Total No. of Questions : **08** Roll No. : 0701.....

B.Tech EIGHTH SEMESTER EXAMINATION JUNE-2025

(Branch : Civil Engineering)

CE-8311 (EL-I) REMOTE SENSING & GIS

Time : Three Hours ***Maximum Marks : 70***
Min. Pass Marks : 22

Note : Attempt any five questions. Each question carries equal marks.

1 What is Remote Sensing? Explain about the Electromagnetic Spectrum and wavelength regions important to remote sensing. ***14***

2 What do you mean by 'Atmospheric Window'? Explain in detail about Energy interaction with Atmosphere and Earth resources. ***14***

3 Explain various interpretation elements used in visual interpretation of satellite images. ***14***

4 What is data model? Explain in detail about two data models in GIS. ***14***

5 What is GIS? Explain GIS components. ***14***

6 Define land use / land cover. Explain land use / land cover classification systems. ***14***

7 Discuss application of remote sensing and GIS in water resource mapping. ***14***

8 Explain in detail about application of remote sensing in

(i) Soil mapping and characteristics ***07***
(ii) Environmental pollution monitoring ***07***

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B.Tech EIGHTH SEMESTER EXAMINATION JUNE-2025

(Branch : Civil Engineering)

CE-8321 (EL-II) ADVANCE WATER RESOURCE ENGINEERING

Time : Three Hours ***Maximum Marks : 70***
Min. Pass Marks : 22

Note : Attempt any five questions. Each question carries equal marks.

1(a) Explain term aquifer. What is difference between confined and unconfined aquifer. ***07***

(b) Explain why ground water recharging is necessary. Explain any one method of ground water recharge. ***07***

2(a) Explain vertical distribution of ground water occurrence.

(b) Derive basic differential equation governing unsteady ground water flow in confined aquifer along with assumptions.

3(a) An artesian aquifer 8 m thick, and 10 cm diameter, water is pumped at constant rate of 100 liters/minute. The steady sate drawdown in two wells located 10m and 50 m distance from the center of well are 3m and 0.05m respectively. Compute the transmissivity and hydraulic conductivity of aquifers. ***07***

(b) Explain terms : ***07***

(i) Permeability (ii) Transmissibility
(iii) Darcy's law and (iv) Coefficient of storage.

4 Flood of certain magnitude has a return period of 40 years determine :- ***14***

(a) probability of exceedance
(b) probability of flood magnitude equal to or greater than given magnitude occurring
(i) at least ones in 10 successive years (ii) two times in10 successive years.

5(a) Explain various empirical formulas for estimating flood discharge. ***07***

(b) Explain flood routing. Discuss briefly various flood control measures. ***07***

6(a) What is water logging? Explain its causes, effect and prevention. ***07***

(b) Explain reclamation of waterlogged and salt affected land. ***07***

7(a) List various data required for planning various water resources projects. ***07***

(b) Note down various environment, social and economic impacts of water resources projects and how they can be managed. ***07***

8(a) Explain economic analysis of multipurpose water resources project. ***07***

(b) Discuss various water harvesting techniques briefly. ***07***

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Total No. of Questions : **08** Roll No. : 0701.....

B.Tech EIGHTH SEMESTER EXAMINATION JUNE-2025

(Branch : Civil Engineering)

CE-8331 (OEL-III) MUNICIPAL SOLID WASTE MANAGEMENT

Time : Three Hours ***Maximum Marks : 70***
Min. Pass Marks : 22

Note : Answer any five questions. All questions carry equal marks. Assume suitable data, wherever necessary & mention them clearly.

1(a) Discuss briefly municipal waste, institutional waste and street sweeping. ***1½, 1½, 3***

(b) Name the various sources of municipal solid waste and discuss the functional elements of municipal solid waste management. ***02, 06***

2(a) Explain with neat sketches various methods of house-to-house collection. ***06***

(b) How will you collect samples of municipal solid waste for laboratory examination? Discuss various physical characteristics of solid waste. ***03, 05***

3(a) Discuss briefly various factors which affect composting process. ***06***

(b) Describe Bangalore method of composting .Write the advantages of incinerators. ***05, 03***

4(a) Define sanitary landfill and explain Trench method of sanitary landfill. ***01, 05***

(b) Write down various considerations in maintaining the sanitary landfill site. Write note on bioreactor landfill. ***04, 04***

5(a) Define leachate and explain various factors affecting leachate quality. ***01, 05***

(b) Write note on collection of municipal solid waste and pollution prevention for landfill sites as per the Municipal Solid Waste (Management & Handling) rules, 2000. ***05, 03***

6(a) Explain the Heuristic method for route fixing of refuse vehicles. ***06***

(b) Write the objectives and principles of Municipal Solid Waste Management and write note on sorting of municipal solid waste. ***1, 3, 4***

7(a) Write brief note on multiple chamber incinerator. ***06***

(b) Explain landfill and discuss various considerations in selection of landfill site. ***02, 06***

8 Write technical short notes on **any four** : ***3½ * 04***

(i) Leachate recirculation,
(ii) Transfer Station,
(iii) Hierarchy of waste management,
(iv) Leachate Generation in landfill site,
(v) Self Sustained Combustion Reaction in incineration.

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