

BAPATLA ENGINEERING COLLEGE
I/IV B.Tech, Introduction to Civil Engineering (18 CE 103)
Scheme of Evaluation

- 1.a) Environmental Engineering 1x10 = **10 M**
- b) Construction Managers, Landscape Architects, Surveyors, etc.
- c) Ventilation, protection from wind, separate interior spaces for convenience, etc.
- d) Factory Built Chimneys, High Temperature Plastic Chimneys & Vents.
- e) Water present to dissolve and transport the salts to the brick surface.
- f) Maps are drawn to a scale, allowing the reader to infer the actual sizes of, and distances between, depicted objects. scale generally works using a ratio of a distance on the map to the corresponding distance on the ground.
- g) Engineering map which shows the details of engineering works such as roads, railways, reservoirs, irrigation canals, etc.
- Weathered and eroded pre-existing rocks.
- h.
- i. weathered and eroded pre-existing rocks
- J. Surveying is the art of determining the relative positions of different objects on the surface of the earth by measuring the horizontal distances between them, and by preparing a map to any suitable scale.



Unit-I

2. History of Civil Engineering

10M

- It is difficult to determine the history of emergence and beginning of civil engineering, however, that the history of civil engineering is a mirror of the history of human beings on this earth.
 - Man used the old shelter caves to protect themselves of weather and harsh environment, and used a tree trunk to cross the river, which being the demonstration of ancient age civil engineering.
 - Civil Engineering has been an aspect of life since the beginnings of human existence. The earliest practices of Civil Engineering may have commenced between 4000 and 2000 BC in Ancient Egypt and Mesopotamia.
 - The construction of Pyramids in Egypt (circa 2700-2500 BC) might be considered the first instances of large structure constructions.
 - Around 2550 BC, Imhotep, the first documented engineer, built a famous stepped pyramid for King Djoser located at Saqqara Necropolis.
 - Other remarkable historical structures are Sennacherib's Aqueduct at Jerwan built in 691 BC; Li Ping's irrigation projects in China (around 220 BC);
 - Machu Picchu, Peru, built at around 1450, at the height of the Inca Empire is considered an engineering marvel.
 - In 1818, world's first engineering society, the Institution of Civil Engineers was founded in London, and in 1820 the eminent engineer Thomas Telford became its first president.
- 3. Civil engineers infrastructures development:** Civil engineers: play a major role in the infrastructures development of a country. All structures constructed in the past exhibit the path of civilization and current infrastructures development express the practices followed by civil engineers. Good surface communication links such as tar or concrete roads. Provision of water supply distribution system i.e. construction of water storage reservation or sumps, laying of underground pipes etc. Provision of a drainage system which may include construction of surface drains as subsurface drains for the disposal of wastewater. Supply of electrical power for which construction of transmission line towers, construction of electrical substations. Providing inland communications lines, i.e telephone lines etc.
- 10M**

Unit-II

4. Runways : Visual runways are used at small airstrips and are usually just a strip of grass, gravel, ice, asphalt, or concrete.

Non-precision instrument runways are often used at small- to medium-size airports. **5M**

Pipelines : Gathering Lines: These lines are 10-30 centimeters in diameter, and work to transport natural gas, crude oil, and natural gas liquids short distances. **5M**

Feeder Lines: Feeder lines move crude oil, natural gas, and natural gas liquids from storage tanks and processing facilities to transmission pipelines

5. Classification Of Buildings: Occupancy : Residential Buildings, Educational Facilities, Institution for care, Health Care Facilities, Business, Mercantile, Industrial Buildings, Storage Buildings, Assembly, Hazardous Buildings. **5M**

