April 2018
M 30 2 9 16 23
T 3 10 17 24
W 4 11 18 25
T 5 12 19 26
F 6 13 20 27
S 7 14 21 28
S 1 8 15 22 29

May 2018
M 7 14 21 28
T 1 8 15 22 29
W 2 9 16 23 30
T 3 10 17 24 31
F 4 11 18 25
S 5 12 19 26
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June 2018
M 4 11 18 25
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S 2 9 16 23 30
S 3 10 17 24

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11 Monday 162/203

Queen's Birthday* (ex. WA & Qld-Aust) Queen's Birthday/Volunteer's Day* (SA-Aust)

8.00 am

NAME = SULEMAN HAKEEM

8.30

I.D = 16757

9.00

SEC = B

9.30

PAPAR = ADVANCE SURY.

10.00

10.30

11.00 Q 1) What is Transition Curve .....?

11.30

ANSWER :-

Noon

12.30

TRANSITION CURVE :-

1.00

A Curve of

1.30 varying radius is called a

2.00 transition Curve. It is also called

2.30 spiral Curve or Easement Curve.

3.00

USED FOR :-

3.30

It is used on both

4.00 highway and railway between

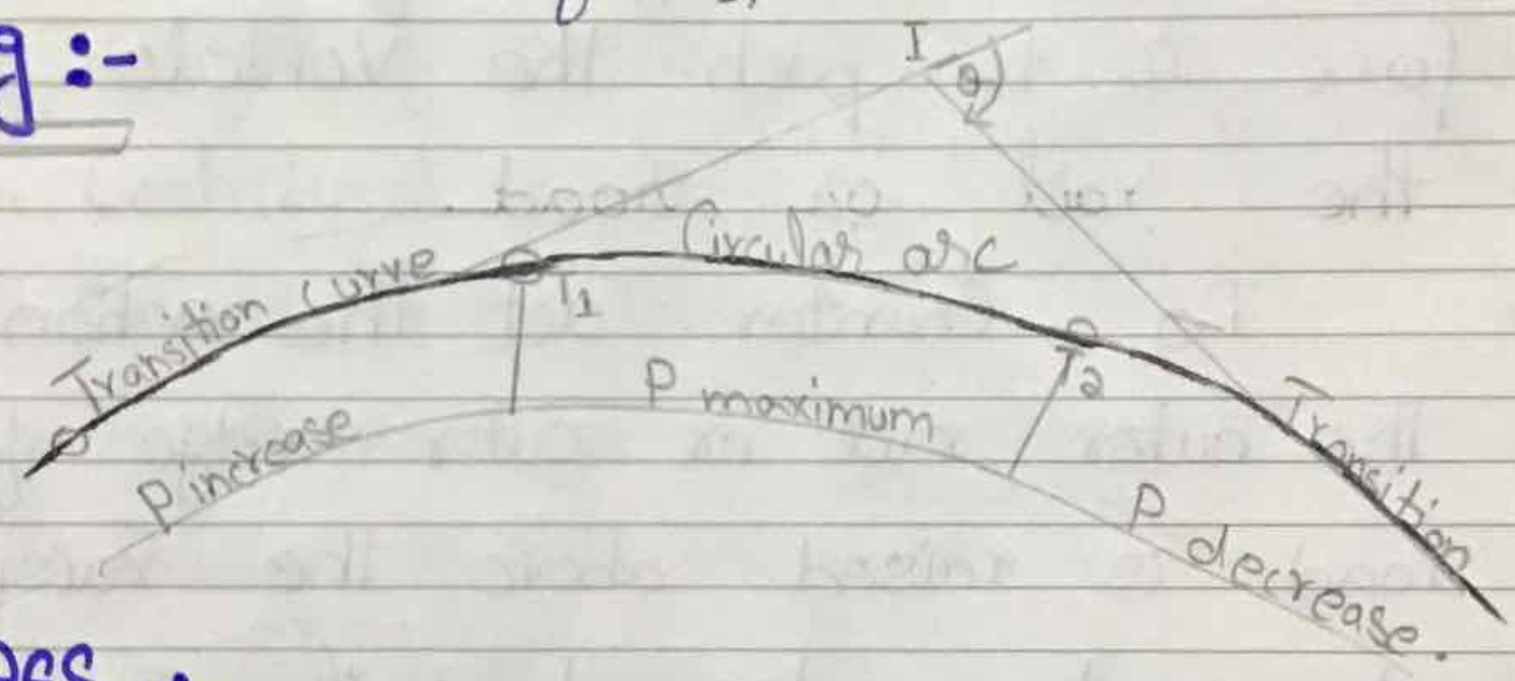
4.30 tangent and a circular Curve

5.00 in order to have a smooth

6.00 pm

transition from tangent to the curve and from curve to the tangent. It is also inserted between two branches of compound.

