

SURVEYING

Diploma Semester - 3

020060305

UNIT 1 : INTRODUCTION AND SCALE

1. Determining the relative positions of points on above or beneath the surface of the earth by means of direct or indirect measurements of distance and direction and elevation is called as

-
- a) Surveying
 - b) Levelling
 - c) Measuring
 - d) Contouring

2. Finding the elevations of a point with respect to a given or assumed and establish points given elevation or at different elevations with respect to given or assumed datum is _____

- a) Surveying
- b) Levelling
- c) Bearing
- d) Contouring

3. Type of surveying in which the mean surface of the earth is considered as a plane and the spheroidal shape is neglected called as _____

- a) Topographic Surveying
- b) Hydrographic Surveying
- c) Geodetic Surveying
- d) Plane Surveying

4. Type of surveying in which the shape of the earth taken into account is _____

- Topographic Surveying
- Hydrographic Surveying
- Geodetic Surveying
- Plane Surveying

5. Horizontal projection of an area and shows only horizontal distances of the points is

-
- a) Contour lines
 - b) Levelling
 - c) Surveying
 - d) Plan

6. What type of surveys needs to fix the boundaries of municipalities and of state and federal jurisdictions?

- a) Topographic Surveying
- b) Hydrographic Surveying

- c) Cadastral Surveying
- d) City Surveying

7. Determining the absolute location of any point or the absolute location and direction of any line on the surface of the earth is called _____ a) Topographic Surveying

- b) Astronomical Surveying
- c) Cadastral Surveying
- d) Hydrographic Surveying

8. Determining different strata in the earth's crust is called as _____

- a) Mine Survey
- b) Geological Survey
- c) Geodetic Survey
- d) Archaeological Survey

9. Determining unearthing relics of antiquity is called as _____

- a) Mine Survey
- b) Geological Survey
- c) Geodetic Survey
- d) Archaeological Survey

10. Representing large scale on the surface of the earth is _____ a)
Plan

- b) Map
- c) Scale
- d) Area

11. In which surveying, shape of earth is taken into consideration?

- a) Plane surveying
- b) Geodic surveying
- c) Topographic surveying
- d) Geological surveying

12. Which among the following scales is used to determine the original scale when the plan on the drawing sheet shrinks due to atmospheric conditions? a) Vernier scale

- b) Plane scale
- c) Shrunk scale
- d) Diagonal scale

13. The main principle of surveying is to work from

- a) the center to the boundary
- b) the whole to the part
- c) the part to the whole
- d) higher to lower level

14. Which among the following methods is used for determining the precise position on the earth surface?

- a) Geological surveying
- b) Geodic surveying
- c) Land surveying
- d) Plane Surveying

15. Which among the following is one of the principles of surveying?

- a) Taking measurements
- b) Covering entire area
- c) Determining the elevation differences
- d) Working from whole to part

16. Design a Vernier for a theodolite circle divided into degrees and one fourth degrees to read to 20". a) 55

- b) 45
- c) 65
- d) 35

17. The formula for shrunk scale can be given as _____

- a) Original scale*shrinking factor
- b) Shrunk scale*shrinking factor
- c) Vernier scale* shrinking factor
- d) Diagonal scale* shrinking factor

18. Which of the following is made in connection with the construction of streets, water supply systems, sewers?

- a) Traverse surveying
- b) Hydrographic surveying
- c) Cadastral surveying
- d) City surveying

19. Which of the following is a classification based on the instrument used?

- a) Topographic surveying
- b) Hydrographic surveying
- c) Cadastral surveying
- d) Traverse surveying

20. Determining points of strategic importance are called _____

- a) Topographic surveying
- b) City surveying
- c) Military surveying
- d) Traverse surveying

21. For exploring mineral wealth which type of surveying is used?

- a) Topographic surveying
- b) Engineering surveying
- c) Military surveying
- d) Mine surveying

22. Determining quantities or afford sufficient data for the designing of works such as roads and reservoirs is called _____ a) Topographic surveying

b) Engineering surveying

c) City surveying

d) Cadastral surveying

23. What consists of a horizontal and vertical location of certain points by linear and angular measurements and is made to determine the natural features of a country such as rivers, streams?

a) Topographic surveying

b) Engineering surveying

c) City surveying

d) Cadastral surveying

24. Which of the following is a classification based on the nature of the field survey?

a) Topographic surveying

b) Mine surveying

c) Military surveying

d) Chain surveying

25. Which of the following is not a classification based on instruments used or methods employed?

a) Chain surveying

b) Topographic surveying

c) Traverse surveying

d) Aerial surveying

26. A survey which deals with bodies of water for the purpose of navigation, water supply, harbor works or for the determination of mean sea level is _____ a) Topographic surveying

b) Hydrographic surveying

c) Cadastral surveying

d) City surveying

27. The curvature of earth is ignored in

a) Geodetic surveying

b) Plane surveying

c) Hydrographic surveying

d) Aerial surveying

28. The curvature of the earth us taken into account when the extent of area is more than a)

50 km²

b) 100 km²

c) 250 km²

d) 350 km²

29. If the scale of map is 1 cm = 50 m, R.F is

- a) 1/50
- b) 1/500
- c) 1/5000
- d) 1/50000

30. Surveys which depict natural feature like mountains, valleys, rivers, forests, etc. are known as

- a) Cadastral survey
- b) Topographical survey
- c) Engineering survey
- d) Mine survey

31. The plain scale is used to read

- a) one unit
- b) two unit
- c) three consecutive units
- d) none of above

32. The diagonal scale is used to read

- a) one unit
- b) two unit
- c) three consecutive units
- d) none of above

33. Vernier scale is used to read

- a) Fractional part of a graduated scale
- b) Fractional part of a plain scale
- c) Fractional part of a diagonal scale
- d) None of above

34. The branch of surveying which deals with the measurements in a vertical plane is known as

- a) Plane tabling
- b) Leveling
- c) Traversing
- d) None of above

35. In surveying the measurement are taken in

- a) Horizontal plane
- b) vertical plane
- c) Inclined plane
- d) Both horizontal and vertical plane

36. The object of surveying is to prepare a

- a) Drawing
- b) Cross-section
- c) Sketch
- d) Map

37. Hydrographic surveys deal with the mapping of

- a) large water bodies
- b) heavenly bodies
- c) mountainous region
- d) canal system

