

Ballast and Formation

Q.1 Minimum depth of ballast for BG track is

- (a) 20 cm (b) 15 cm
(c) 25 cm (d) 30 cm

Q.2 Boxing of ballast is done

- (a) under rails
(b) at the rails
(c) in between two rails
(d) in between two sleepers

Q.3 Best ballast contains stones varying in size from

- (a) 1.5 cm to 3 cm (b) 2 cm to 4 cm
(c) 2 cm to 5 cm (d) 2.5 cm to 6 cm

Q.4 The sleeper density is $M + 7$ for 13 m rails, the minimum depth of ballast under wooden sleepers (25 cm $\times$ 13 cm) is

- (a) 15 cm (b) 20 cm
(c) 25 cm (d) 30 cm

Q.5 For even distribution of load throughout the ballast, load dispersion is assumed as

- (a) 30° to the vertical (b) 45° to the vertical
(c) 60° to the vertical (d) None of these

Q.6 If w is width of sleeper, s is sleeper spacing and d is depth of ballast then

- (a) $d = \frac{s-w}{2}$ (b) $d = \frac{s-w}{3}$
(c) $d = \frac{s-w}{4}$ (d) $d = \frac{s-w}{5}$

Q.7 Pick up the correct statement from the following.

- (a) An extra width of 7.5 cm ballast is provided on outside a curve if track is laid with short welded rails
(b) An extra width of 7.5 cm ballast is provided on outside a curve sharper than 3° on B.G. and M.G. tracks

- (c) An extra width of 15 cm ballast is provided on each shoulder if track is laid with welded rails
(d) All the above

Q.8 Match List-I with List-II and select the correct answer using the codes given below the lists:

List-I

- A. Wire claw
B. Jim crow
C. Beater
D. Mallet

List-II

1. To clean the ballast
2. To pack the ballast under sleeper
3. To bend the rails
4. To sound the sleeper for packing

Codes:

- | | A | B | C | D |
|-----|---|---|---|---|
| (a) | 1 | 3 | 2 | 4 |
| (b) | 1 | 4 | 3 | 2 |
| (c) | 2 | 1 | 3 | 4 |
| (d) | 2 | 3 | 1 | 4 |

Q.9 Match List-I (Defect) with List-II (Cause) and select the correct answer using the codes given below the lists:

List-I

- A. Crushed head
B. Split head
C. Horizontal
D. Battered ends

List-II

1. Excessive gap and loose fish plates
2. Manufacturing defect
3. Skidding of wheel fissures
4. Insufficient ballast packing under the joint sleeper

Codes:

- | | A | B | C | D |
|-----|---|---|---|---|
| (a) | 2 | 3 | 4 | 1 |
| (b) | 3 | 2 | 4 | 1 |
| (c) | 2 | 3 | 4 | 1 |
| (d) | 1 | 4 | 2 | 3 |

Q.10 Match List-I (Ballast portion) with List-II (Function) and select the correct answer using the codes given below the lists:

List-I

- A. Ballast cushion
B. Shoulder ballast
C. Crib ballast
D. Extra ballast

List-II

1. Stability against centrifugal forces
2. Provides resistance to the longitudinal track movement
3. Provides resistance to the lateral movement of the track
4. For distribution of load on the curve formation

Codes:

- | | A | B | C | D |
|-----|---|---|---|---|
| (a) | 1 | 2 | 3 | 4 |
| (b) | 2 | 1 | 3 | 4 |
| (c) | 4 | 3 | 2 | 1 |
| (d) | 3 | 4 | 2 | 1 |

Q.11 Which of the following statements regarding ballast materials are correct?

1. Brick ballast has poor drainage characteristics.
2. Coal ash is not used as ballast with steel or cast iron sleepers

3. Gravel ballast gives better performance on soft formation.
4. Sand ballast causes excessive wear on top of rail.

Select the correct answer using the codes given below:

- (a) 1 and 2
(b) 1 and 4
(c) 1 and 3
(d) 2, 3 and 4

Q.12 Factors governing the sleeper density are

1. axle load and speed
2. type of section of rails
3. type of ballast and ballast cushion
4. type of sleeper

The correct answer is

- (a) 1, 2 and 3
(b) 1, 2 and 4
(c) 2, 3 and 4
(d) 1, 2, 3 and 4

Q.13 Consider the following statements

1. Process of ramming the ballast underneath the sleeper is called packing
2. Lateral stability of the track depends on the ballast
3. Loose ballast between two adjacent sleepers is called crib ballast

The correct statements is/are

- (a) both 1 and 3
(b) only 2
(c) only 3
(d) 1, 2 and 3

Answers Ballast and Formation

1. (c) 2. (b) 3. (c) 4. (b) 5. (b) 6. (a) 7. (d) 8. (a) 9. (b) 10. (c)
11. (d) 12. (d) 13. (d)