

Total number of printed pages-5

53 (CE 818) ENIA

2019

**ENVIRONMENTAL IMPACT  
ASSESSMENTS**

Paper : CE 818

Full Marks : 100

Time : Three hours



***The figures in the margin indicate  
full marks for the questions.***

*Answer Question No. 1 and  
any three from the rest. Each  
question carries 25 marks.*

1. Write notes on **any five** of the following : 5×5=25
- (a) Classification and Structure of ecosystems
  - (b) Primary, Secondary and Criteria pollutants in atmosphere

Contd.

(c) Water budget and water quality indicators

(d) Diversity Index

(e) Ethnic Index

(f) Quality of Life Index

(g) Sound Pressure Level.

2. (a) What are the different types of environmental impacts? What are the objectives of an Environmental Impact Assessment (EIA)? Why is EIA important as a tool for 'Environmental Management'? What are the benefits of an EIA?  $4+4+4+4=16$

(b) Describe two methods of predicting impacts of air pollution on environment by giving associated mathematical expressions. 4

(c) What do you mean by "Baseline environmental study" for assessing impacts of air pollution? Name five types of engineering devices for controlling pollution by Suspended Particulate Matters in Industries.  $2\frac{1}{2}+2\frac{1}{2}=5$

3. (a) Describe three specific characteristics which an EIA methodology needs to possess. Name and describe the advantages and disadvantages of five major methodologies of environmental impact assessment that were discussed in your class. Describe 'Leopold matrix' by writing the process of its use.  $3+10+3=16$

(b) What are the three major stages in implementing any engineering project? 3

(c) According to the Notification No. S.O. 1533 of the Ministry of Environment & Forests of the Govt. of India, (i) what are the three types of project activities that require "prior environmental clearance" and (ii) in how many categories are various project activities divided for deciding about the requirements of prior environmental clearance?  $3+3=6$

4. (a) Describe the stages of an EIA process, (e.g. according to the Ministry of Environment, Forest and Climate Change in India) stating the aspects to be considered in each stage and the usefulness of each stage. 10

(b) Describe seven key areas (e.g. according to European Union Directive) about which information must be included in an EIA report. 10

(c) What are the stipulations of "Post environmental clearance, monitoring" in respect of any engineering project? 5

5. (a) Describe the methodology for carrying out a Socio-Economic Impact Assessment. 6

(b) What is the importance of public participation in an EIA system? What is the procedure for conducting public hearing for prior environmental clearance in India? 5+5=10

(c) Describe: (i) Net Present Value, (ii) Benefit-Cost ratio and (iii) Internal Rate of Return as criteria for economic evaluation of any engineering project. 3+3=9

6. (a) Would a hydropower project of 40 MW Installed Capacity planned within 10 km from the boundary of Manas Wildlife Sanctuary require prior

environmental clearance? If yes, then in what category? If the project is scaled down to 20 MW, would prior environmental clearance be required? Identify the sources of different environmental impacts of executing an engineering project with reference to the different stages of the project's life-cycle, and briefly propose appropriate mitigation measures. 2+2+10=14

(b) Describe the typical bio-physical and socio-economic parameters likely to be impacted during construction and operation of a state highway project. 6

(c) Describe different strategies for reducing the environmental impacts of a project that is needed to be adopted during planning and design. 5