38. Which of the following closely represents the shape of the earth

- a) Spheroid
- b) Ellipsoid
- c) Oblate spheroid
- d) Obsolete Ellipsoid

39. "Geodetic surveying" is different from plane surveying because of

- a) Working from whole to part
- b) curvature of the earth taken into account
- c) large area
- d) none of the above

40. The methods of plane surveying can be used when the extent of area is less than a)

250 Sq.km

- b) 500 Sq.km
- c) 1000 Sq.km
- d) 2500 Sq.km

41. Which of the following scales is the smallest one

- a) 1 cm = 10 m
- b) R.F= 1/5000
- c) 1: 10000
- d) 1 cm = 10 km

42. To determine the length of bridge proposed to be built across a very wide river, the surveying method of choice would be

- a) chain survey
- b) hydrographic survey
- c) topographic survey
- d) triangulation

43. surveys which are carried out to show natural features of country such as rivers, hills etc, is

- a) cadastral survey
- b) engineering survey
- c) topographic survey
- d) route survey

44. The basic principle of “working from whole to part”

- a) prevents accumulation of errors
- b) makes plotting easier
- c) localized minor errors
- d) both A & C

45. For a triangle at the earth is surface having an area of 195 Sq.m The difference between the sum of angles in a plane triangle and spherical triangle is

- a) 1 second
- b) 1 minute
- c) 10 seconds
- d) 10 minutes

46. The survey carried out to fix the boundary of a building site is

- a) Engineering survey
- b) Topographic survey
- c) Cadastral survey
- d) EDM survey

47. The survey conducted to obtain data for designing a protech such as roads, railways, water ways, bridges etc., is

- a) Engineering survey
- b) Topographic survey
- c) Reconnaissance survey
- d) Cadastral survey

48. A ground area of 112.5 m² represented by 4.5 cm² on plan the representative fraction is a)

- a) 1/250000
- b) 1/500
- c) 1/5000
- d) None

49. Which of the following conditions requires geodetic surveying?

- a) Horizontal curve surveying
- b) Vertical curve surveying
- c) Survey of country
- d) Reconnaissance survey

50. Which one of the following surveys is employed for collecting sufficient data in connection with sewage disposal and water supply works?

- a) Topographic survey
- b) Cadastral survey
- c) Geodetic survey
- d) Cross-sectioning and profile leveling

UNIT 2 : CHAIN SURVEY

1. Which of the following is not among the methods of linear measurements?
 - a) Direct measurements
 - b) Measurements by optical means
 - c) Indirect measurements
 - d) Electromagnetic methods or EDM
2. Which of the following is not a method of measuring the distances directly?
 - a) Pacing
 - b) Measurement with passometer
 - c) Measurement with pedometer
 - d) Measurement with theodolite
3. In which method measurements of distances are chiefly confined to the preliminary surveys and explorations where a surveyor is called upon to make a rough survey as quickly as possible?
 - a) Chaining
 - b) Pacing
 - c) Measurements with passometer
 - d) Measurements with theodolite
4. Which of the following measurements varies with an individual before computing the length of line?
 - a) Chaining
 - b) Pacing
 - c) Levelling
 - d) Contouring
5. Which method consists in counting the number of paces between the two points of a line?
 - a) Chaining
 - b) Pacing
 - c) Levelling
 - d) Contouring
6. Pacing is difficult in _____
 - a) Smooth surfaces
 - b) Plain areas
 - c) Rough ground
 - d) Plateaus
7. Instrument shaped like a watch and is carried in pocket or attached to one leg is _____
 - a) Pedometer
 - b) Odometer
 - c) Passometer
 - d) Speedometer
8. Which instrument mechanism is operated by motion of the body and it automatically registers the number of paces, thus avoiding the monotony and strain of counting the paces, by the surveyor?
 - a) Passometer
 - b) Pedometer

- c) Odometer
- d) Chaining

9. Which instrument registers total distance covered by any number of pace?

- a) Passometer
- b) Pedometer
- c) Odometer
- d) Chaining

10. Instrument for registering the number of revolutions of a wheel is _____

- a) Odometer
- b) Pedometer
- c) Pedometer
- d) Chaining

11. Most accurate method of direct measuring is with _____

- a) Passometer
- b) Pedometer
- c) Theodolite
- d) Chaining

12. The length of a line measured with a 20 m chain was found to be 250 m. Calculate the true length of the line if the chain was 10 cm too long.

- a) 252.25 m
- b) 251.25 m
- c) 225.25 m
- d) 221.25 m

13. What is required to transfer points to the ground, while chaining along the sloping ground?

- a) Spirit level
- b) Plumb bob
- c) Butt rod
- d) Pegs

14. What is used for measuring offsets, but it is often used by building surveyors or architects?

- a) Plum bob
- b) Butt rod
- c) Pegs
- d) Laths

15. What is used in centering aid in theodolites, compass, plane table and variety of other surveying instruments?

- a) Butt rod
- b) Whites
- c) Laths
- d) Plumb bob

16. How many kinds of obstacles of chaining are there?

- a) 2
- b) 3
- c) 4
- d) 5

17. Which of the following is not one among the three major kinds of obstacles of chaining?

- a) obstacles to ranging
- b) obstacles to chaining
- c) obstacles to levelling
- d) obstacles to ranging and chaining

18. Both ends of the lines may be visible from intermediate points on the line. This case comes under which among the three kinds of obstacles to chaining?

- a) obstacles to ranging but not chaining
- b) obstacles to chaining but not ranging
- c) obstacles to levelling
- d) obstacles to ranging and chaining

19. When it is possible to chain round the obstacle, i.e a pond, hedge etc. This case comes under which among the three kinds of obstacles to chaining?

- a) obstacles to ranging but not chaining
- b) obstacles to chaining but not ranging
- c) obstacles to levelling
- d) obstacles to ranging and chaining

20. Both ends of the line may not be visible from intermediate points on the line. This case comes under which among the three kinds of obstacles to chaining?

- a) obstacles to ranging but not chaining
- b) obstacles to chaining but not ranging
- c) obstacles to levelling
- d) obstacles to ranging and chaining

21. When it is not possible to chain round the obstacle e.g. a river. This case comes under which among the three kinds of obstacles to chaining?

