circular curve and show the following elements :

(i) Tangent length

(ii) Deflection angle

(iii) Apex distance

(iv) Long chord

(v) Curve length

(vi) Chainages of tangent points.

(d) State the principle of EDM and write the uses of EDM.

3. Attempt any THREE of the following : **12**

(a) Describe the concept of Theodolite surveying and its use in mining.

(b) Describe temporary adjustments in theodolite surveying.

(c) Give an overview of Remote sensing.

(d) State the object of Remote sensing and write its application in Mining.

(e) State the different sources of errors in GIS.

4. Attempt any THREE of the following : **12**

(a) Elaborate the concept of deflection angle and relationship with bearing.

(b) Describe the procedure of measuring distance using E.D.M.

(c) Describe the use of Drone Surveying in Mining Industry.

(d) Describe the procedure of measuring horizontal angle using Theodolite.

5. Attempt any TWO of the following : **12**

(a) Following are the lengths and bearing of traverse :

Length	**Length (m)**	**Bearing**
AB	260	30°
BC	325	140°
CD	185	210°

Find Length & Bearing of DA.

(b) Enlist different methods of correlation of surface & underground survey. Explain any one.

(c) Two straights meet at a chainage of 1800 m. with deflection angle of 55°. The radius of circular curve is 80 m.

Calculate :

(i) Tangent length

(ii) Length of long chord

(iii) Length of curve

(iv) Chainage of tangents points

6. Attempt any TWO of the following : **12**

(a) Describe Rankine method to lay out circular curve.

(b) Enlist some instruments used in Advance Surveying. Explain the one known to you in Mining activity.

(c) In Weiss Quadrilateral angles are measured at two point A and B.

Azimuth of AB = 89°42′

$\angle$ PAQ = 39°54′

$\angle$ QAB = 42°19′

$\angle$ PBQ = 41°08′

$\angle$ ABP = 44°24′

Length of AB = 30 m.

Find Bearing of the reference line PQ.
