ARYA College of Engineering (ACE)
(Affiliated to RTU | Approved by AICTE, New Delhi)
- SP-40, RIICO Industrial Area, Delhi Road, Kukas, Jaipur-302028 | Tel. Ph. 0141-2820700
- www.aryainstitutejpr.com
- Toll Free: 1800 102 1044

Department of Civil Engineering
IV Year VII Semester
7CE4-01: Transportation Engineering
Note: Each Assignment of Maximum marks10.All question carries equal marks.

ASSIGNMENT-I

Q1. What are the recommendations of Dr. M.R. Jayakar's committee for road development? How has this helped in road development in India?	BLT-1	CO-1
Q2. Describe the objective of Camber, Sight Distance and Types of sight distances. Discuss the factor on which the amount of camber to be provided depends. What is the recommended range of Camber and sight distance?	BLT-2	CO-1
Q3. How to Design horizontal alignments, Super elevation, and Widening of Pavements on horizontal Curves state the derivation expressions?	BLT-1	CO-1
Q4. Describe the transition Curves, Design of Vertical Alignments, and Gradients with a neat and clean sketch with good detailing.	BLT-3	CO-1
Q5. The speed of the overtaking and overtaken vehicles are 70 and 40 kmph, respectively on a two-way traffic road. If the acceleration of an overtaking vehicle is 0.99 m/sec^2 .Calculate safe overtaking sight distance.	BLT-4	CO-1

ASSIGNMENT-II

Q1. Calculate the total length of NH, SH, and MDR needed in a district as per the second 20-year road development plan. The data collected from the district are given below- Area of district= 10800 km^2 Developed and agricultural areas = 4100 km^2 Undeveloped area= 23002 km^2 <table><tr><td>Population range</td><td>Number of towns</td></tr><tr><td>< 500</td><td>450</td></tr><tr><td>500 – 1000</td><td>320</td></tr><tr><td>1000- 2000</td><td>120</td></tr><tr><td>2000 – 5000</td><td>110</td></tr><tr><td>5000 – 10000</td><td>35</td></tr><tr><td>10000 – 20000</td><td>20</td></tr><tr><td>20000 – 50000</td><td>10</td></tr><tr><td>50000 – 100000</td><td>6</td></tr><tr><td>>100000</td><td>2</td></tr></table>	BLT-4	CO-2
Q2. Describe the Testing Procedures of different highway materials.	BLT-2	CO-2
Q3. Describe the Standards and standard values relating to Soil and stone Aggregates.	BLT-2	CO-2
Q4. Explain the desirable properties of Bitumen and Tar, fly-ash/pond-ash. Compare the tar and bitumen.	BLT-3	CO-2

*BLT: BLT shows the **Bloom's taxonomy** levels.

ARYA College of Engineering (ACE)
(Affiliated to RTU | Approved by AICTE, New Delhi)
- SP-40, RIICO Industrial Area, Delhi Road,
Kukas, Jaipur-302028 | Tel. Ph. 0141-2820700
- www.aryainstitutejpr.com
- Toll Free: 1800 102 1044

Department of Civil Engineering
IV Year VII Semester
7CE4-01: Transportation Engineering
Note: Each Assignment of Maximum marks10.All question carries equal marks.

ASSIGNMENT-III

Q1. Describe the Testing Procedures of different highway materials.	BLT-2	CO-3
Q2. Describe the Standards and standard values relating to Soil and Stone Aggregates.	BLT-2	CO-3
Q3. Explain the desirable properties of Bitumen and Tar, fly-ash/pond-ash. Compare the tar and bitumen.	BLT-3	CO-3
Q4. Describe the different equipment used in road construction.	BLT-2	CO-3
Q5. Describe the specifications of the Compaction of different layers of bituminous roads.	BLT-2	CO-3