- a) obstacles to ranging but not chaining
- b) obstacles to chaining but not ranging
- c) obstacles to levelling
- d) obstacles to ranging and chaining

22. To continue a survey line AB past an obstacle, a line BC 100 m long was set out perpendicular to AB and from C angles BCD and BCE were set out at 60° and 45° respectively. Determine the lengths which must be chained off along CD in order that ED may be in AB produced?

- a) 100 m
- b) 200 m
- c) 300 m
- d) 400 m

23. The most accurate instrument of the following for making linear measurement is

- a) Chain
- b) Steel band
- c) Steel tape
- d) Invar tape

24. A tape may be too long or an angle measuring instrument may be out of adjustment. Then such type of error comes under which source of error?
- a) Instrumental
 - b) Personal
 - c) Natural
 - d) Artificial
25. An Invar tape is made of:
- a) Nickel and steel
 - b) Brass and steel
 - c) Nickel and copper
 - d) None
26. Pick up the incorrect pair:
- a) Butt rod : Measuring off sets
 - b) Invar tape : Baseline measurement
 - c) Plaster's laths : Marketing terminal points
 - d) Prism square : Setting right angles
27. The length of a survey line measured with a 20m chain was found to be 200m. When the chain was compared with a standard chain it was found to be 10 cm too long. The true length of line in 'm' is
- a) 201
 - b) 199
 - c) 202
 - d) 198
28. A 30 m metric chain is found to be 0.1 m too short throughout the measurement. If the distance measured is recorded as 300m, then the actual distance in 'm' will be
- a) 300.1
 - b) 301.0
 - c) 299.0
 - d) 310
29. The true length of line is known to be 500 m. The line was again measured with a 20 m tape and found to be 502 m. The correct length of the tape in 'm' is
- a) 20.08
 - b) 19.92
 - c) 19.9
 - d) None
30. A 20 m chain is used in surveying work. It was found to be 18 cm too long at the end of day's work after measuring 2900 m. The true distance if the chain was correct before the commencement of the work in 'm' is
- a) 2913.3
 - b) 2886.7
 - c) 2915
 - d) None
31. In chain surveying, the measurement made are

- a) Linearly only
- b) Angular only
- c) Both A and B
- d) None

32. The area of a field was found to be 4000 m^2 when measured with a tape of 20 m length. If the tape was 0.10 m too short, the correct area in ' m^2 ' is

- a) 4040
- b) 3980
- c) 4020
- d) 3960

33. The volume of earth work was computed to be 5000 m^3 when measured with a tape of 30 m nominal length. If the tape was 0.15 m too long, the correct volume in ' m^3 ' is

- a) 5025
- b) 4975
- c) 5075
- d) 4925

34. Reciprocal ranging is adopted when the following is encountered

- a) A river
- b) A tall building
- c) A dense forest
- d) A hillock

35. A 20 m chain is divided into

- a) 60 links
- b) 100 links
- c) 150 links
- d) 200 links

36. The length of Gunter's chain is

- a) 100 ft
- b) 50 ft
- c) 66 ft
- d) 75 ft

37. The chainman who drags the chain is called the

- a) Captain
- b) Leader
- c) Follower
- d) Labour

38. In chain survey the area is divided into

- a) Rectangles
- b) Triangles
- c) Squares
- d) Circles

39. Chain survey is recommended when the area is

- a) Crowded
- b) Undulating

- c) Simple and fairly level
 - d) None
40. Cross-staff is used for
- a) Setting out right angles
 - b) Measuring horizontal angles
 - c) Both A and B
 - d) None of above
41. For ranging a line, the number of ranging rods required for
- a) At least two
 - b) At least three
 - c) At least four
 - d) None
42. Correction for slope is given by
- a) $h^2/2L$
 - b) h/L
 - c) $h/2L$
 - d) $2h^2/L$
43. In an optical square, the mirrors are fixed at an angle of
- a) 30°
 - b) 60°
 - c) 45°
 - d) 90°
44. The correction for sag is always
- a) Additive
 - b) Subtractive
 - c) Zero
 - d) None
45. If θ be the angle of slope and l be the sloping distance, the slope correction is given by
- a) $l(1 - \sin \theta)$
 - b) $l(1 - \cos \theta)$
 - c) $l(1 - \sec \theta)$
 - d) $l(1 - \tan \theta)$
46. Which one is used for the measurement of base line?
- a) Invar tape
 - b) Steel tape
 - c) Engineer's chain
 - d) Gunter's chain
47. Which of the following is an obstacle to chaining but not to ranging?
- a) Hill
 - b) Building
 - c) Forest
 - d) River
48. Revenue chain is

a) 100 feet long, 100 links

b) 66 feet long, 100 links

c) 66 feet long, 33 links

d) 33 feet long, 16 links

49. In chain surveying, during field work

a) only linear measurements are taken

b) only angular measurements are taken

c) linear measurement as well as angular measurements are taken

d) None of the above

50. 'Ranging' means

a) To measure distance from starting point

b) To measure distance from end point

c) To establish intermediate points on a chain line

d) To take offsets from chain line

UNIT 3 : COMPASS SURVEY

1. The direction of a line relative to a given meridian is called:

- a) Bearing
- b) Declination
- c) Angle
- d) Dip

2. How many types of a compass are used in surveying?

- a) 4
- b) 2
- c) 3
- d) 5

3. _____ bearing is measured in the direction of survey.

- a) Primary
- b) First
- c) Fore
- d) Front

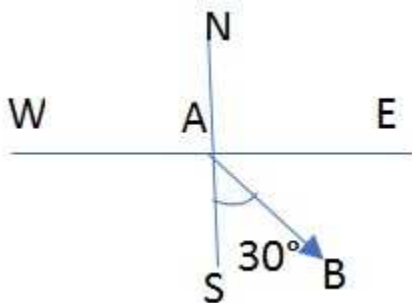
4. In a reduced bearing system, bearing is measured from:

- a) Nearest one (North or South)
- b) South
- c) West
- d) North

5. Prismatic Compass is based on the reduced bearing system.

- a) True
- b) False

6. The bearing of line AB as shown below is represented in reduced bearing as:



- a) N150°
- b) E60°S
- c) S30°
- d) S30°E

7. How many meridians are used in surveying?

- a) 6

- b) 8
- c) 3
- d) 5

8. _____ is a term used that prevents the needle from pointing to the magnetic North in a given locality.

