R09

Code: 9A01707

B.Tech IV Year I Semester (R09) Regular & Supplementary Examinations December 2015

RAILWAYS, DOCKS & HARBOR ENGINEERING

(Civil Engineering)

Time: 3 hours Max. Marks: 70

Answer any FIVE questions
All questions carry equal marks

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1 (a) Draw a cross section of a permanent way in embankment and briefly state the basic function of various components of a railway track.
(b) With a neat sketch, list the advantages of coning of wheels.

2 (a) Explain the following terms:
(i) Grade compensation on curves.
(ii) Negative cant.
(b) Explain the maximum permissible train load that can be pulled by a locomotive having 4 pairs of driving wheels carrying an axle load of 22 tonnes each. The train has to run at a speed of 90 kmph on a straight B.G track. Calculate the speed reduction if the train has to climb on a 1:175 gradient.

3 (a) What are the factors affecting site selection of a railway station?
(b) What is the purpose of providing marshalling yards? What are the factors affecting the design of marshalling yard?

4 (a) Explain various shapes of tunnel with neat sketches.
(b) What are the objectives of tunnel lining? Mention the different materials used in tunnel lining.

5 (a) Differentiate between port and harbor.
(b) What considerations are taken in selecting the location of a harbor?

6 (a) What are the components of a harbor? Draw neat sketches of the layout of an artificial harbor and road stead.
(b) What are the functions of break water and docks? Enlist the types of components.

7 (a) What is a jetty and how does it differ from wharf?
(b) Distinguish between:
(i) Jetty and fender.
(ii) Flexible and rigid dolphin.

8 (a) Define dredging. Explain the reason for its adoption. How dredged materials are disposed off?
(b) What are the equipments required for maintenance of:
(i) Lock gates.
(ii) Hydraulic and elector mains.
(iii) Timber piles.
(iv) Buildings.

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