END-SEMESTER EXAMINATION, January-2025
Environmental Management Studies (CHM 4691)

Programme: B.Tech (All branches) **Semester: 7th**
Full Marks: 60 **Time: 3 Hours**

Subject/Course Learning Outcome	*Taxonomy Level	Ques. Nos.	Marks
Ability to understand the Environment, its importance, interdisciplinary approach, atmospheric cycles, environmental resources. Ecosystem and biodiversity, its values and conservation strategies.	L1 and L2	1(a),1(b), 1(c) 2 (a), 2 (b), 2(c) 3 (a), 3 (b), 3(c)	18
Analyze different types of pollutants (air and water), their measurement, standard and applies engineering science principles to design of air pollution control devices and Water pollution control strategies.	L3 and L4	4(a), 4(b), 4(c) 5 a), 5(b)	10
Apply the knowledge on MSW Management, Hazardous waste management, analyse and evaluate impact of noise pollution and basic remediation strategies.	L2 and L4	5(c), 6 (a), 6 (b), 6 (c), 7 (a)	10
Ability to analyse different contemporary issues related to environment, such as global warming, ozone depletion acid rain their mitigation measures. Rainwater harvesting and watershed management.	L1, L2,	7 (b), 7(c), 8(a), 8(b)	8
To understand environmental legislations and their application for sustainable development. Analyse and interpret EIA methodology for project, planning, approval and proper implementation based on health risk.	L1, L3	8(c), 9(a),	4
Ability to recognize and comprehend various causes, preventative measures, and disaster management strategies for natural disasters such as such as floods, cyclones, earthquakes, fire, land slide and nuclear disaster.	L1,L2	9(b), 9(c) 10(a), 10(b), 10(c)	10

*Bloom's taxonomy levels: Remembering (L1), Understanding (L2), Application (L3), Analysis (L4), Evaluation (L5), Creation (L6)

Answer all questions. Each question carries equal mark.

1.	(a)	Justify environment studies is multidisciplinary in nature.	2
	(b)	Discuss various strategies for remediation of environmental pollution associated with mining activities.	2
	(c)	Write the major consequences of deforestation.	2
2.	(a)	Differentiate between renewable and nonrenewable energy resources. Discuss various types of biomass energy.	2
	(b)	Justify India is a mega biodiversity nation in the world.	2
	(c)	Discuss various major threats to biodiversity in India.	2
3.	(a)	Define biogeochemical cycle and discuss nitrogen cycle with suitable schematic diagram.	2
	(b)	Pyramid of energy is always upright while pyramid of number may be both upright and inverted. Explain with suitable examples.	2
	(c)	What is ecological succession? Differentiate between primary and secondary ecological succession with suitable example.	2
4.	(a)	What eutrophication,? Discuss its major causes and consequences with a suitable diagram.	2
	(b)	Write the flow sheet of sewage treatment plant.	2
	(c)	Calculate the wastewater flow (m3/day) and BOD loading (mg/L) for a population of 2,50,000 in a city. (Assume wastewater flow 108 litre person/day, BOD 50gm/day/person.	2
5.	(a)	Explain mechanism of cyclone separator to separate particulate matter from air with a schematic diagram.	2
	(b)	A bag house is to be constructed using bags of 0.3 m diameter and 8 m long. It is to receive 25 m^3/s of air. Assuming the filtration rate of 2 m/min. Determine the no bags required in the bag house.	2
	©	Write the major sources of noise pollution and write the various effect of noise pollution on human health.	2
6.	(a)	Calculate the equivalent continuous sound pressure level if a domestic fridge generates a noise of 80 dB for 15 min in every hour. The background noise of the room is 45 dB.	2
	(b)	What is decibel? Write different major noise control strategies.	2
	(c)	Sketch the steps of municipal solid waste management with a flow diagram.	2
7.	(a)	Compute the land fill area requirement for 25 years for a city having about 5 lakhs population. (Assuming MSW generation 500 gm/person/day, density of MSW 500 kg/m^3). Height if sanitary lands fill is 10m.	2
	(b)	What is acid rain? Discuss the formation of different acids in atmosphere with a suitable chemical reaction.	2

	(c)	What do you mean by Green House Effect? Write the adverse effect of global warming on human health and environment.	2
8.	(a)	Explain the mechanism of ozone depletion with suitable chemical reaction.	2
	(b)	Define sustainable development; enlist the different goal for sustainable development.	2
	(c)	Discus role and objective of central pollution control board.	2
9.	(a)	What is EIA? Discuss the EIA approval process of a newly proposed project with a schematic diagram.	2
	(b)	Define disaster, Write about the four pillar of disaster management cycle.	2
	(c)	Write the major cause of cyclone and Discuss the basic cyclone disaster prevention and mitigation steps before and during cycle occur.	2
10	(a)	Discuss the recovery action and mitigation measures for Earthquake disaster.	2
	(b)	Discuss major flood management approach in India.	2
	(c)	Differentiate nuclear fission and fusion, and write the major reason for Chernobyl Accident.	2