- a) Local attraction
- b) Declination
- c) Deviation
- d) Local distraction

9. _____ line is the line drawn through points of the same declination.

- a) Polygonic
- b) Isogonic
- c) Syngonic
- d) Agonic

10. Which of the below is not a temporary adjustment of the prismatic compass?

- a) Centering
- b) Levelling
- c) Focusing prism
- d) Adjusting sight vane

11. How many types of variations in declination are there?

- a) 4
- b) 5
- c) 2
- d) 3

12. Prismatic compass is an instrument for measuring angles.

- a) True
- b) False

13. Which of the following is the most convenient and portable instrument for direct measurement of directions?

- a) Prismatic compass
- b) Surveyor's compass
- c) Theodolite
- d) Sextant

14. In prismatic compass needle is of edge bar type.

- a) True
- b) False

15. In which of the following compass needle does not act as an index?

- a) Prismatic compass

- b) Surveyor's compass
- c) Theodolite
- d) Sextant

16. Which of the following instruments can be used without a tripod?

- a) Prismatic compass
- b) Surveyor's compass
- c) Theodolite
- d) Sextant

17. In prismatic compass, graduations are in W.C.B system.

- a) True
- b) False

18. In which of the following compass graduations are engraved inverted?

- a) Prismatic compass
- b) Surveyor's compass
- c) Theodolite
- d) Sextant

19. In which of the following compass sighting and reading taking can be done simultaneously from one position of the observer?

- a) Prismatic compass
- b) Surveyor's compass
- c) Theodolite
- d) Sextant

20. Surveyor's compass is instrument for measuring angles.

- a) True
- b) False

21. Which of the following is not the most convenient and portable instrument for direct measurement of directions?

- a) Prismatic compass
- b) Surveyor's compass
- c) Theodolite
- d) Sextant

22. In surveyor's compass needle is of edge bar type.

- a) True
- b) False

23. In which of the following compass needle acts as an index?

- a) Prismatic compass
- b) Surveyor's compass
- c) Theodolite
- d) Sextant

24. In which of the following compass graduated card is attached to the box and not to the ring?

- a) Prismatic compass
- b) Surveyor's compass
- c) Theodolite
- d) Sextant

25. In surveyor's compass, graduations are in a Q.B system.

- a) True
- b) False

26. In which of the following compass graduations are engraved erect?

- a) Prismatic compass
- b) Surveyor's compass
- c) Theodolite
- d) Sextant

27. In which of the following compass sighting and reading taking cannot be done simultaneously from one position of the observer? a) Prismatic compass

- b) Surveyor's compass
- c) Theodolite
- d) Sextant

28. In a prismatic compass, the zero is marked on the

- a) North end
- b) South end
- c) East end
- d) West end

29. A triangle is said to be well conditioned when its angles lie between

- a) 30° and 120°
- b) 20° and 150°
- c) 15° and 135°
- d) 45° and 90°

30. In a surveyor's compass, the ring is graduated

- a) From 0° to 360°
- b) From 0° to 180°
- c) In quadrants 0° to 90°
- d) None

31. The angle of dip at a point on equator is

- a) 0°
- b) 45°
- c) 30°
- d) 90°

(ans : a)

32. In the WCB system, a line is said to be free from local attraction if the difference between the FB and BB is

- a) 0°
- b) 90°
- c) 180°
- d) 360°

33. A line joining points of zero declination is called

- a) Agonic line
- b) Isogonic line
- c) Isoclinic line
- d) Survey line

34. The horizontal angle between the true meridian and magnetic meridian is called a)

Dip

- b) Azimuth
- c) Declination
- d) None of above

35. If FB of line is zero degree, its BB is

- a) 0°
- b) 90°
- c) 180°

d) 360°

36. The BB of a line is $S 30^\circ W$, its FB is

- a) $N 30^\circ E$
- b) $N 30^\circ W$
- c) $S 30^\circ W$
- d) $S 30^\circ E$

37. The magnetic bearing of a line AB is 120° and the magnetic declination is $4^\circ E$, its true bearing is

- a) 116°
- b) 124°
- c) 120°
- d) 4°

38. The true bearing of a line is 60° and the magnetic declination is $3^\circ W$, its magnetic bearing is

- a) 60°
- b) 3°
- c) 63°
- d) 57°

39. The WCB of a line is 320° , its QB is

- a) $N 40^\circ W$
- b) $N 40^\circ E$
- c) $W 40^\circ N$
- d) $E 40^\circ N$

40. The sum of interior angles of a closed traverse is

- a) $(N - 4) 90^\circ$
- b) $(2N - 4) 90^\circ$
- c) $2(N - 4) 90^\circ$
- d) $(2N + 4) 90^\circ$

41. The direction of a survey line can either be established with relation to _____ a)
each other
b) main station
c) arrows
d) tie station
42. What is the direction of line relative to a given meridian?
a) Bearing of a line
b) Length of a line
c) Slope of a line
d) Reciprocal of slope of a line
43. Which line passes through true north and true south?
a) True Meridian
b) Magnetic Meridian
c) Arbitrary Meridian
d) Dip
44. Which meridian direction can be established with the help of a magnetic compass? a)
True Meridian
b) Magnetic Meridian
c) Arbitrary Meridian
d) All meridians
45. Which meridians are used to determine the relative positions of the lines in a small area? a)
True Meridian
b) Magnetic Meridian
c) Arbitrary Meridian
d) All meridians
46. What is the horizontal angle which it makes with the magnetic meridian through one of the
extremities of the line? a) True bearing
b) Magnetic bearing
c) Arbitrary bearing
d) Dip
47. What is the horizontal angle which it makes with the Arbitrary meridian through one of the
extremities of the line? a) True bearing

- b) Magnetic bearing
- c) Arbitrary bearing
- d) Dip

48. Convert $22^{\circ}30'$ whole circle bearings to quadrant bearings?

- a) $180 - 22^{\circ}30'$
- b) $22^{\circ}30'$
- c) $360 - 22^{\circ}30'$
- d) $270 - 22^{\circ}30'$

49. Convert $122^{\circ}30'$ whole circle bearings to quadrant bearings?

- a) $180 - 122^{\circ}30'$
- b) $122^{\circ}30'$
- c) $360 - 122^{\circ}30'$
- d) $270 - 122^{\circ}30'$

