

BIRLA INSTITUTE OF TECHNOLOGY AND SCIENCE, PILANI

Second Semester 2016-2017

Comprehensive Exam (Close Book)

CE G520 Infrastructure Planning and Management

Date: 13th May 2017

Time: 3.00– 6.00 PM

Maximum Marks: 80

Answer to all the questions

1. In the water distribution system, 10 water pipes have been in service for 3 years. During this period 3 of the pipes have failed. Calculate the failure rate and MTBF? [4]
2. If the infrastructure system design calls for MTBF of 2000 and MTTR of 3. Then what is the projected inherent availability of the system? [2]
3. The total number of lane km in data set is 201. If in the year 7, number of lane km falling to PCR 60 is 1.4 and cumulative number of lane km that reached PCR 60 at this age is 2.8 km. Find the conditional probability $P_{(7)}$. [3]
4. Discuss the existing planning process at panchayat level? [5]
5. Explain the maintenance management system process [8]
6. Define the terms:
 - MTTR
 - MDT
 - MTBF
 - Availability
 - Utility[2x5]
7. Differentiate between
 - Projection and prediction, support your answer with example? [2]
 - Objective and constraint [2]
 - Financial and economic evaluation [4]

8. Fill in the blanks

- RSL that is year old is exactly the average service life
- is the period in years over which building, component or subsystem provided adequate performance
- is a act or process of accurately depicting the form, features and character of a property as it appears at a particular period and time.
- is a act or process of applying measures necessary to sustain the existing form, integrity and materials of a historic property
- is a technique to assess the sensitivity of the viability of a project to uncertainty associated with specific parameters used in project evaluation.

[5]

9. Enlist eight quality management principles.

[4]

10. What is the purpose of Goal articulation, Design of alternatives and Plan testing in rational planning process.

[6]

11. Explain the typical infrastructure forecasting process.

[10]

12. Write a note on social impact assessment techniques.

[5]

13. What are the corrupt practices that distort the report content.

[10]