1. Which of the following is NOT a component part of a flexible pavement structure?
a) Subgrade
b) Base course
c) Concrete slab
d) Surface course

Answer: c) Concrete slab
Explanation: Flexible pavements typically consist of subgrade, base course, and surface course layers. Concrete slabs are typically associated with rigid pavements, not flexible pavements.

2. What is the primary function of the subgrade in flexible pavements?
a) Provide smoothness to the road surface
b) Resist the passage of water
c) Distribute traffic loads to the underlying soil
d) Enhance skid resistance

Answer: c) Distribute traffic loads to the underlying soil
Explanation: The subgrade layer in flexible pavements primarily serves to distribute traffic loads to the underlying soil, providing support to the pavement structure.

3. According to Boussinesq’s theory, stress distribution in flexible pavements can be approximated as:
a) Linear
b) Exponential
c) Parabolic
d) Hyperbolic

Answer: c) Parabolic
Explanation: Boussinesq's theory approximates stress distribution in flexible pavements as parabolic, with maximum stress occurring at the surface and decreasing with depth.

4. Burmister's two-layered theory of flexible pavement design focuses on:
a) Temperature differentials
b) Load distribution
c) Moisture content
d) Pavement roughness

Answer: b) Load distribution
Explanation: Burmister's two-layered theory is concerned with the distribution of loads through the pavement layers to the subgrade, considering the properties of both the surface and base layers.

5. Which method of design for flexible pavements involves the determination of the Group Index?
a) CBR method
b) Burmister's method
c) North Dakota cone method
d) Group index method

Answer: d) Group index method
Explanation: The Group Index method involves assigning numerical values to different soil properties to determine the suitability of the subgrade for pavement construction.

6. The CBR method for flexible pavement design is based on:

a) California Bearing Ratio
b) Concrete Base Reinforcement
c) Cementitious Bonding Ratio
d) Coefficient of Base Resilience

Answer: a) California Bearing Ratio
Explanation: The CBR method utilizes the California Bearing Ratio to assess the strength and bearing capacity of the subgrade soil for flexible pavement design.

7. Burmister's method for flexible pavement design focuses on:
a) Temperature effects on pavement materials
b) Structural integrity of pavement joints
c) Stress distribution within pavement layers
d) Pavement surface texture

Answer: c) Stress distribution within pavement layers
Explanation: Burmister's method is concerned with analyzing stress distribution within different layers of flexible pavements to ensure structural integrity and performance.

8. The North Dakota cone method is primarily used for:
a) Measuring soil compaction
b) Assessing pavement roughness
c) Determining asphalt mix design
d) Analyzing traffic load distribution

Answer: a) Measuring soil compaction
Explanation: The North Dakota cone method is a test used to measure the in-place density

and compaction of soils, particularly for assessing subgrade conditions in pavement design.

9. In flexible pavement design, what does the abbreviation CBR stand for?
a) Cement-Based Ratio
b) Coarse Bituminous Residue
c) California Bearing Ratio
d) Centralized Base Reinforcement

Answer: c) California Bearing Ratio
Explanation: CBR stands for California Bearing Ratio, which is a measure of the strength of a soil to support loads from pavement structures.

10. Which theory of flexible pavement design emphasizes the importance of layer thicknesses and material properties in load distribution?
a) Boussinesq's theory
b) Burmister's two-layered theory
c) North Dakota cone theory
d) Group index theory

Answer: b) Burmister's two-layered theory
Explanation: Burmister's two-layered theory considers the influence of layer thicknesses and material properties in distributing loads effectively through flexible pavement structures.