50. What is the horizontal angle which it makes with the true meridian through one of the extremities of the line? a) True bearing

- b) Magnetic bearing
- c) Arbitrary bearing
- d) Dip

UNIT 4 : LEVELLING

1. Which branch of surveying is used to find the elevations of given points with respect to given or assumed datum? a) Levelling
b) Contouring
c) Traversing
d) Plane table surveying

2. Levelling is a branch of surveying objects of which is to establish points at a given elevation or at different elevations with respect to given or assumed datum. a) True
b) False

3. Levelling deals with measurements in a _____
a) Horizontal plane
b) Inclined plane
c) Vertical plane
d) Both vertical and horizontal plane

4. _____ is defined as a curved surface which at each point is perpendicular to the direction of gravity at the point. a) Level surface
b) Level line
c) Horizontal plane
d) Datum

5. _____ is a line lying in a level surface.
a) Level line
b) Horizontal line
c) Datum line
d) Plumb line

6. Horizontal plane through a point is a plane tangential to the level surface at that point. a) True
b) False

7. Which line is the tangential to the level line at a point?
a) Datum line
b) Vertical line
c) Horizontal line
d) Plumb line

8. Which term is used for the surface to which elevations are referred? a)

- Level surface
- b) Level line
- c) Horizontal plane
- d) Datum

9. The elevations of points on or near the surface of the earth is its vertical distance above or below an arbitrary assumed level surface or datum. a) True

b) False

10. Which of the following is not a method of levelling?

- a) Barometric levelling
- b) Trigonometric levelling
- c) Spirit levelling
- d) Traverse levelling

11. Which of the following methods of levelling makes use of the phenomenon that difference in elevation between two points is proportional to the difference in atmospheric pressures at these points?

- a) Barometric levelling
- b) Trigonometric levelling
- c) Spirit levelling
- d) Traverse levelling

12. At a given point, the atmospheric pressure doesn't remain constant in the course of the day, even in the course of an hour. a) True

b) False

13. Which process of levelling in which the elevations of points are computed from the vertical angles and horizontal distances measured in the field?

- a) Barometric levelling
- b) Trigonometric levelling
- c) Spirit levelling
- d) Traverse levelling

14. Which of the following methods of levelling is a modified form of stadia levelling? a)

- Barometric levelling
- b) Trigonometric levelling
- c) Spirit levelling
- d) Traversing

15. Which type of levelling is done on the phenomenon, the difference in elevation between two points is proportional to the difference in atmospheric pressure at these points? a) trigonometric levelling

b) spirit levelling

c) barometric levelling

d) profile levelling

16. Which of the following is not a method of levelling?

a) Barometric levelling

b) Trigonometric levelling

c) Spirit levelling

d) Traverse levelling

17. Which of the following methods of levelling makes use of the phenomenon that difference in elevation between two points is proportional to the difference in atmospheric pressures at these points?

a) Barometric levelling

b) Trigonometric levelling

c) Spirit levelling

d) Traverse levelling

18. Which process of levelling in which the elevations of points are computed from the vertical angles and horizontal distances measured in the field?

a) Barometric levelling

b) Trigonometric levelling

c) Spirit levelling

d) Traverse levelling

19. The object of levelling is to determine

a) Level differences only

b) Elevations of stations

c) Level differences of elevations

d) Level differences and elevation

20. Leveling deals with distances in a

a) Vertical plane only

b) Horizontal plane only

- c) Oblique planes
- d) None of the above

21. A “level surface” is a

- a) Horizontal surface
- b) Vertical surface
- c) Curved surface
- d) Horizontal or curved surface

22. An example for level surface is

- a) Still water in a lake
- b) Sea level unaffected by tides
- c) A plane ground
- d) Both A and B

23. Which of the following is not a characteristic of level line

- a) It is Curved
- b) All points on a level line are at same elevation
- c) Every element of level line is perpendicular to the direction of quality
- d) All of the above

24. “Altitude” of a point is the vertical distance above

- a) Any reference datum
- b) Mean sea level
- c) Ground level
- d) None of above

25. At a point vertical angle is usually measured with respect to a

- a) Land surface
- b) Land line
- c) Horizontal surface
- d) Horizontal line

26. Pick up the incorrect statement of the following

- a) G.T.S (Great Trigonometrical Survey) Bench marks are most accurate

- b) G.T.S bench marks are correct to two decimal places
- c) indicated by a triangle
- d) All are correct

27. An altimeter is an instrument

- a) For determining Altitudes
- b) Based on barometric pressure differences
- c) Used for preliminary surveys
- d) All the above

28. Pick up the incorrect pair

- a) Direct leveling : Spirit level
- b) Trigonometric leveling : direct method
- c) Barometry : Pressure differences
- d) Hypsometer : Temperature differences

29. "Differential leveling"

- a) Involves more than one setting of instrument
- b) Resorted when two points are situated quite apart
- c) Also called compound levelling
- d) All the above

30. Which of the following does not represent the condition of adjustment?

- a) Adjustment of vertical axis
- b) Adjustment of level tube
- c) Adjustment of cross hair ring
- d) Adjustment of line of sight

31. Pick up the incorrect pair:

- a) Profile leveling : Longitudinal sections
- b) Check leveling : Check levels at the end of days' work
- c) Compound leveling : Difference in levels of two distant points
- d) Reciprocal leveling : To apply corrections to curvature and refraction

32. Pick up the incorrect of the following

- a) Definition of a telescope is its ability to produce a sharp image
- b) The power of a lens is reciprocal of its length in meters

c) Chromatic and spherical aberrations can be eliminated using compound lenses d) All the above

33. Pick up the incorrect statement of the following about internal focusing telescope

- a) Length of telescope is small
- b) It has better optical properties
- c) Better brightness of image
- d) There is less imbalance

34. The space between two lenses of “Ramsdens Eye piece”

- a) $(1/3)F$
- b) $(2/3)F$
- c) F
- d) $(3/4)F$

35. Dumpy level is used for _____

- a) Finding point to point distance
- b) Finding the elevation difference
- c) Finding the traverse area
- d) Finding the perimeter of area

36. The sensitivity of a bubble tube increases

- a) Increasing the radius
- b) Decreasing the viscosity of liquid
- c) Increasing length and dia of tube
- d) All of above

