Hall Ticket Number:

CE324(CEEL06) (R20)

B.TECH. DEGREE EXAMINATION, SEPTEMBER -2024

Semester VI [Third Year] (Supplementary)

RAILWAY, AIRPORT & HARBOR ENGINEERING

Time: Three hours | Maximum Marks: 70

Answer Question No.1 compulsorily. (14 x 1 = 14)
Answer One Question from each unit. (4 x 14 = 56)

1. Answer the following:

(a)	List various elements of permanent way.	CO1
(b)	List out the types of rail sections.	CO1
(c)	Define coning of wheels.	CO1
(d)	Define pusher or helper gradient.	CO2
(e)	Define negative super elevation.	CO2
(f)	What is meant by cant deficiency?	CO2
(g)	Define Hanger.	CO3
(h)	Define windrose.	CO3
(i)	Define Calm period.	CO3
(j)	Classify harbours.	CO4
(k)	What is meant by the dry dock?	CO4
(l)	What are the various functions of the fender system?	CO4
(m)	Define dredging.	CO4
(n)	What are the functions of the lighthouse?	CO4

UNIT – I

2. (a) Explain the following: (7M) CO1
   (i) Functions of rails
   (ii) Requirements of rails
   (b) Define coning. Derive an equation for coning of wheels with a neat sketch. (7M) CO1

(OR)

3. (a) List the types of Rail Joints and explain them with the help of a neat sketch. (7M) CO1
   (b) What are the various types of rail defects? Explain in detail. (7M) CO1

UNIT – II

4. (a) Define super elevation and derive an equation for super elevation. (7M) CO2
   (b) What are station yards? Explain them in detail. (7M) CO2

(OR)

5. (a) A 6^0 degree curve branches off from a 4^0 main curve in an opposite direction in the layout of a M.G yard. If the speed on the branch line is restricted to 32 kmph, determine the main speed restriction on the main line. (7M) CO2
   (b) What are the objectives of transition curves? How can we compute the length of the transition curve? (7M) CO2

UNIT – III

6. (a) What are the factors to be considered for the site selection of an airport? (7M) CO3
   (b) What is the basic runway length? Explain the corrections to be applied for elevation, temperature and gradient. (7M) CO3

(OR)

7. (a) Explain in detail about various aircraft characteristics. (7M) CO3
   (b) Explain the LCN system of pavement design. (7M) CO3

UNIT – IV

8. (a) Define a Harbour. How are they classified? (7M) CO4
   (b) Explain different types of breakwater structures with suitable sketches. (7M) CO4

(OR)

9. (a) Draw a neat sketch of harbour indicating all components. (7M) CO4
   (b) Explain briefly various types of Dredgers. (7M) CO4

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Hall Ticket Number:

CE324(CEEL06) (R20)

B.TECH. DEGREE EXAMINATION, MAY-2024

Semester VI [Third Year] (Regular & Supplementary)

RAILWAY, AIRPORT & HARBOR ENGINEERING

Time: Three hours | Maximum Marks: 70

Answer Question No.1 compulsorily. (14 x 1 = 14)
Answer One Question from each unit. (4 x 14 = 56)

1. Answer the following:

(a)	Mention the importance of railways in India.	CO1
(b)	Define coning of wheels.	CO1
(c)	What is the purpose of welding of rails?	CO1
(d)	State the importance of sleepers.	CO2
(e)	Mention the use of fish plates.	CO2
(f)	What is the minimum size of ballast used for railway track?	CO2
(g)	Define gradient.	CO3
(h)	Classify railway station.	CO3
(i)	Define aircraft.	CO3
(j)	Mention the use of airport lighting.	CO4
(k)	Define approach zone.	CO4
(l)	State the purpose of wind rose diagram.	CO4
(m)	Mention the purpose of harbour.	CO4
(n)	Define dredging.	CO4

UNIT – I

2. (a)	Explain the development of railway systems in India.	(7M)	CO1
(b)	Draw a neat sketch way and list the functions of different components of permanent way.	(7M)	CO1

(OR)

3. (a) Sketch and discuss various rail sections in railway track. (7M) CO1
   (b) State and discuss functions and requirement of sleepers. (7M) CO1

UNIT – II

4. (a) Sketch and explain failure of fish plates. (7M) CO2
   (b) Classify ballast and explain renewal of ballast. (7M) CO2

(OR)

5. (a) Derive an expression to determine the super elevation. (7M) CO2
   (b) A branch line of eight degree curve diverges in opposite direction from broad gauge main line with five degree curve. The speed on the branch line is 30 km/hr. Calculate the super elevation and permissible speed on the main line. (7M) CO2

