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**5th Sem / Civil, Constr. Mgmt., Civil Engg  
(Spl Highway Engg)**

**Subject:- Railways, Bridges and Tunnels**

Time : 3Hrs. M.M. : 100

**SECTION-A**

**Note:** Multiple choice questions. All questions are compulsory (10x1=10)

- Q.1 The side slope of embankment for a railway track is generally taken as \_\_\_\_\_  
a) 1:1                  b) 2:1  
c) 1.5:1              d) 1:2
- Q.2 The clear gauge distance between two rails of narrow gauge is \_\_\_\_\_  
a) 1000 mm            b) 662 mm  
c) 676 mm            d) 762 mm
- Q.3 The wing walls constructed at  $45^{\circ}$  to the abutments are known as \_\_\_\_\_  
a) Straight wing wall    b) Splayed wing well  
c) Return wing wall     d) Inclined Wing Wall
- Q.4 The intermediate supports of a bridge super structure are known as \_\_\_\_\_  
a) piers                b) Abutments  
c) Foundation          d) None of these
- Q.5 Bearings are provided in the bridges to allow free movement of the \_\_\_\_\_ without any difficulty.  
a) Girder                b) Piers  
c) Abutment            d) End supports

- Q.6 Drifters can be used to drill \_\_\_\_\_  
a) Only up holes  
b) Horizontal and up holes  
c) Only down holes  
d) Horizontal, down and up holes
- Q.7 Which of the following lining material is useful for shield driven tunnels in sub aqueous region?  
a) Stone masonry        b) Cast iron  
c) Timber                d) Cement concrete
- Q.8 The permanent drainage in a tunnel system is affected by \_\_\_\_\_  
a) Nature of tunnel     b) Type of soil  
c) Type of lining        d) All of these
- Q.9 The suitable tunneling method used for laying under-ground sewer is \_\_\_\_\_  
a) Army method          b) Needle beam method  
c) Italian method        d) German method
- Q.10 Propulsion method of ventilation is also known as \_\_\_\_\_  
a) Circulation Method    b) Exhausting method  
c) Blowing Method        d) None of the above

**SECTION-B**  
**Note:** Objective type questions. All questions are compulsory. (10x1=10)

- Q.11 The railways provided at elevated portion, above the ground surface are called \_\_\_\_\_ (Surface railwayss/ Elevated railways)
- Q.12 An outward slope of 1:20 to the head of wheels of rolling stock is termed as ( coning of wheels / Tilting of rails)

- Q.13 The angle between the running faces of point rail and splice rail at a crossing is known as \_\_\_\_\_ (Angle of crossing / Toe of crossing)
- Q.14 For deciding the \_\_\_\_\_ of well foundation grip length must be considered as per IRC recommendation. (Width/ Depth)
- Q.15 The suitable pitching is to be provided to the \_\_\_\_\_ near bridges. (Deck slab / Embankment)
- Q.16 Drift method of tunneling is used to construct tunnels in \_\_\_\_\_ (Rocks / Loose soil)
- Q.17 Removal of loose rock fragments and hammering off projecting pointed rock is known as \_\_\_\_\_ (Mucking / Scaling)
- Q.18 Circular section of tunnel is \_\_\_\_\_ for placement of concrete lining. (Suitable / Not Suitable)
- Q.19 The art to keep the tunnels \_\_\_\_\_ during and after the construction operations is called drainage of tunnels. (Free from water / full of water)
- Q.20 Orange lights are usually found at the beginning of the tunnel, called the \_\_\_\_\_ (Threshold zone / Dark zone)

### **SECTION-C**

- Note:** Short answer type questions. Attempt any twelve questions out of fifteen questions. (12x5=60)
- Q.21 Write the various factors influencing the railway route and describe any one of them.
- Q.22 Providing the uniform system of gauge in railway track; is always advantageous to a country, describe the reasons for this.
- Q.23 Write down the functions of rail fastenings.
- Q.24 Write the requirements (any five) for material to be good ballast.

- Q.25 Describe the working of “Diamond crossing” with a neat sketch.
- Q.26 Write the various advantages of maintenance of a railway track.
- Q.27 Write a short note on “Requirements of Drainage System” in railway tracks.
- Q.28 Write the various points of differences between a bridge and a culvert.
- Q.29 Write the disadvantages of ROB.
- Q.30 Write down the classification of bridges according to their structural form.
- Q.31 Describe the problems arise during the sinking of a well foundation.
- Q.32 Write down the functions of pier's provided in a bridge.
- Q.33 Describe the working of fixed plate bearings, used in bridges.
- Q.34 Write the various points to be taken into consideration during the “Inspection of Bridges” required for their maintenance.
- Q.35 write a short note on ventilation of tunnels.

### **SECTION-D**

- Note:** Long answer type questions. Attempt any two questions out of three questions. (2x10=20)
- Q.36 Enlist the various types of sleepers and explain any one of them along with its five advantages and disadvantages.
- Q.37 a) Describe the purpose of providing the yards in railways stations.  
b) Explain the working of abutments with splayed wing walls.
- Q.38 Explain the functions of various components of a bridge.