37. Pick up the correct statement of the following about “Dumpy level”

- a) Telescope is generally of internal focusing type
- b) Size is defined by the focal length of the object glass
- c) The line joining the point of intersection of the cross hairs and the optical center of the objective is called line of collimation
- d) All are correct

38. The most important requirement for leveling is that the

- a) Horizontal cross hair should lie in a plane perpendicular to the vertical axis
- b) Axis of bubble tube should be perpendicular to the vertical axis
- c) Line of sight should be parallel to the axis of bubble tube

d) None of above

39. Leveling of dumpy level is done to make

- a) The vertical axis truly vertical
- b) The line of sight truly horizontal
- c) The optical axis truly horizontal
- d) None of above

40. The following type of leveling cannot be done with a dumpy level

- a) Differential leveling
- b) Reciprocal leveling
- c) Trigonometric leveling
- d) Profile leveling

41. Which of the following does not indicate a principle line?

- a) Line of sight
- b) Vertical axis
- c) Horizontal axis
- d) Axis of level tube

42. On a turning point

- a) Only a fore sight is taken
- b) Only a back sight is taken
- c) Both F.S & B.S are taken
- d) An intermediate sight is taken

43. The number of divisions for one meter of an ordinary leveling staff are a)

100

- b) 200
- c) 400
- d) 1000

44. Height of instrument in leveling is the

- a) Height of telescope axis above the ground
- b) Elevation of line of sight with respect to a datum

- c) Elevation of line of sight with respect to M.S.L
- d) None of above

45. A fore sight is a sight taken on a point, which is

- a) Last point only
- b) Turning point only
- c) First point only
- d) Both turning and last points

46. The balancing of sights generally means

- a) B.S distance = F.S distance
- b) B.S distance = Intermediate sight distance
- c) F.S distance = Intermediate sight distance
- d) None of above

47. The elevation of a bench mark is +100.00. The Back sight take on a staff held vertically is 2.30 m. If the foresight taken as a point of 'A' is +2.45m. The R.L of 'A' is a) +100.15

- b) +99.85
- c) +102.45
- d) +102.30

48. The R.L of bench mark taken on roof of a tunnel is +200.00. The B.S taken on a staff held inverted is +1.500. If the F.S is taken on a staff held vertically at a point 'A' is +2.500, the R.L of A is

- a) +199.00
- b) -196.00
- c) +196.00
- d) +204.00

49. In collimation method there is a check on

- a) B.S and F.S only
- b) B.S and I.S only
- c) B.S only
- d) B.S, F.S and I.S

50. The rise and fall method provides arithmetic check on

- a) Back sights only
- b) Fore sight only
- c) Back sights and Fore sights
- d) Intermediate sights also

51. Which principle is used in the process of permanent adjustment of dumpy level? a)

Repetition

- b) Reiteration
- c) Recurring
- d) Reversion (ans ; d)

52. The adjustment of line of collimation is having most priority in permanent adjustments. a)

True

- b) False

53. Permanent adjustments are done at every time the instrument is setup. a)

True

- b) False

UNIT 5 : PLANE TABLE SURVEY

1. Which of the following methods can be useful in having an enlarged output?
a) Intersection
b) Resection
c) Traversing
d) Radiation

2. Which of the following methods is a widely used method of plane tabling?
a) Radiation
b) Intersection
c) Traversing
d) Resection

3. Which of the following can give the best output?
a) Traversing
b) Intersection
c) Resection
d) Radiation

4. Which of the following methods is more suitable in case of small distances?
a) Traversing
b) Radiation
c) Resection
d) Intersection

5. Which of the following methods is having a wider scope with the use of tacheometer?
a) Resection
b) Trisection
c) Intersection
d) Radiation

6. Which of the following is used to locate only details?
a) Radiation
b) Trisection
c) Resection
d) Traversing

7. Which of the following describes the usage of the traversing method?

- a) Locating points
- b) Survey line placement
- c) Measuring angles
- d) Measuring bearings

8. Which of the following is used for locating details of the station points? a)

- Radiation
- b) Intersection
- c) Trisection
- d) Traversing

9. Which of the following does not belong to the instruments of plane table? a)

- Spirit level
- b) Plumb bob
- c) Compass
- d) Theodolite

10. Plane tabling is _____ method of surveying.

- a) Graphical
- b) Analytical
- c) Mathematical
- d) None of the above

11. The principal of plane tabling is _____

- a) Trigonometry
- b) Similarity
- c) Contouring
- d) Parallelism

12. Alidade is used for _____

- a) Sighting
- b) Levelling
- c) Transferring point to ground
- d) Drawing lines

13. Orientation of table involves which among the following?

- a) Traversing
- b) Fore sighting
- c) Back sighting
- d) Measuring bearings

14. Which instrument is used for centering?

- a) U-fork with plumb bob
- b) Alidade
- c) Trough compass
- d) surveyor's compass

12. Which of the following indicates the correct set of alidade?

- a) Plain, reverse
- b) Complex, telescopic
- c) Plain, theodolite
- d) Plain, telescopic

13. What are the types of plane tables?

- a) Simple plane table
- b) Johnson plane table
- c) Coast survey table
- d) All of above

14. In which of the following cases, orientation by back sighting is used?

- a) When approximate levelling is required
- b) When second point is available for orientation
- c) When it is not possible to set instrument over station mark
- d) When speed is important than accuracy

15. The type of surveying suitable for magnetic areas is

- a) Plane table surveying
- b) Theodolite surveying
- c) Compass surveying
- d) All of the above

(ans : a)

16. In plane table surveying field observations and plotting proceed.

- a) One after another
- b) Proceed simultaneously
- c) Do not coexist
- d) None of the above

17. The instrument which is used in plane tabling for obtaining horizontal and vertical distances directly without resorting to chaining is known as

- a) Alidade
- b) Clinometer
- c) Telescopic alidade
- d) Tacheometer

18. The process of keeping the plane table into a fixed direction, so that a line representing a direction on the plane is parallel to its direction on the ground is called a) centering

- b) orientation
- c) levelling
- d) resection

19. The process of determining plotted position of the station occupied by the plane table by means of sights taken towards points of known location is called

- a) Resection
- b) Intersection
- c) Orientation
- d) None

20. Which is the type of plane tabling?

- a) Ranging
- b) Traversing
- c) Both A and B
- d) None of the above

21. _____ must be done when the plane table is set up more one station.