Fig :-



TYPES :-

TYPES OF TRANITION CURVE.

- A Clothoid or spiral
- A Cubic parabola
- A leminiscate.

SUPER ELEVATION :-

When vehicle moves from tangent on to the curve the forces acting on it are

- → weight of the vehicle.
- → Centrifugal force, Both acting through

the center of gravity of the vehicle.

EFFECTS:-

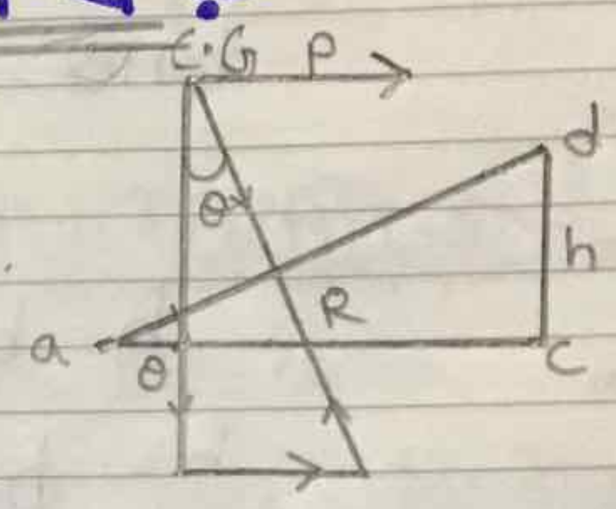
The effect of the centrifugal force is to push the vehicle off the rail or road.

To counter act the action the outer rail or outer edge of the road is raised above the raising of outer edge of rail or road above the inner one is called Super elevation or Cant.

The amount of Super elevation depends upon.

- Speed of the vehicle
- Radius of the curve.

EQUATION OF SUPER ELEVATION :-



Let

W = weight of the Vehicle.

P = Centrifugal force.

V = Speed of the Vehicle

g = Acceleration due to gravity, m/s^2

R = Radius of the Curve, m.

h = Super elevation, m.

b = width of the road, m.

For equilibrium the resultant R of the P and W must be equal and opposite to the reaction perpendicular to road or rail Surface.

Mathematically :-

$$P = \frac{mv^2}{R} = \frac{wv^2}{gR} \quad \therefore w = mg$$

$$\frac{P}{w} = \frac{v^2}{gR}$$

$$\tan\theta = \frac{h}{b} = \frac{dc}{ac} = \frac{P}{w}$$

$$\tan\theta = \frac{h}{b} = \frac{P}{w} = \frac{v^2}{gR}$$

$$h = b\tan\theta$$

$$h = b\frac{v^2}{gR}$$ on - highway.

$$h = \frac{bGv^2}{gR}$$ on Railway.

$\boxed{\text{Proved}}$

where G is the distance b/w the center of the rail.

Question No = 02.

What is the different ....?

Differences between triangulation and Trilateration :-

The following are Some differences between them.

TRIANGULATION	TRILATERATION
① Traiangulation is used by Surveyors to measure distant points	① A GPS Satellites broadcast their location and time, tirilateration measure distances to pinpoint their exact position an earth.
② All angles are measured in Triangulation.	② All sides are measure in trilateration.
③ Distance of base line is measured.	③ Azimuth of the initial line is measured.
④ Triangulation uses known angles to Calculate unknown distances.	④ It Uses known distances to pinpoint location.
⑤ 3D - positioning	⑤ Tends to be Planar.

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(6) Multiple distance determinations to an unknown target.

(6) Multiple bearings on an unknown Tarrget.

PRINCIPLES OF TRIANGULATION AND TRILATERATION :-

TRIANGULATION :-

- Entire area to be Surveyed is converted into framework of triangles.

- If the length and bearing of one side and three angles of a triangle are measured precisely, the lengths and directions of other two sides can be

8

Computed.

- The method of Surveying was frist introduced by Dutchman called Snell.
- Solved by Sine Rule.

TRILATERATION :-

- Trilateration is a highly accurate and precise method of establishing and expanding horizantal control.
- Horizantal angles are not measured in field.
- Verticle angles are also measured where elevations have not been estalished.
- All the three sides of triangle are measured with distance measure instrument (tapes, EDMs etc).

- Solve by Cosine Rule.

$$a^2 = b^2 + c^2 - 2bc \cos A.$$

- Few horizantal angles are measured sometime. To provide a check on computed angles.

