1. What is the primary purpose of temporary bridge superstructures?

a) To provide long-term transportation solutions
b) To withstand heavy military vehicles
c) To facilitate traffic during bridge construction or repair
d) To serve as permanent structures for pedestrian use

Answer: c) To facilitate traffic during bridge construction or repair

Explanation: Temporary bridge superstructures are designed to provide a temporary solution for vehicular or pedestrian traffic when a permanent bridge is under construction or repair. Once the construction or repair is completed, these structures are typically removed.

2. Which type of bridge is specifically designed for military use?

a) R.C.C. bridges
b) Pre-stressed concrete bridges
c) Steel bridges
d) Movable steel bridges

Answer: d) Movable steel bridges

Explanation: Movable steel bridges are often used in military applications due to their ability to be rapidly deployed and relocated, providing temporary crossing solutions for military operations.

3. What is a key characteristic of permanent bridges?

a) They are easily dismantled
b) They have a limited lifespan
c) They are designed for long-term use
d) They are typically made of temporary materials

Answer: c) They are designed for long-term use

Explanation: Permanent bridges are constructed to provide long-lasting transportation solutions, typically with a lifespan of several decades or more, and are made from durable materials such as concrete, steel, or a combination of both.

4. Which type of bridge utilizes reinforced concrete as its primary construction material?

a) R.C.C. bridges
b) Steel bridges
c) Pre-stressed concrete bridges
d) Movable steel bridges

Answer: a) R.C.C. bridges

Explanation: R.C.C. (Reinforced Concrete Cement) bridges utilize reinforced concrete as their primary construction material, providing strength and durability for long-term use.

5. What is a characteristic feature of pre-stressed concrete bridges?

a) They rely solely on the compressive strength of concrete
b) They are constructed without any reinforcement
c) They use tensioned steel tendons to impart compressive stresses

d) They are unsuitable for long-span applications

Answer: c) They use tensioned steel tendons to impart compressive stresses

Explanation: Pre-stressed concrete bridges utilize pre-tensioned or post-tensioned steel tendons to introduce compressive stresses into the concrete, enhancing its strength and durability.

6. Which material is commonly used in the construction of steel bridges?

a) Concrete
b) Wood
c) Steel
d) Brick

Answer: c) Steel

Explanation: Steel bridges are primarily constructed using steel, which offers high strength-to-weight ratio and allows for efficient fabrication and erection of bridge components.

7. What type of bridge is designed to accommodate changes in waterway traffic?

a) R.C.C. bridges
b) Pre-stressed concrete bridges
c) Steel bridges
d) Movable steel bridges

Answer: d) Movable steel bridges

Explanation: Movable steel bridges are specifically designed to allow for the movement or rotation of certain sections to accommodate changes in waterway traffic, such as the passage of ships or boats.

8. What are dead loads in the context of bridge engineering?

a) Loads due to moving vehicles
b) Loads due to temporary construction equipment
c) Permanent loads due to the weight of the bridge structure itself
d) Loads due to wind and temperature changes

Answer: c) Permanent loads due to the weight of the bridge structure itself

Explanation: Dead loads refer to the permanent loads imposed on a bridge structure due to its own weight, including the weight of the bridge deck, superstructure, substructure, and any fixed components.

9. What is the purpose of impact loads in bridge design?

a) To account for sudden changes in traffic patterns
b) To simulate the effects of earthquakes
c) To consider the dynamic effects of moving loads
d) To estimate the wind resistance of the bridge

Answer: c) To consider the dynamic effects of moving loads

Explanation: Impact loads are used in bridge design to account for the dynamic effects induced by moving vehicles, such as the acceleration, braking, and swaying of vehicles as

they traverse the bridge.

10. Which factor is considered in the design of wind load for bridges?

a) The weight of the bridge structure
b) The speed and direction of prevailing winds
c) The temperature variation
d) The density of traffic

Answer: b) The speed and direction of prevailing winds

Explanation: Wind load for bridges is determined by considering factors such as the speed and direction of prevailing winds, as well as the shape and aerodynamic characteristics of the bridge structure.

11. How does temperature variation affect bridges?

a) It has no significant impact on bridge structures
b) It causes expansion and contraction, leading to stress
c) It increases the load-carrying capacity of the bridge
d) It accelerates corrosion of steel components

Answer: b) It causes expansion and contraction, leading to stress

Explanation: Temperature variation causes the expansion and contraction of bridge materials, leading to thermal stresses that must be considered in the design and maintenance of bridge structures.

12. What is the purpose of footways on bridges?

a) To provide space for vehicular traffic
b) To accommodate pedestrians and cyclists
c) To support utilities such as water and gas lines
d) To serve as emergency escape routes

Answer: b) To accommodate pedestrians and cyclists

Explanation: Footways on bridges are designated pathways for pedestrians and cyclists, providing safe passage across the bridge separate from vehicular traffic lanes.

13. What is the function of kerbs on bridges?

a) To provide structural support to the bridge deck
b) To prevent vehicles from veering off the roadway
c) To enhance the aesthetic appeal of the bridge
d) To facilitate drainage of rainwater

Answer: b) To prevent vehicles from veering off the roadway

Explanation: Kerbs on bridges serve as barriers to prevent vehicles from inadvertently leaving the roadway, enhancing safety for both motorists and pedestrians.

14. Which component of a bridge is responsible for protecting users from falling off the edge?

a) Traffic lanes
b) Footways

c) Railing
d) Parapet

Answer: d) Parapet

Explanation: Parapets are protective barriers or walls located along the edges of bridges, providing a barrier to prevent users from falling off the sides.

15. What type of load is induced by the longitudinal movement of vehicles on a bridge?

a) Dead load
b) Live load
c) Wind load
d) Impact load

Answer: b) Live load

Explanation: The longitudinal movement of vehicles on a bridge induces live loads, which are temporary loads imposed by moving vehicles and fluctuate in magnitude and distribution.