UNIT – III

6. (a) Explain the development of air transportation system in India. (7M) CO3
   (b) Sketch and explain airport layout. (7M) CO3

(OR)

7. (a) Describe zoning laws. (7M) CO3
   (b) The length of runway under standard conditions is 1620 m. The airport site has an elevation of 270 m; its reference temperature is 32.90°C. If the runway is to be constructed with an effective gradient of 0.20%. Determine the corrected runway length. (7M) CO3

UNIT – IV

8. (a) How harbors are classified? Explain Indian harbors with examples. (7M) CO4

   (b) Explain the significance and limitations of water transport. (7M) CO4

(OR)

9. (a) What are the types of navigational aids? Discuss the fixed navigation structures and floating navigational aids. (7M) CO4
   (b) Describe the components of a port and explain the functions of each component. (7M) CO4

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Hall Ticket Number:

CE324(CEEL06) (R20)

B.TECH. DEGREE EXAMINATION, NOVEMBER-2023

Semester VI [Third Year] (Supplementary)

RAILWAY, AIRPORT & HARBOR ENGINEERING

Time: Three hours | Maximum Marks: 70

Answer Question No.1 compulsorily. (14 x 1 = 14)
Answer One Question from each unit. (4 x 14 = 56)

1. Answer the following:

(a)	Define permanent way.	CO1
(b)	What are the various rail sections?	CO1
(c)	What is sleeper density?	CO1
(d)	Define gradients at station yards.	CO2
(e)	What is a junction station?	CO2
(f)	List out the objectives of superelevation.	CO2
(g)	List out the various imaginary surfaces.	CO3
(h)	What is meant by runway orientation?	CO3
(i)	Define taxiway.	CO3
(j)	Differentiate between Natural and Artificial harbours.	CO4
(k)	Differentiate between a port and a harbour.	CO4
(l)	What is a jetty?	CO4
(m)	Define breakwater.	CO4
(n)	What are transit sheds?	CO4

UNIT – I

2. (a) Compare railway and highway transportation. (7M) CO1
   (b) What is permanent way? Draw a neat sketch and explain the requirements of an ideal permanent way. (7M) CO1

(OR)

3. (a) Distinguish between various types of rail sections. (7M) CO1
   (b) Differentiate between various types of sleepers. (7M) CO1

UNIT – II

4. (a) What are the different types of Ballast? Explain the advantages and disadvantages. (7M) CO2
   (b) Explain the criteria for selection of a site for railway station. (7M) CO2

(OR)

5. (a) A 5^0 curve diverges from 3^0 main curves in the reverse direction in the layout of a B.G. yard. If the speed on the branch line is restricted to 35 kmph. Estimate the restricted speed on the main line. (7M) CO2
   (b) Define gradient. Explain various types of gradients. (7M) CO2

UNIT – III

6. (a) What is a wind rose diagram? Explain the different types of wind rose with a neat sketch. (7M) CO3
   (b) Explain the classification of obstruction. (7M) CO3

(OR)

7. (a) Discuss various components of an aeroplane with a neat sketch. (7M) CO3
   (b) Compute the corrected runway length for the basic runway length of 1600 m. If it is to be provided at an altitude of 450 m above MSL, the airport reference temperature is 33°C and the effective gradient is 2.0%. Apply the necessary checks. (7M) CO3

UNIT – IV

8. (a) What are the advantages and disadvantages of water transport? (7M) CO4
   (b) Explain the importance and different types of navigational aids. (7M) CO4

(OR)

9. (a) What are breakwaters? Explain the different types of breakwaters with sketches. (7M) CO4
   (b) Write a short note on (i) transition sheds and (ii) lighthouses. (7M) CO4

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Hall Ticket Number:

CE324(CEEL06) (R20)

B.TECH. DEGREE EXAMINATION, JULY-2023

Semester VI [Third Year] (Regular)

RAILWAY, AIRPORT & HARBOR ENGINEERING

Time: Three hours | Maximum Marks: 70

Answer Question No.1 compulsorily. (14 x 1 = 14)
Answer One Question from each unit. (4 x 14 = 56)

