

**DEPARTMENT OF CIVIL ENGINEERING**  
**GOVERNMENT POLYTECHNIC ,BALASORE**  
**SUBJECT-RAILWAY & BRIDGE ENGINEERING**  
**SEMESTER -5<sup>TH</sup> SEM (CIVIL ENGG.)**

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**QUESTION BANK**

**SHORT QUESTIONS:-**

1. State bridge engineering?
2. Differentiate between skew alignment and square alignment of bridge.
3. Define gauge of railway .
4. Mention different types of gauges?
5. What is super elevation?
6. What is the maximum value of super elevation provided in a track as per railway board?
7. Classify different types of bridge?
8. Define water way.
9. What is creep of rail?
10. Define cant deficiency.
11. Write down about heel block?
12. What is fish plate?
13. Define spikes.
14. Define permanent way with diagram.
15. Write down the different types of rail joints?
16. What is buckling of rails?
17. Write down the Dicken's and Ryve's formula for calculation of flood discharge.
18. What is distance block?
19. What is wing wall?
20. Define afflux.
21. Define free board?
22. Define sleeper density.
23. Write down the uses of coffer dam?
24. Distinguish between bridge and culvert.
25. What is ballast?
26. Mention different types of IRC Bridge loading.
27. Define parapet wall of bridge.
28. State general principle of design of bridge foundation.
29. What is coning of wheel?
30. Explain the tilting of well foundation.

31. What is boxing?
32. What is ballast crib?
33. What are the two types of switches normally used in railways point and crossing?
34. What do you mean by linear waterway?
35. What do you understand D.T.M.?
36. What do you mean by grade compensation on curve?
37. What is rail failure?
38. Mention different types of movable bridge.
39. Define cross drainage.
40. What do you mean by throw of switch?
41. Write down the types of rail section used in our country.
42. What is sand piling?
43. Write down the different types of crossing.
44. Write the causes of failure of embankment.
45. What is suspension bridge?

#### LONG QUESTIONS:-

1. Write the advantages of railway.
2. Describe the methods of welding of rails.
3. What is bridge engineering and briefly explain the types of bridge.
4. Explain efflux with Marrimum's formula and Molesworth's formula.
5. What is wing walls ? Explain its types.
6. Mention the function of ballast and state the requirements of good ballast.
7. Briefly explain the various types of cause way.
8. Write down the requirement of bridge briefly.
9. What are the characteristics of an ideal bridge site?
10. What are the different types bridge foundation ? Describe raft foundation with neat sketch.
11. Explain the functions of component of permanent way with leveling sketch?
12. What is pier? Describe its type.
13. Explain various types of crossing in use on Indian railways.
14. Classify Indian railways based on route, traffic and permissible speed on the routes.
15. If a 8 degree track diverges from main curve of 5 degree in an opposite direction in the layout of a B.G. yard, calculate the super elevation and the speed on the branch line, if the maximum speed permitted on the main line is 45 km.ph.
16. Explain the functions and requirements of sleepers.
17. Explain well foundation.
18. What are the traffic requirements of highway bridge ?
19. Describe briefly about the selection of gauge.
20. Classify and discuss briefly classification of steel and concrete bridges.
21. Describe the components of a bridge with neat sketch.

22. What is turnout? Draw a neat line diagram of right hand and left hand turnout and show their component parts.
23. On a B.G. 3 degree curve, the "equilibrium cant" is to be provided for a speed of 70kmph (i) calculate the value of equilibrium cant (ii) allowing a maximum cant deficiency, what would be the maximum permissible speed on the track?
24. Describe the various stages of investigation for bridge.
25. Explain various types of crossing in use on Indian railway.
26. What maintenance of tracks is necessary? Describe how maintenance of top surface of rails can be done.
27. List the requirements of an ideal rail joint.
28. Describe the railway boards classification based on importance of route traffic carried.
29. Explain briefly the types of piers.
30. Discuss the theories of creep.
31. Write down about the followings (a) super elevation (b) cross drainage works (c) coffer dam (d) culvert.
32. What are the advantages and disadvantages of different sleepers?

-----ALL THE BEST-----