- a) Marking the north line

- b) Orientation
- c) Both A and B
- d) None of above

22. _____ method of plane tabling is suitable for locating inaccessible points. a)

Radiation

- b) Resection
- c) Intersection
- d) All of above

23. Pick up the incorrect pair

- a) Plumbing fork : Accurate centering
- b) Trough compass : Orientation
- c) Telescopic Alidade : Horizontal inclined sights
- d) Tracing paper : Two point problem

24. Which of following is not an instrument used in plane tabling?

- a) Alidade
- b) U - fork
- c) Trough compass
- d) None of above

25. What are advantages of plane tabling?

- a) Rapid method
- b) Can be used in all weather
- c) Re - plotting can be done easily
- d) All of above

26. Plotting inaccessible points on a plane table is done by

- a) Intersection
- b) Traversing
- c) Radiation
- d) All the above

27. To orient a plane table at P, with two accessible points 'A' and 'B', the method used is a)

Traversing

b) Intersection

c) Two-point problem

d) Three-point problem

28. _____ is used for sighting the objects and drawing the rays in plane table surveying.

a) Plain Alidade

b) Telescopic Alidade

c) Both A and B

d) None of above

29. Plane table survey is used for _____

a) Small to medium scale works

b) Plotting topographical maps

c) Filling in interior details of traverse

d) All of above

30. U fork is primarily used for

a) Centering the table

b) Transferring the ground point on to table

c) Both A and B

d) None of above

31. The methods used for locating the plane table stations are a)

Intersection

b) Traversing

c) Resection

d) Both 'B' & 'C'

32. In setting up a plane table at any station

- a) Leveling is done first
- b) Centering is done first
- c) Leveling and centering are done simultaneously
- d) Orientation is done first

33. Detailed plotting is generally done by

- a) Radiation
- b) Traversing
- c) Resection
- d) All of the above

34. Intersection method of detailed plotting is more suitable for

- a) Forests
- b) Urban areas
- c) hilly areas
- d) Plains

35. Plane table survey carries a lot of accessories with it which are likely to be lost. a)

True

- b) False
- c) Cannot say
- d) None of above

36. If accurate orientation of plane is to done in area plane to local attraction, it is done by a)

By back sighting

- b) By magnetic needle
- c) Both A and B
- d) None of these

37. Degree of precision depends on _____

- a) Quality of instrument

- b) Usage of the instrument
- c) Surveyor
- d) Type of work being done

38. In plane table _____ are adjustable/avoidable.

- a) Climatic errors
- b) Instrumental errors
- c) Personal errors
- d) None of above

39. In a magnetic area, which type of surveying can be employed?

- a) Traverse surveying
- b) Compass surveying
- c) Theodolite surveying
- d) Plane table surveying

40. When the difference in elevation between points is more, which of the following would be affected more?

- a) Points plotted
- b) Alidade position
- c) Horizontality of board
- d) Level of board

41. In plane table survey, an incorrect scale used by mistake is an example of _____ a)

Errors in plotting

- b) Instrumental error
 - c) Both A and B
 - d) None of above
- (ans: a)

42. Which of the following must be checked at every station?

- a) Values obtained
- b) Traverse area
- c) Points to be sighted
- d) Orientation of table

43. Which of the following can cause more damage while using a plane table for surveying? a)

Climatic changes

b) Instruments used

c) Sighting error

d) Inaccurate centering

44. Which of the following errors cannot be minimized in plan tabling ?

a) Error in instrument

b) Error in sighting

c) Error while plotting

d) Personal errors

45. Which of the following is/ are special methods of resection?

a) Back ray method

b) Two point problem

c) Three point problem

d) All of above

(and : d)

46. The operation of turning table so that all the lines on the paper are parallel to the corresponding lines on the ground, is called

a) levelling

b) centering

c) setting

d) orientation

47. The plane table surveying is

a) most suitable for preparing small-scale maps

b) less costly than a theodolite survey

c) particularly advantageous in magnetic area

d) all of the above

48. The plotting of small areas which can be commanded from a single station, is usually done on the plane table by the method of

a) radiation

b) intersection

c) traversing

d) resection

49. The method of intersection in plane tabling is commonly used for

- a) locating the distant and inaccessible points
- b) locating the broken boundaries
- c) locating the points which may be used subsequently as the instrument stations
- d) all of the above

50. The method of plane tabling commonly used for establishing the instrument stations only, is

- a) method of radiation
- b) method of intersection
- c) method of traversing
- d) method of resection

(ans ; d)

UNIT 6 : GPS SURVEYING

1. Which of the following can be affected by atmospheric path disturbances?
 - a) Modern GPS surveying
 - b) Conventional GPS
 - c) Absolute positioning
 - d) Resection method

2. Which among the following can be described as an application of pseudo ranging?
 - a) Computation of distance between satellite and user
 - b) Computation of distance between GPS antenna and satellite
 - c) Computation of distance between GPS antenna and user
 - d) Computation of distance between satellite and object

3. By using pseudo ranging method, two dimensional and three dimensional GPS positions can be located.
 - a) True
 - b) False

(ans ; b)

4. Which of the following error occurs due to atmospheric conditions?
 - a) Natural error
 - b) User error
 - c) Propagation error
 - d) Signal multipath error

5. Which of the following is not used in the tracking system?
 - a) Multiple frequency
 - b) Dual frequency
 - c) Single frequency
 - d) Military navigation

6. Which of the following doesn't belong to the relative positioning techniques?
 - a) Real-time kinematic technique
 - b) Viscous GPS technique
 - c) Kinematic GPS surveying technique
 - d) Differential GPS technique

7. Which of the following classes of positioning technique possess high precision? a) GPS

- b) Viscous technique
 - c) Real time technique
 - d) Kinematic technique
8. Which among the following indicates the correct set of static GPS surveying technology classification?
- a) Long and normal base lines
 - b) Medium and short baselines
 - c) Long and short baselines
 - d) Normal and short base lines
9. What will be the length of the base line in case of short baseline method of GPS surveying?
- a) Less than 50km
 - b) Greater than 50km
 - c) Less than 2km
 - d) Greater than 100km
10. Which of the following is considered as modern GPS technology? a) GIS
- b) GPS mode
 - c) Instantaneous mode
 - d) Kinematic positioning technique
11. Which one of the following statements is correct?
- a) The function of an information system is to improve ones ability to make decisions
 - b) The information system is the chain of operations
 - c) A map is a collection of stored, analysed data, its stored information is suitability used in making decisions
 - d) All the above
12. The normal altitude of GPS satellite is about
- a) 16, 200 km
 - b) 20, 200 km
 - c) 24, 400 km
 - d) 36, 100 km