1. Answer the following:

(a)	Mention the importance of railways in India.	CO1
(b)	Define coning of wheels.	CO1
(c)	What is the purpose of welding of rails?	CO1
(d)	State the importance of sleepers.	CO2
(e)	Mention the use of fish plates.	CO2
(f)	What is the minimum size of ballast used for railway track?	CO2
(g)	Define gradient.	CO3
(h)	Classify railway station.	CO3
(i)	Define aircraft.	CO3
(j)	Mention the use of airport lighting.	CO4
(k)	Define approach zone.	CO4
(l)	State the purpose of wind rose diagram.	CO4
(m)	Mention the purpose of harbor.	CO4
(n)	Define dredging.	CO4

UNIT – I

2. (a)	Elucidate the advantages of railways over the other modes of transport.	(7M)	CO1
(b)	Draw a neat sketch of permanent way and list the functions of different components of permanent way.	(7M)	CO1

(OR)

3. (a)	Sketch and discuss various rail joints.	(7M)	CO1
(b)	Compare different types of sleepers.	(7M)	CO1

UNIT – II

4. (a) Describe in detail about plate laying techniques. (7M) CO2
   (b) List and explain functions and requirements of ballast. (7M) CO2

(OR)

5. (a) Classify yards. (7M) CO2
   (b) A branch line of eight degree curve diverges in opposite direction from a broad gauge main line with five degree curve. The speed on the branch line is 30 km/hr. Determine the super elevation and permissible speed on the main line. (7M) CO2

UNIT – III

6. (a) Sketch and explain aeroplane components. (7M) CO3
   (b) List the factors to be considered for the selection of site for a commercial airport. (7M) CO3

(OR)

7. (a) Classify airport obstructions. (7M) CO3
   (b) List and explain various runway corrections. (7M) CO3

UNIT – IV

8. (a) What is the function of a dry dock? Explain the working of a floating dry dock. (7M) CO4
   (b) Explain economics and advantages of water transportation. (7M) CO4

(OR)

9. (a) Discuss the factors to be considered while selecting a suitable site for the construction of a port. (7M) CO4
   (b) What are the components of a harbor? Draw neat sketches of the layout of an artificial harbour and road stead. (7M) CO4

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Hall Ticket Number:

CE314(CEEL06) (R20)

B.TECH. DEGREE EXAMINATION, MARCH-2023

Semester V [Third Year] (Regular)

RAILWAY, AIRPORT & HARBOR ENGINEERING

Time: Three hours | Maximum Marks: 70

Answer Question No.1 compulsorily. (14 x 1 = 14)
Answer One Question from each unit. (4 x 14 = 56)

1. Answer the following:

(a)	Mention the importance of railways in India.	CO1
(b)	Define coning of wheels.	CO1
(c)	What is the purpose of welding of rails?	CO1
(d)	State the importance of sleepers.	CO2
(e)	Mention the use of fish plates.	CO2
(f)	What is the minimum size of ballast used for railway track?	CO2
(g)	Define gradient.	CO3
(h)	Classify railway station.	CO3
(i)	Define aircraft.	CO3
(j)	Mention the use of airport lighting.	CO4
(k)	Define approach zone.	CO4
(l)	State the purpose of wind rose diagram.	CO4
(m)	Mention the purpose of harbour.	CO4
(n)	Define dredging.	CO4

UNIT – I

2. (a)	Elucidate the advantages of railways over the other modes of transport.	(7M)	CO1
(b)	Draw a neat sketch of way and list the functions of different components of permanent way.	(7M)	CO1

(OR)

3. (a) Sketch and discuss various rail joints. (7M) CO1
   (b) Compare different types of sleepers. (7M) CO1

UNIT – II

4. (a) Describe in detail about plate laying techniques. (7M) CO2
   (b) List and explain functions and requirements of ballast. (7M) CO2

(OR)

5. (a) Classify yards. (7M) CO2
   (b) A branch line of eight degree curve diverges in opposite direction from a broad gauge main line with five degree curve. The speed on the branch line is 30 km/hr. Determine the super elevation and permissible speed on the main line. (7M) CO2

UNIT – III

6. (a) Sketch and explain aeroplane components (7M) CO3
   (b) List the factors to be considered for the selection of site for a commercial airport. (7M) CO3

(OR)

7. (a) Classify airport obstructions. (7M) CO3
   (b) List and explain various runway corrections. (7M) CO3

UNIT – IV

8. (a) What is the function of a dry dock? Explain the working of a floating dry dock. (7M) CO4
   (b) Explain economics and advantages of water transportation. (7M) CO4

(OR)

9. (a) Discuss the factors to be considered while selecting a suitable site for the construction of a port. (7M) CO4

   (b) What are the components of a harbour? Draw neat sketches of the layout of an artificial harbour and roadstead. (7M) CO4

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