Reg. No.

MANIPAL INSTITUTE OF TECHNOLOGY
MANIPAL
A Constituent Institution of Manipal University

V SEMESTER B.TECH. (AUTOMOBILE ENGINEERING)
END SEMESTER EXAMINATIONS, NOV/DEC 2017

SUBJECT: RAILWAY ENGINEERING [AAE 4030]
REVISED CREDIT SYSTEM
(27/12/2017)

Time: 3 Hours   MAX. MARKS: 50

1A.	Define 'creep of rail'. What are its effects?	**(03)**
1B.	With a neat sketch explain scissors crossover	**(03)**
1C.	List and explain the different types of signaling system	**(04)**
2A.	A BG branch line track takes off as a contrary flexure through a 1 in 12 turnout from a main line track of a 3° curvature. Due to the turnout, the maximum permissible speed on the branch line is 30 km/h. Calculate the negative superelevation to be provided on the branch line track and the maximum permissible speed on the main line track (when it takes off from a straight track).	**(04)**
2B.	Explain the necessity and effects of the coning of wheels	**(03)**
2C.	Explain the Requirements of an Ideal transition curve	**(03)**
3A.	Describe various measures adopted to reduce creep. Which portions of the track are more susceptible to creep?	**(03)**
3B.	List the requirements of an Ideal Transition Curve	**(03)**
3C.	List out the various gauges prevailing in India with their gauge widths. What factors govern the selection of a suitable gauge? Discuss.	**(04)**
4A.	Sketch a typical diamond crossing and label all its components.	**(02)**
4B.	With a neat sketch explain the three throw switch	**(03)**
4C.	Explain the functions and Requirements of Sleepers	**(05)**
5A.	Name the different types of track fittings. Name the different types of spikes generally used and draw a sketch of any one of them.	**(05)**
5B.	Briefly describe the normal and special measures adopted to ensure the stability of railway embankments.	**(05)**