

BIRLA INSTITUTE OF TECHNOLOGY & SCIENCE, PILANI (RAJ.)

CE G520
Date: 10.3.2018

Infrastructure Planning and Management
Mid-Semester Test

Duration: 90 MTS
MM: 75

Q.1 Write short notes on (max. 20 lines each):

- (a) Infrastructure Planning in India (12th five year plan)
- (b) What is GDP and how it is related to Infrastructure development
- (c) Sustainability

(15)

Q.2 It is proposed to have rooftop rainwater harvesting at a village in Rajasthan. The project is to provide drinking water to all villagers. For the purpose, it is decided to build tanks at household, colony and village level. Household and colony tanks to be connected by top 1/3rd perforated pipelines so the overflow water from these tanks and surface runoff water flows to village tank which can be used for irrigation and cattle drinking water purposes. Colony tanks are connected to rooftop of schools, and other public buildings. A land is marked to grow the crops so that the generated revenues can be used to make the scheme sustainable. A well reputed institute was engaged to develop the scheme in scientific way and engineering design can be implemented. For adoption the scheme by villagers, cultural and social aspects were incorporated in the scheme. A social entrepreneur was encouraged to take care the scheme for next 25 years. Make suitable assumptions and write down the goals and objectives of the scheme. Make a value tree to solve the drinking water problem with given data/ conditions. Appropriately (with justifications) assign the weights to choose the alternatives.

Hint: think about other possible alternatives, may be costly, or otherwise.

(20)

Q.3 For the appropriate infrastructure planning, an accurate population estimate is required. To compare the results, it is decided to adopt two methods, namely linear regression and ANN for prediction of population in 2020. The table indicates the total population, population above 65 (65+), population between 15 to 65, and under 15 years of age, against the year. Project the population by both methods for year 2020. Assume a suitable architecture of ANN, and other values/ functions.

Year	Under 15	15–65	65+	Total
2005	368	673	51	1093
2010	370	747	58	1175
2015	372	819	65	1256