

**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**

**Scheme for Valuation/Answer Key**

*Scheme of evaluation (marks in brackets) and answers of problems/key*

**SEVENTH SEMESTER B.TECH DEGREE EXAMINATION (S), MAY 2019**

**Course Code: CE407**

**Course Name: TRANSPORTATION ENGINEERING - II**

Max. Marks: 100

Duration: 3 Hours

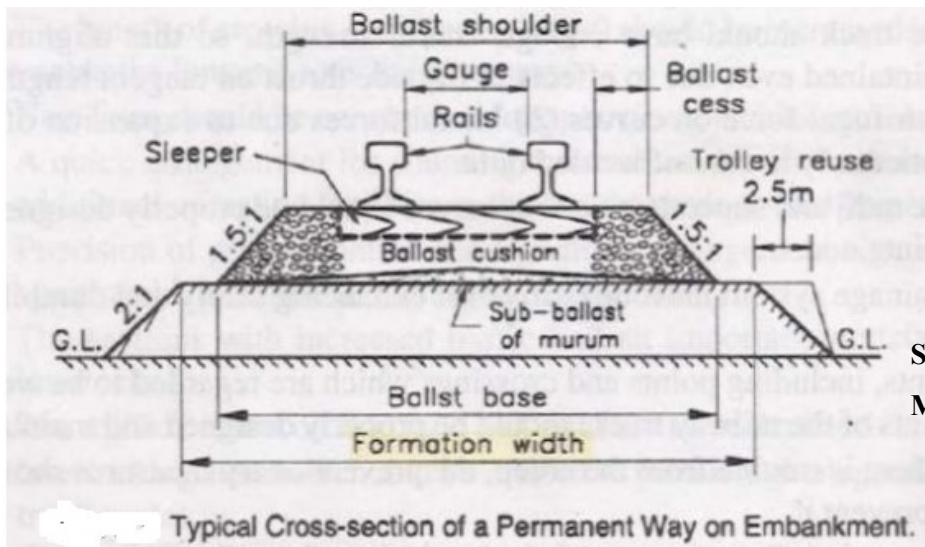
**PART A**

*Answer any two full questions, each carries 15 marks.*

Marks

1 (a)

(5)



Sketching- 3 marks

Marking parts-2 marks

Functions of ballast

- Transfer load to subgrade
- Hold the sleeper
- Imparts degree of elasticity

**Five points (one mark each)**

(b)

- Provides easy means of maintaining correct level
- Good drained foundation

(10)

Requirements

- Withstand hard-packing
- Should not make the track dusty
- Should allow drainage
- Should offer resistance to abrasion
- Retain its position laterally
- Should not produce chemical action
- Material should be workable

**Any Five points (one mark each)**

- 2 (a) Explain coning of wheel with figure – 2marks (5)  
Necessity
- At straight section – 1.5marks
  - At curved section – 1.5 marks
- (b) Step 1  $e = 7.6$  cm (3 marks), Step 2 cant deficiency = 7.6cm (1 mark), Step 3  $e$  for main track = 0 cm (2 mark), Step 4 Negative cant = 0cm (1 mark), permissible speed  $V = 35$ km.p.h. (3 marks) (10)
- 3 (a) Definition – 2marks , any 4 objectives- 2marks (4)
- (b) Double headed ( definition+ figure+ merits)-2marks (6)  
Bull headed ( definition+ figure+ merits)-2marks  
Flat footed ( definition+ figure+ merits)-2marks
- (c) Explain any 5 reasons with explanation (  $1*5=5$ ) (5)

**PART B**

*Answer any two full questions, each carries 15 marks.*

- 4 a) Drawing the figure showing the positions of various signals for a junction of two main line and two branch lines with a siding (5)
- b) Definition – 2 marks (10)  
Types – 2 marks  
Functions of Marshalling yard – 3 marks  
Design considerations – 2 marks; Figure – 1 mark
- 5 a) Equations – 2 marks (5)  
 $ST = 13.91$ m (1.5 marks),  $OL = 70.89$ m (1.5marks)
- b) Listing out types of signals – 4 marks (10)  
Semaphore signal sketch – 3 marks  
Features and working Principle – 3 marks
- 6 a) Daily maintenance (2), Periodic maintenance (2) (4)
- b) Feature + working Principle – 1.5marks + sketch – 0.5 mark (6)  
(each item 2 mark \* 3type = 6marks)
- c) Through Packing Scissors Packing Explanation (1.5 mark each. Total = 3 marks) (5)  
Differences – 2 marks

**PART C**

*Answer any two full questions, each carries 20 marks.*

- 7 a) Harbours of refuge, Commercial harbours, Fishery harbours, Military (10)



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- harbours, Marina harbours (2X5=10)
- b) For drawing the neat diagram and markings-2 marks (10)  
For writing the procedure-8marks
- 8 a) Definition of bulk head ( 3) (10)  
Shield Method – figure (2marks) mark the parts(2 marks) description and working (3marks)
- b) Explain dry dock(2) (10)  
List 4 types (2)  
Each type with sketch (3 marks each \*2 = 6marks)
- 9 a) Requirements of a harbour – Any 5 points (1X5=5) (5)
- b) (i) Spring and Neap Tide (iii)Littoral Drift (iv) Tidal Bore (v)offshore moorings – each 2.5 marks (10)
- c) Ship characteristics that affect the harbour design- 4 points – 5 marks (5)