Unit-III

6.a) Site Selection For Residential Buildings 1. The site should be in fully developed area or in the area which has potential of development. 2. Good view of land scope such as hill, river, lake, etc. 3. Good transport facility such as railway, bus service for going to office, college, market, etc. 4. Civil services water supply main, drainage, electric lines. 5. Drainage problems- depression. 6. Building abundant light and air-neighbouring buildings. 7. Slope should be rising towards the front. 8. Ground water table of the site should not be very high or low. 9. Good foundation- reasonable depth. 10. To locate away from the busy commercial roads, busy areas 7 shops. 11. Should not be located- near workshops, factories-continuous noise. 12. Avoid- neighbourhood of qualities, brick kilns, lime kilns, dirty nulls which and not kept cleans. 13. Shape of plot should not be very irregular. 14. Social status of the people- equal social & friendly. 15. Orientation of the site also has some bearing on its selections. **5M**

6.b) Brick is building material used to make walls, pavements and other elements in masonry construction. Traditionally, the term brick referred to a unit composed of clay, but it is now used to denote any rectangular units laid in mortar.

1. It should have a rectangular shape, regular surface and red colored appearance.

2. It should conform in size to the specified dimensions (19 x 9 x 9 cm).

3. It should be properly burnt. This can be ascertained by holding two bricks freely, one in each hand, and striking them. A sharp metallic sound indicates good burning whereas a dull thud would indicate incomplete burning. 4. A good building brick should not absorb water more than 20 percent of its dry weight. Absorption should not exceed 25 percent in any case. 5. A good building brick should possess requisite compressive strength, which in no case should be less than 35 kg/cm². A rough test for the strength of the brick is to let it fall freely from a height of about one meter on to a hard floor. It should not break. 6. Brick should be hard enough so that it is not scratched by a finger nail. 7. A good brick has a uniform color and structure through its body. This can be checked by taking a brick from the lot and breaking it into two parts.

7.a) Following are different tests stones: Acid test, Attrition test, Crushing test, Crystalline test, Freezing and thawing test, Hardness Test, Impact test, Water absorption test, Microscopic Test, Smith's Test. **5M**

b) The properties that need to be considered by designers when specifying steel construction products are: Strength, Toughness, Ductility, Weldability, Durability. **5M**

Unit-IV

8.a) Object of surveying: The aim of surveying is to prepare a map to show the relative positions of the objects on the surface of the earth. **1M**

Uses of surveying: To prepare a topographical map which shows the hills, valleys, rivers, villages, towns, forests, etc. of a country. To prepare a cadastral map showing the boundaries of fields, houses and other properties. To prepare an engineering map which shows the details of engineering works such as roads, railways, reservoirs, irrigation canals, etc. To prepare a military map showing the road and railway communications with different parts of a country. Such a map also shows the different strategic points important for the defence of a country. To prepare a contour map and archaeological map including places where ancient relics exist. **4M**

8.b) R.F of correct scale 1 cm/ 40 m = 1/4000 1.5M
 Reading of wrong scale: 1/2000 1.5M
 True distance = (R.F of wrong scale/ R.F corrected scale)measure distance
 = 2x 468 =936 m 2M

9.a) Measuring Distances using Chain:

The following procedure is used when measuring a distance which does not exceed the total length of the chain

Step 1: Pegs are placed to mark the beginning and the end of the distance to be measured.

Step 2: The back man holds the zero point of the chain (or tape) at the centre of the starting peg. The front man drags his end of the chain (or tape) in the direction of the second peg. Before measuring, the chain (or tape) is pulled straight,

Any knots in the tape or entangled links in the chain result in errors in the measurement,

Step 3: When using a measuring tape, the distance between the two pegs can be read directly on the tape by the front man.

When using a chain, the number of links between the two pegs is counted. The total distance is equal to the number of links multiplied by the length of one link (20 cm). **5M**

9.b) Original scale= 1cm =10 m Or 1/10000

Shrinking factor =9.7/10 = 0.97 **1M**

Shrunk scale = Shrinking factor x Original scale = 0.97 x 1/10x1000 = 0.00097 **2M**

True area of the Survey = (R.F of wrong scale/ R.F corrected scale) x Measure distance
 10.32 sq. cm. **2M**

HOD -CE

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