MAP READING

INTRODUCTION ON MAP READING

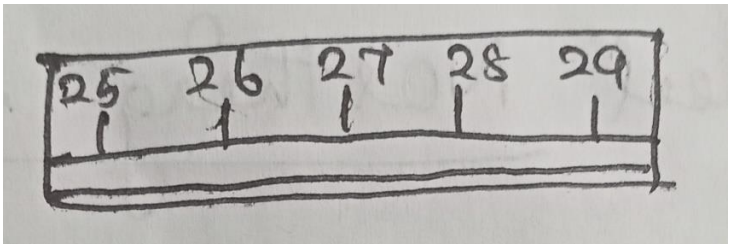
A. MAPS, CONVENTIONAL SIGNS, SCALE & GRID SYSTEMS

39. Definition of Map:

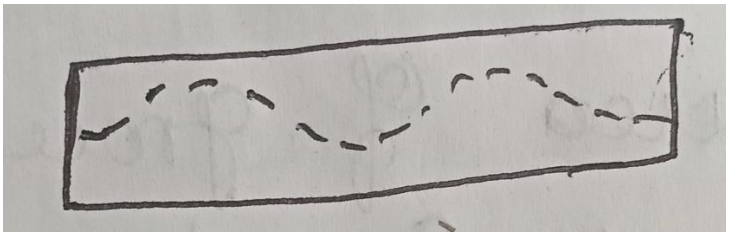
- ***A map represents selected natural and man – made features of the whole (or) part of the earth's surface on a sheet of a paper***.

40. Conventional Signs:

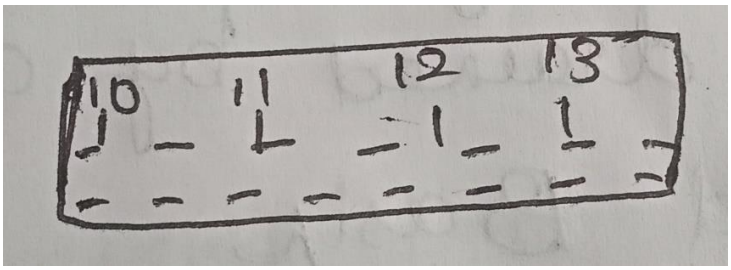
- Road – metalled with km – stone.



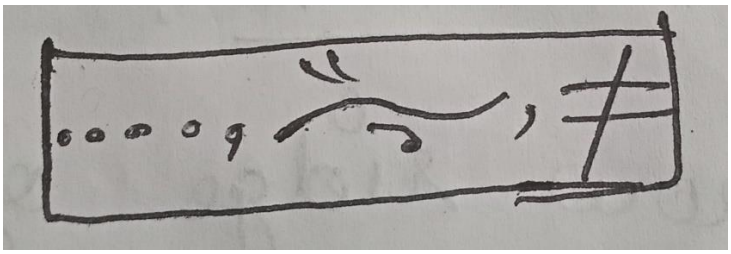
- Road – unmetalled with km – stone.



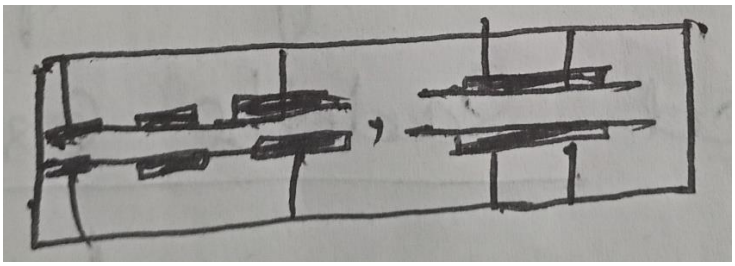
- Cart tract, Camel tract, mule path.



❖ Foot Path, road in bed of stream level crossing.



❖ Bridges with pier sand without, causeway, ford.



B. SCALES AND GRID SYSTEM

40. Scale Definition:

- ***Scale is the proportion which the distances between the two points on the map that relates to the distance two points on the ground***.

41. Methods of expressing a scale:

- ***There are two methods of expressing a scale.***
  In words : One inch on the map represents one mile on the ground.
  In fraction : 1 / 100000

42. The vertical lines are called ***Longitude***.

43. The horizontal lines are called ***Latitude***.

44. Combination of longitude and latitude lines are known as ***Grid lines***.

45. There are four types of six figures:

a) Four figure.
b) Six figure.
c) Eight figure.
d) Ten figure.

46. In map the black colour ***vertical lines*** are called Easting lines and black colour horizontal lines are called ***Northing lines***.

47. An area of ground surrounded by hills or the area drained by a river or its distributaries are called ***Basin***.

48. A narrow ridge of high land joining up to higher hills is called ***Saddle (or) Col***.

49. A highest part of hill (or) mountain range is called ***Crest***.

50. The ground which because of undulations (or) hills is not visible to the observer is called ***Dead Ground***.

51. A small isolated hill is called ***Knoll***.

52. A line along a hill or range of hill (or) mountains from which water flows in opposite directions is called ***Ridge***.

53. A ***table land***, an elevated region of considerable extend generally of same level.

54. A piece of high ground jutting out of range of hills into lower ground is called ***Spur***.

55. The line separating the water flowing in two different river systems, the edge of river basin is called ***Watershed***.