ASSIGNMENT-IV

Q1. Explain the Earth's roads and Stabilized roads.	BLT-2	CO-4
Q2. Specify the material required for the construction of WBM and WMM roads. What are the uses and limitations of WBM roads?	BLT-1	CO-4
Q3. Describe the difference between Bituminous roads and Concrete roads.	BLT-3	CO-4
Q4. Explain the different provisions of IRC 37.	BLT-2	CO-4
Q5. Explain the different provisions of IRC 58.	BLT-2	CO-4

ASSIGNMENT-V

Q1. Describe the uses of rigid and flexible pavements in Highway construction.	BLT-1	CO-5
Q2. Describe the Rail, Ballast, Sleeper and Fasteners.	BLT-1	CO-5
Q3. Explain the designing steps of runways.	BLT-2	CO-5
Q4. Describe the site selection criteria for the Airport.	BLT-1	CO-5
Q5. Describe the site selection criteria of the Harbor and different components of the harbour.	BLT-1	CO-5

*BLT: BLT shows the **Bloom's taxonomy** levels.

ARYA College of Engineering (ACE)

(Affiliated to RTU | Approved by AICTE, New Delhi)
- SP-40, RIICO Industrial Area, Delhi Road, Kukas, Jaipur-302028 | Tel. Ph. 0141-2820700
- www.aryainstitutejpr.com
- Toll Free: 1800 102 1044

Department of Civil Engineering
IV Year VII Semester
7AG6-60.2: Environmental Engineering and Disaster Management
Note: Each Assignment of Maximum marks10.All question carries equal marks.
ASSIGNMENT-I

Q1. What do you understand by water demand?	BLT-1	CO-1
Q2. Describe various methods of population forecasting.	BLT-2	CO-1
Q3. Explain the logistic curve method.	BLT-2	CO-1
Q4. Explain variation in demand.	BLT-2	CO-1
Q5. The populations of five decades from 1940 to 1980 are given below. Find out the population in 1990, 2000 and 2010 by using the decrease rate of growth method.	BLT-4	CO-1

decades	1940	1950	1960	1970	1980
population	25000	28000	32500	40000	45000

ASSIGNMENT-II

Q1. Explain the importance of a safe water supply system.	BLT-2	CO-2
Q2. Describe water requirements in urban & rural areas.	BLT-2	CO-2
Q3. Elaborate different sources of water supply.	BLT-2	CO-2
Q4. Explain the transportation system of water.	BLT-2	CO-2
Q5. Which factors are affecting the water requirements?	BLT-2	CO-2

ASSIGNMENT-III

Q1. What are the Indian standards for drinking water quality?	BLT-1	CO-3
Q2. What do you understand by sanitation?	BLT-1	CO-3
Q3. Describe the necessity of a drinking water treatment plant.	BLT-2	CO-3
Q4. Explain the introduction of the water treatment unit.	BLT-2	CO-3

ASSIGNMENT-IV

Q1. Explain the quantity and characteristics of domestic wastewater.	BLT-2	CO-4
Q2. Explain the disposal method of dilution.	BLT-2	CO-4
Q3. What is sewage sickness? How can it preventive measure?	BLT-1	CO-4
Q4. Determine the size of a circular sewer for a discharge of 500 litres per second half full. Assume S = 0.0001and N = 0.015.	BLT-4	CO-4
Q5. Discuss various types of sewer materials.	BLT-2	CO-4

*BLT: BLT shows the **Bloom's taxonomy** levels.

ARYA College of Engineering (ACE)
(Affiliated to RTU | Approved by AICTE, New Delhi)
• SP-40, RIICO Industrial Area, Delhi Road, Kukas, Jaipur-302028 | Tel. Ph. 0141-2820700
• www.aryainstitutejpr.com
• Toll Free: 1800 102 1044

Department of Civil Engineering
IV Year VII Semester
7AG6-60.2: Environmental Engineering and Disaster Management
Note: Each Assignment of Maximum marks10.All question carries equal marks
ASSIGNMENT-V

Q1. Define 'Solid waste' and write its classification.	BLT-1	CO-5
Q2. Define 'Ultimate disposal'.	BLT-1	CO-5
Q3. Describe various methods of disposal of solid waste.	BLT-2	CO-5
Q4. Define air pollution. Discuss various air pollutants and their sources.	BLT-1	CO-5
Q5. Enumerate the causes and impacts of flood disasters.	BLT-2	CO-5

*BLT: BLT shows the **Bloom's taxonomy** levels.