Question No 3

Part (a)

What is hydrographic ....?

Hydrographic Surveying or bothymetric Surveying is the Survey of physical factors present under water. It is Science of masuring all factors beneth water that affects all the marine life, marine activities like marine Construction offshore drilling etc.

PURPOSE OF HYDROGRAPIC SURVEYING :-

The following are the purposing of doing hydrographic Survey.

We do hydrographic Surveying

1. Shore line can be determined.
2. Locating mean Sea level.
3. Tide measurement.
4. River and stream discharge measurement.
5. Depth of bed can be determined.
6. Locating Sewer fall.
7. By this Huge and Massive structure are planned.
8. Determination of Coastal erosion. Silting.
9. Ditermination of site of Construction of harbours.

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8.00 am

FACTORS TO BE DETERMINE WHILE CONDUCTING HYDROGRAPHIC SURVEY :-

Factors that would be determine during hydrographic Surveying are the following.

- Survey Equipment.
- Preparation of a Hydrographic Survey Specification.
- Issue to a designated Unit.
- Programme planning of that Unit.
- assessment of the task with in that Unit.
- Resource allocation.
- Detailed Survey planning.
- plan for Compilation and

(12)

Checking of data.

PART (b)

Question:- What is Sounding.....?

ANSWER:- SOUNDING:-

The measurement of depth below the water Surface is called Sounding. This Corresponds to the ordinary Spirit leveling in land Surveying where depth are measured below Horizantal line.

PURPOSE OF SOUNDING:-

The purpose of Sounding are the following.

- Sounding is most important

(13)

for any water body to improve its negligable properties to know about silting and Scouring etc.

- In hydrographics Surveying Sounding is the measurement of depth below the water Surface.

- The main purpose and objective of Sounding is to measure and finding the depth below the Surface.

★ EQUIPMENT :-

They are :-

- Sounding boat
- Sounding rods and poles.
- Lead lines
- Sounding Machine.
- Fathometer.

(14)

QUESTION (4)

PART (A) :-

What is the Aerial ...?

[redacted] **PHOTOGRAMMETRY :-**

[redacted] photogrammetry is the branch of Surveying that deals with production of maps Such as planimetric or topographic maps by Compiling number of photographs taken in that area.

BRANCHES :-

It has two branches.

- → Terrestrial
- → Aerial

(15)

AERIAL PHOTOGRAMMETRY :-

In aerial photogrammetry, an aircraft with camera setup is used to take photographs from the air flying over the ground.

PURPOSE OF AERIAL PHOTOGRAMMETRY :-

The purpose are -

=> The use of aerial photography for military purpose was expanded during world war "I" by aviaters.

=> Aerial photography is used in Cartagraphy land. Use for planning movie production, environmental studies etc.

(16)

8.00 am

TERMS USED IN AERIAL :-

- Exposure station
- Flying height
- Tilt
- Swing.
- Altitude.

PART (B). (1)(4).

PROCEDURE :-

The following are the steps for aerial photography.

→ Estalishing Control points.
→ Flight planning and photography
→ Photo interpretation
→ Parallax and measurement.
→ Construction of map.

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27 Wednesday 178/187

8.00 am

* Establishing Control points :-

8.30

9.00 Control points are points

9.30 establish on ground with known

10.00 relative points. The photograph

10.30 Captured is observed by setting

11.00 these Control points as

11.30 boundaries; So the points should

Noon be established in such a

12.30 way that they should be easily

1.00 identifiable on photograph.

1.30

* FLIGHT planning and Photography :-

2.00 Flight planning is

2.30 nothing but knowing the

3.00 height to the maintained by

3.30 flight, while taking photos,

4.00 area to be covered in each

4.30 photograph, no of photos etc.

5.00

6.00 pm

★ Photo Interpretation and Stereoscopy :-

Photo interpretation is done by the instrument called stereoscope which Contains magnifires. So, one can observe the three - dimensional model of area through it and it also case the drawing of maps of photo-graphed area.

★ Parallax and Measurement of Parallax :-

An aerial photograph can be studied to get location of an object by it Co-ordinates in photograph.

Parallex is nothing but a displacement of an object in the photograph when point of observation is shifted to

8.00 am another angle.

8.30

* Construction of Map and Cartography :-

9.00

9.30

10.00 After collection of

10.30 photographs, it is time to

11.00 creat or plot a map. There

11.30 are Several methods avaible

Noon to plot the details of map

12.30 and one of the method

1.00 is steroscopic method.

1.30

2.00

2.30

3.00

3.30

4.00

4.30

5.00

6.00 pm