13. Repetitive observations of the same area at equal interval of time, are useful to monitor the dynamic phenomena:

- a) Cloud evolution
- b) Vegetative cover
- c) Snow cover
- d) All of these

14. Orbital radius of GPS satellites is approximately:

- a) 15,200 km
- b) 26,600 km
- c) 18,400 km
- d) 36,000 km

15. The altitudinal distance of a geostationary satellite from the earth is about: a)

26, 000 km

- b) 30, 000 km
- c) 36, 000 km
- d) 44, 000 km

16. What is the full name of GPS?

- a) Global positioning system
- b) Global perception system
- c) Global perspective system
- d) None of them

17. _____ is a technique by which the location of any object, velocity, direction and time can be known precisely at any time i.e. during day and night, whether the object is on the ground, on the sea water surface or in the air.

- a) GAS
- b) GPS
- c) GIS
- d) GLS

18. GPS was invented by the _____

- a) ISTAR
- b) GSTAR

- c) NAVSTAR
- d) PAVSTAR

19. GPS system became operational in _____

- a) 1993
- b) 1995
- c) 1996
- d) 1994

20. GPS was invented by _____

- a) Roger L. Easton.
- b) Roger E. Liston.
- c) Roger N. Easton.
- d) Roger K. Easton.

21. The GPS is comprised of _____ segments:

- a) 1
- b) 2
- c) 3
- d) 4

22. Which segments are involved in the GPS?

- a) Space segment
- b) Control segment
- c) User segment
- d) All of them

23. The _____ on the ground tracks and maintains the satellites in the space.

- a) Space segment
- b) Control segment
- c) User segment
- d) All of them

24. The control segment consists of _____ dedicated ground antennas.

- a) 1

- b) 2
- c) 3
- d) 4

25. The control segment consists of _____ dedicated monitor stations.

- a) 2
- b) 4
- c) 6
- d) 8

26. The control segment consists of following:

- a) A master control station(MCS)
- b) An alternate master control station
- c) Four dedicated ground antennas
- d) All of them

27. The _____ is composed of hundreds of thousands of U.S. and allied military users and tens of millions of civil, commercial and scientific users of the standards positioning service.

- a) Space segment
- b) Control segment
- c) User segment
- d) All of them

28. GPS can work for _____ continuously

- a) day
- b) night
- c) 12 hours
- d) 24 hours

29. GPS cannot work if points are not inter visible.

- a) True
- b) False

30. Man power requirement is very _____ in GPS system.

- a) Huge
- b) Less
- c) Can't say
- d) None

31. A good GPS gives accuracy of about _____

- a) 5 mm
- b) 10 mm
- c) 15 mm
- d) 20 mm

32. Which type of GPS receivers has no screen for display?

- a) Type 1
- b) Type 2
- c) Type 3
- d) Type 4

33. _____ type of receiver can be connected to by means of a cable or Bluetooth in order to visualize the actual position of the GPS receiver.

- a) Type 1
- b) Type 2
- c) Type 3
- d) Type 4

34. _____ receivers have some extra features as a barometer, altimeter, electronic compass, radio transmitter/receiver etc.

- a) Type 1
- b) Type 2
- c) Type 3
- d) Type 4

35. Which type receivers contain display screen to display information like location, speed, direction, time, etc.?

- a) Type 1
- b) Type 2
- c) Type 3

d) Type 4

36. Which type of receivers use extra receivers and special antennas for higher accuracy?

- a) Type 1
- b) Type 2
- c) Type 3
- d) Type 4

37. Which type of receivers can store an enormous amount of in the field collected data, which can be treated later in the office?

- a) Type 1
- b) Type 2
- c) Type 3
- d) Type 4

38. _____ receiver is a dedicated single purpose GPS system used in cars with a build-in GPS receiver, using maps from the device manufacturer.

- a) Type 1
- b) Type 2
- c) Type 3
- d) Type 4

39. = receivers are in the form of small chips which can be fitted in the car or on the hand of child.

- a) Type 1
- b) Type 2
- c) Type 4
- d) Type 5

40. Which type of receiver can be used to track lost child?

- a) Type 1
- b) Type 2
- c) Type 4
- d) Type 5

41. Which of the following techniques are used in GPS measuring techniques?

- a) Static surveys
- b) Rapid static surveys
- c) Kinematic surveys
- d) All of them

42. One receiver is placed on a point whose co-ordinates are known accurately in WGS 84, this is known as the _____.

- a) Reference receiver
- b) Rover receiver
- c) Both A and B
- d) None

43. In GPS measuring techniques, the static survey technique is used for:

- a) Long base lines
- b) Geodetic networks
- c) Tectonic plate studies
- d) All of them

44. In _____, a reference point is chosen and one or more rovers operate with respect to it.

- a) Static surveys
- b) Rapid static surveys
- c) Kinematic surveys
- d) Real time Kinematic surveys

45. Rapid static survey technique is much _____ than the static surveys.

- a) Faster
- b) Slower
- c) Constant
- d) Equal

46. Which type of digital maps are used by GPS?

- a) Raster maps
- b) Vector maps

- c) Navistar maps
- d) Both A and B

47. How many types of digital maps are used by GPS? a) 1

- b) 2
- c) 3
- d) 4

48. _____ is a detailed and accurate graphic representation of cultural and physical features of the earth such as mountains, rivers, forests etc.

- a) Topographic maps
- b) street maps
- c) Navistar maps
- d) Both A and B

49. _____ is used for detail surveys and measuring many points in quick succession. a)

Static surveys

- b) Rapid static surveys
- c) Kinematic surveys
- d) Real time Kinematic surveys

50. 'Kinematic on fly' is a variation of the _____.

- a) Static surveys
- b) Rapid static surveys
- c) Kinematic surveys
- d) Real time Kinematic surveys