Department of Electrical Engineering
IV Year VII Semester

7EE 5-11: WIND AND SOLAR ENERGY SYSTEMS

Note: Each Assignment of Maximum marks10.All question carries equal marks.

ASSIGNMENT-I

1. What do you mean by cut-in speed, cut-out speed and rated speed of wind turbine?	BLT-1	CO-1
2. Write a short note on the difference between Induction generator and synchronous generator deployed in wind turbine?	BLT-2	CO-1
3. List the power electronic converters used in wind energy conversion. Also explain the converter control.	BLT-1	CO-1
4. Explain and draw the schematic diagram of Horizontal Axis and Vertical Axis Wind turbine	BLT-2	CO-1
5. Explain the Indian and Global Statistics.	BLT-2	CO-1

ASSIGNMENT-II

1. Draw schematic diagram and explain the different wind generator topologies: Induction Generator, Doubly-Fed Induction Generator, Permanent Magnet Synchronous Generators	BLT-2	CO-2
2. Explain the fixed and variable speed wind turbine.	BLT-3	CO-2
3. Describe double fed induction generator in detail.	BLT-2	CO-2
4. Write a short note on the difference between Induction generator and synchronous generator deployed in wind turbine?	BLT-1	CO-2
5. What is generator converter configuration in wind turbine. Why power converters are used in wind power generation?	BLT-2	CO-2

ASSIGNMENT-III

1. What is parabolic trough solar collector? Explain the working with near diagram.	BLT-2	CO-3
2. Estimate solar energy availability of a solar cell on horizontal and tilted surface.	BLT-5	CO-3
3. A single solar cell (10cm*10cm) produces a voltage of 0.5 V and a current upto 2.5 A. If the solar isolation is 800 w/m². Calculate the efficiency of the solar cell.	BLT-3	CO-3
4. What is a solar day? What is the difference between solar day and sidereal day?	BLT-2	CO-3
5. What is solar PV module and solar array? Draw V-I and P-V characteristics of solar module.	BLT-4	CO-3

*BLT: BLT shows the **Bloom's taxonomy** levels.

Department of Electrical Engineering

IV Year VII Semester

ARYA College of Engineering (ACE)
(Affiliated to RTU | Approved by AICTE, New Delhi)
SP-40, RIICO Industrial Area, Delhi Road,
Kukas, Jaipur-302028 | Tel. Ph. 0141-2820700
www.aryainstitutejpr.com
Toll Free: 1800 102 1044

7EE 5-11: WIND AND SOLAR ENERGY SYSTEMS

Note: Each Assignment of Maximum marks10.All question carries equal marks.

ASSIGNMENT-IV

1. Explain the principle of Maximum Power Point Tracking (MPPT) with proper diagram. Also write some MPPT algorithms.	BLT-2	CO-4
2. Explain construction and working of a solar cell.	BLT-2	CO-4
3. What is solar PV module and solar array? Draw V-I and P-V characteristics of solar module.	BLT-2	CO-4
4. What is the best solution for homes and business out of amorphous, monocrystalline and polycrystalline solar panels?	BLT-1	CO-4
5. Illustrate the converter control scheme for DC side (PV side) and AC side (grid side) of solar system in detail.	BLT-3	CO-4

ASSIGNMENT-V

1. What is hybrid and isolated operations of solar PV and wind systems?	BLT-1	CO-5
2. Explain the behaviour of solar PV and wind farm during grid disturbances.	BLT-2	CO-5
3. Write the names of most common types of power quality problems.	BLT-1	CO-5
4. What do you mean by fault ride through?	BLT-3	CO-5
5. Write applications of solar pond.	BLT-2	CO-5

*BLT: BLT shows the **Bloom's taxonomy** levels.