56. The angle formed by a line joining two points and the north and south line is called ***Bearing***.

57. Bearings are always measured in ***Clockwise*** direction.

58. A permanent mark usually cut into a wall recording exact height for future reference, is called ***Bench mark***.

59. The slope of a hill expressed as a fraction is called ***Gradient***.

60. A line drawn on the map joining up all points of equal height above sea level is called ***Contours***.

61. The difference between true north and magnetic north is called ***Magnetic variation***.

C. RELIEFS, CONTOURS AND GRADIENT

62. ***Relief*** means the shape of the ground in a vertical plane.

63. ***Contour*** is an imaginary line drawn on the map showing same height from mean sea level.

64. ***Slope*** means a surface of which one end (or) side is at a higher level than another.

D. CARDINAL POINTS & TYPES OF NORTH

65. What are the cardinal points?

- ***North, South, East and West are known as the cardinal points***.

66. Types of North:

- ***There are three types of north.***
  - ***TRUE NORTH – The direction of north pole from the observer.***
  - ***GRID NORTH – North as per the grid on the map.***
  - ***MAGNETIC NORTH – It is the point to which a magnetic needle points, when freely suspended.***

67. Grid Convergence;

- ***The angular difference between Grid and True north is called the Angle of Convergence (or) Grid Convergence***.

II. CONDUCT OF MAP READING

A. TYPES OF MAP READING

a. BEARING AND ITS CONVERSION TYPES:

68. Types of Bearing:

- ***GRID BEARING – Measured on the map from the Grid north by the help of a protractor.***
- ***MAGNETIC BEARING – Measured from Magnetic north by the Compass.***
- ***TRUE BEARING – Calculated by finding out the relation of True north and Grid north or Magnetic north***.

b. SERVICE PROTRACTOR AND ITS USES:

69. The ***service protractor "A" mark IV*** is an instrument used for plotting, measuring and bearing on the map.

70. The protractor is made of ***Cardboard (or) Ivories***.

71. Measurement of service protractor is ***6 inches long*** and ***2 inches wide***.

72. Uses of Protractor:

- ***The service protractor is an essential item for map reading.***
  - ***Plot and measure bearing on paper or on a map.***
  - ***Measure distance in inches / cm correct up to 1/100th.***

- ***Measure distance in yards, meters or miles on a map by using the appropriate scale.***
- ***For using the diagonal scale one must use an intermediate agent. Mark off the distance to be measured on the straight edge of a paper or by means of a divider and then put the paper or divider on the diagonal scale and measure***.

c. PRISMATIC COMPASS & ITS USES AND GPS:

73. Types of Compass:

- ***There are two types of Prismatic Compass.***

  - ***Dry Compass***
  - ***Liquid Compass***

74. How to take a Bearing:

a) Open the lid of the Compass.
b) Turn the prism casing over.
c) Put your thumb through the ring.
d) Put your forefinger underneath the compass and hold it to horizontal level.
e) Bring the prism up to the eye.
f) See through the prism via hairline to object.
g) ***Read the bearing***.

75***. Global Positioning System*** refers to a system of satellites and receivers that allows people and devices to pinpoint their precise location on the earth.

76. The first GPS satellite was launched in ***1974***.

77. GPS funded and controlled by the ***United States, Department of Defence***.

78. GPS is used by:

- ***Commonly used in day-to-day life by general public like travelling purposes, etc.***
- ***Fishermen and Hikers to navigate.***
- ***Armed forces, in built its equipment and used in battlefields***.

79. Two methods of setting a map:

- ***By compass.***
- ***By objects on the ground***.

80. Position of North can be discovered by following methods:

- ***Equal Altitude method.***
- ***By stars***.

81. Methods of finding own position on map:

- ***By resection method (or) compass method.***
- ***By inspection method***.

d. MAP TO GROUND, GROUND TO MAP:

82. To find out the details of map on ground is known as ***Map to Ground***.

83. What are the methods used to identify objects from map to ground?

a) Bearing and distance method.
b) Direction and distance method.
c) ***By estimation method***.

84. To find out an object indicated on ground on the map is called ***Ground to Map***.

85. ***Google map*** is a web mapping service developed by Google.

86. Google maps satellite view is a ***"Top – down"*** or ***"Bird eye"*** view.

87. Uses of Google maps:

- ***Google maps provide a route planner, allowing users to find available directions through driving, public transport, walking or biking.***
- ***Screen shot of Google maps with traffic option enabled traffic conditions.***
- ***Google offering traffic data as a coloured overlay on top of roads and motorways to represent the speed of traffic.***
- ***Crowd sourcing is used to obtain the GPS – determined locations of a large number of cell phone users, from which live traffic maps are produced.***

Types of Google maps:

- ***Indoor maps.***
- ***Google local guide.***
- ***Mobile apps.***

Applications:

- ***Google handwriting.***
- ***Trusted contacts.***
- ***Google trips.***
- ***Google arts and culture.***
- ***Chrome remote desktop.***
- ***Google opinion rewards.***
- ***Android auto.***
- ***Wall papers.***

---------- x ----------