MODEL QUESTION PAPER

FIFTH SEMESTER B.E. DEGREE EXAMINATION

SUB: RAILWAYS, HARBOURS, TUNNELING AND AIRPORT ENGINEERING

SUB CODE: 15CV552 (CBCS scheme)

Time: 3 hrs **Max Marks: 80**

Note: Answer FIVE full questions, choosing one full question from each module

MODULE-1

1 (a) What do you understand by a permanent way? Mention the requirements of an ideal permanent way. (8 Marks)

(b) What is creep of rail? Explain briefly the causes, effects and prevention of creep. (8 Marks)

OR

2 (a) What are the requirements of a good ballast? Mention the different types of ballast used in permanent way. (8 Marks)

(b) A 5 degree curve diverges from a 3 degree main curve in reverse direction in the layout of a B.G yard. If the speed on branch line is restricted to 35 kmph, determine the restricted speed on the main line. (8 Marks)

MODULE-2

3 (a) what are the functions of a railway station? Discuss the various requirements of a railway station. (8Marks)

(b) Explain briefly the different types of station yards. With a neat sketch, explain the functioning of a marshalling yard. (8 Marks)

OR

4 (a) Explain the necessity of maintaining railway track. List the various items of maintenance. (8 Marks)

(b) Why it is necessary to provide adequate drainage facilities for a railway track? Mention the requirements of a good drainage system. (8 Marks)

MODULE-3

5 (a) Explain the components of a harbor. Give neat sketches of the layouts of an artificial harbor and road shed. (8 Marks)

(b) With a neat sketch explain needle beam method of tunneling in soft soils. (8 Marks)

OR

6 (a) Explain with a neat sketch the layout and components of an artificial harbor. (8 Marks)

(b) Write short notes on i) tunnel lining ii) tunnel drainage. (8 Marks)

MODULE-4

7 (a) list the various elements of an airport and explain them with a neat sketch. (8 Marks)

(b) Explain the various factors considered in selection of an airport site. (8 Marks)

OR

8 (a) What are the components of an ideal airport layout? Sketch typical layout of an airport showing essential components. (8 Marks)

(b) Describe any four major elements influencing the planning of airports. (8 Marks)

MODULE-5

9 (a) Explain the procedure for orienting runway using wind rose diagram of type I. (8 Marks)

(b) Determine the turning radius of taxiway for a subsonic aircraft of the following characteristics.The coefficient of friction is 0.13 and taxiway width is 22.5 M. (8 Marks)

a. Wheel base = 15.85 M
b. Wheel tread = 6.05 M
c. Turning speed = 40 Kmph

OR

10 (a) Explain the various types of airport marking. (8 Marks)

(b) An airport is planned at an elevation of 380 m above MSL. The monthly mean of maximum and average daily temperatures for the hottest month at the site are 40 degree and 28 degree centigrade respectively. The effective gradient is 0.18%. Determine the length of the runway required at the proposed site if the basic runway length is 1900m. (8Marks)