1. Which method is commonly used for rigid pavement design in India?

a) IRC method
b) AASHTO Method
c) PCA chart method
d) Fatigue analysis

Answer: a) IRC method

Explanation: The Indian Roads Congress (IRC) method is widely used for rigid pavement design in India. It provides guidelines and specifications tailored to Indian conditions.

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2. What is the primary purpose of fatigue analysis in rigid pavement design?

a) To determine the thickness of the pavement
b) To assess the pavement's resistance to repeated loading
c) To calculate the construction cost
d) To estimate the traffic volume

Answer: b) To assess the pavement's resistance to repeated loading

Explanation: Fatigue analysis evaluates how well a pavement can withstand repeated loading cycles without failure, which is crucial for ensuring its long-term durability under traffic loads.

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3. Which method utilizes a Principal Component Analysis (PCA) chart for rigid pavement design?

a) IRC method
b) Fatigue analysis
c) PCA chart method
d) AASHTO Method

Answer: c) PCA chart method

Explanation: The PCA chart method utilizes Principal Component Analysis to simplify the process of rigid pavement design by graphically representing design parameters.

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4. What does AASHTO stand for in the AASHTO Method for rigid pavement design?

a) American Association of State Highway and Transportation Officials
b) Asphalt Association for Sustainable Highways and Traffic Organization
c) Association of American Standards for Highway Transit Operations
d) Advanced Asphalt and Safety Highway Transportation Organization

Answer: a) American Association of State Highway and Transportation Officials

Explanation: The AASHTO Method for rigid pavement design is developed by the American Association of State Highway and Transportation Officials (AASHTO).

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5. In pavement joints, what is the primary function of dowel bars and tie bars?

a) To provide aesthetic appeal
b) To prevent water infiltration
c) To control cracking and improve load transfer
d) To enhance skid resistance

Answer: c) To control cracking and improve load transfer

Explanation: Dowel bars and tie bars are used in pavement joints to control cracking and improve load transfer between adjacent pavement slabs, ensuring better performance and longevity of the pavement structure.

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6. Which type of joint is used to accommodate temperature-induced expansion and contraction in rigid pavements?

a) Construction joint
b) Expansion joint
c) Isolation joint

d) Contraction joint

Answer: b) Expansion joint

Explanation: Expansion joints are designed to allow for the expansion and contraction of rigid pavements due to temperature variations, preventing the development of damaging stresses within the pavement structure.

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7. What is the purpose of filling and sealing joints in rigid pavements?

a) To enhance surface friction
b) To improve drainage
c) To prevent debris accumulation
d) To prevent water infiltration and debris accumulation

Answer: d) To prevent water infiltration and debris accumulation

Explanation: Filling and sealing joints in rigid pavements help prevent water infiltration and the accumulation of debris, which can weaken the pavement structure over time and lead to deterioration.

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8. Which type of joint is typically used to accommodate shrinkage and warping in rigid

pavements?

a) Construction joint
b) Expansion joint
c) Isolation joint
d) Contraction joint

Answer: d) Contraction joint

Explanation: Contraction joints are used to control the cracking caused by shrinkage and warping of rigid pavements, particularly in long, continuous sections.

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9. What is the purpose of temperature reinforcements in rigid pavements?

a) To improve skid resistance
b) To enhance aesthetic appeal
c) To resist thermal stresses
d) To increase load-bearing capacity

Answer: c) To resist thermal stresses

Explanation: Temperature reinforcements in rigid pavements are designed to resist the thermal stresses induced by temperature fluctuations, helping to minimize cracking and maintain pavement integrity.

10. Which analysis assesses the probability of a rigid pavement meeting its performance requirements over its design life?

a) Fatigue analysis
b) Reliability analysis
c) Sensitivity analysis
d) Life cycle cost analysis

Answer: b) Reliability analysis

Explanation: Reliability analysis evaluates the probability of a rigid pavement meeting its performance requirements over its design life, considering uncertainties in materials, loading, and other factors.

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