



Fill in the Blanks on Pavement Design

1. The process of determining the thickness and composition of pavement layers is called _____ **design**.

Answer: Pavement

2. The main purpose of pavement design is to provide a safe and _____ **riding surface**.

Answer: comfortable

3. Pavement design mainly depends on traffic load and _____ **conditions**.

Answer: soil

4. The lowest layer of pavement is called _____.

Answer: Subgrade

5. The layer placed above subgrade is called _____.

Answer: Sub-base

6. The layer that provides major load distribution in pavement is called the _____ **course**.

Answer: Base

7. The top layer of pavement that comes in contact with traffic is called the _____ **course**.

Answer: Surface

8. Flexible pavement is mainly designed using _____ **theory**.

Answer: layered

9. Rigid pavement design is based on the strength of _____ **concrete**.

Answer: cement

10. The test used to determine the strength of subgrade soil is the _____ **test**.

Answer: CBR

11. CBR stands for _____ **Bearing Ratio**.

Answer: California

12. The design life of a pavement is the expected period during which the pavement remains _____.

Answer: serviceable

13. The load applied by vehicles on pavement is called _____ **load**.

Answer: wheel

14. The repeated application of wheel loads causes _____ **failure** in pavements.

Answer: fatigue

15. The deformation of pavement surface along wheel paths is called _____.

Answer: rutting

16. The cracking pattern caused by fatigue in flexible pavement is called _____ **cracking**.

Answer: alligator

17. The thickness of pavement layers is decided based on traffic and _____ **strength**.

Answer: subgrade

18. IRC stands for _____ **Roads Congress.**

Answer: Indian

19. The method used for flexible pavement thickness design in India is based on _____ **guidelines.**

Answer: IRC

20. The material used as a binder in flexible pavement is _____.

Answer: bitumen

21. The main component of rigid pavement is _____ **concrete.**

Answer: cement

22. The ability of pavement to resist traffic loads is called _____.

Answer: strength

23. The process of increasing density of pavement materials is called _____.

Answer: compaction

Multiple Choice Questions (MCQs) on Pavement Design

1. Pavement design is the process of determining:

- A) Road alignment only
- B) Traffic signals
- C) **Thickness and composition of pavement layers**
- D) Bridge dimensions

Answer: C

2. The lowest layer of a pavement structure is:

- A) Surface course
- B) Base course

- C) Sub-base
- D) **Subgrade**

Answer: D

3. The topmost layer of pavement is called:

- A) Subgrade
- B) Sub-base
- C) **Surface/Wearing course**
- D) Soil layer

Answer: C

4. Flexible pavement mainly uses:

- A) Cement concrete
- B) Steel
- C) **Bitumen and aggregates**
- D) Bricks

Answer: C

5. Rigid pavement is mainly made of:

- A) Bitumen
- B) Gravel
- C) **Cement concrete**
- D) Soil

Answer: C

6. The strength of subgrade soil is determined by:

- A) Marshall test
- B) Abrasion test
- C) **CBR test**
- D) Ductility test

Answer: C

7. CBR stands for:

- A) Concrete Bearing Ratio
- B) **California Bearing Ratio**
- C) Central Base Ratio
- D) Cement Base Rating

Answer: B

8. The design of flexible pavement in India is generally based on:

- A) AASHTO only
- B) **IRC guidelines**
- C) IS code only
- D) ASTM only

Answer: B

9. The main function of the base course is to:

- A) Provide road markings
- B) **Distribute wheel loads**
- C) Drain water only
- D) Reduce traffic

Answer: B

10. The repeated loading of vehicles causes:

- A) Settlement only
- B) **Fatigue failure**
- C) Expansion
- D) Color change

Answer: B

11. The depression formed in wheel paths due to traffic loads is called:

- A) Cracking
- B) Bleeding
- C) **Rutting**
- D) Pothole

Answer: C

12. Alligator cracking in flexible pavement occurs due to:

- A) Drainage failure only
- B) **Fatigue failure**
- C) Temperature rise only
- D) Poor markings

Answer: B

13. The major load-carrying layer in flexible pavement is:

- A) Surface course
- B) **Base course**
- C) Shoulder
- D) Median

Answer: B

14. The thickness of pavement depends mainly on:

- A) Road color
- B) Traffic load and subgrade strength
- C) Number of signs
- D) Weather only

Answer: B

15. The material used as a binder in flexible pavement is:

- A) Cement
- B) Sand
- C) **Bitumen**
- D) Water

Answer: C

16. Rigid pavement distributes load by:

- A) Aggregate contact only
- B) **Slab action**
- C) Soil friction
- D) Bitumen bonding

Answer: B

17. The expected period during which pavement performs satisfactorily is called:

- A) Construction period
- B) **Design life**
- C) Loading period
- D) Repair period

Answer: B

18. Pavement drainage is important because water:

- A) Increases strength always
- B) **Reduces pavement performance**
- C) Improves compaction
- D) Increases friction

Answer: B

19. The process of increasing density of pavement materials is:

- A) Mixing
- B) Grading
- C) **Compaction**
- D) Crushing

Answer: C

20. The test used for bitumen mix design is:

- A) CBR test
- B) **Marshall test**
- C) Plate load test
- D) Sieve test

Answer: B

21. A pavement consisting of flexible and rigid layers is called:

- A) Flexible pavement
- B) Rigid pavement
- C) **Composite pavement**
- D) Gravel pavement

Answer: C

22. Wheel load repetitions are expressed as:

- A) Speed
- B) Density
- C) **Traffic loading**
- D) Gradient

Answer: C