End of Questions

END-SEMESTER SUMMER QUARTER EXAMINATION, August-2025

Introduction to Disaster Management (IDM-CHM 2042)

Programme: B.Tech(Branch)/BCA/MCA **Semester:**
Full Marks: 60 **Time: 3 Hours**

Subject/Course Learning Outcome	*Taxonomy Level	Ques. Nos.	Marks
Ability to understand the concept and causes of different types of natural and manmade - disasters. Describe scopes; policies, planning; SWOT analysis, hazard and vulnerability analysis; and Organisational structure and design. Importance of control process in disaster management, Capability assessment. Ability to understand causes and management of cyclone disaster.	L1, L2,L3	1 (a) (b) (c), 2 (a), 2 (b)	10
Describe disaster mitigation strategies structural mitigation and non-structural mitigation. Strengthening Capacity for Reducing Risk, Discuss disaster preparedness and its principle, Organisational structure, Essential Services and Logistical Preparedness, contingency planning, Team and community Relations Training, and Emergency Operational Plan	L1 and L2, L3	2(c) 3(a) 3(b) 3(c) 4(a)	10
Ability to understand environmental disaster response control processes and measurement competencies and challenges evacuation and mitigation handling of injured at hospitals; challenges and issues mobilization and restoration of essential services. Search and rescue work requires international cooperation in disaster response. Modern and traditional methods of response. Modern to understand causes of and management of flood disaster.	L1 and L2, L3	4 (b) (c) 5 (a) (b) (c)	10

To Describe disaster recovery community participation, opening case Identifying and ascertaining the impact of disaster capacity building for reconstruction and rehabilitation recovery and rebuilding works, compensations and coping strategies. Ability to recognize and Ability to understand causes of earth quake disaster.	L1 and L2, L3	6 (b) (c) 7 (a) (b) (c)	10
Describe the role and responsibilities of agencies, national and internal and international, and state and local bodies. Role of stakeholders, impact and role of media and community based approached. Challenge in the management of disaster triage process. Ability to understand causes of and management of landslide disasters.	L1 and L2, L4	8 (a) (b) (c) 9. (a) (b)	10
To analyse behavioural aspects of disaster management , identify socio-psychological needs training in humanitarian professionalism, community and individual empowerment and community building in developing local resilience to disasters. Ethical issues in a disaster management. Ability to understand causes of and management of nuclear disaster.	L1 and L2	9 (c) 10 (a) (b) (c)	10

*Bloom's taxonomy levels: Remembering (L1), Understanding (L2), Application (L3), Analysis (L4), Evaluation (L5), Creation (L6)

Answer all questions. Each question carries equal mark.

1.	(a)	Define disaster and classify different types of man-made and anthropogenic disaster	2
	(b)	Using an appropriate schematic diagram, describe integrated disaster management system	2
	(c)	Enlist different types of control in disaster management.	2
2.	(a)	Write the major aim of disaster management policy.	2
	(b)	Explain major types and causes of cyclone.	2
	(c)	Enlist the importance and key function of communication in disaster mitigation	2
3.	(a)	Discuss various structural mitigation elements in disaster mitigation with suitable example.	2
	(b)	Explain the role played by the team in disaster mitigation	2
	(c)	Discuss the importance of logistical readiness in disaster preparedness	2
4.	(a)	Draw the Organisational structure for disaster preparedness.	2
	(b)	What are the aims of disaster response?	2
	(c)	In disaster response, enumerate the three primary challenges that arise	2
5.	(a)	Write a short note on an ideal Command Centre in disaster response	2
	(b)	Discuss the security issues in disaster response.	2
	(c)	Discuss major flood management approach in India.	2
6.	(a)	Enlist various types of social rehabilitation that can be implemented during disaster recovery.	2
	(b)	Discuss the process of identifying and ascertaining the impact of a disaster in disaster recovery	2
	(c)	Write the common preparedness and mitigation measures for earth quake disaster.	2
7.	(a)	Discuss about the various tectonic plate movement types and their reasons.	2
	(b)	How can the government help in facilitating the payment of compensation to disaster victims? Explain.	2
	(c)	The most important aspect of coping is providing counselling and psychological support comment.	2
8.	(a)	What is the role of planning commission in disaster management?	2
	(b)	Explain the impact and role of media in disaster management.	2
	(c)	Different between solifluction and creep in landslide.	2
9.	(a)	Describe Triage. The role does it play in injury classification?	2
	(b)	Describe the relationship between disaster and environmental deterioration.	2
	(c)	Explain nuclear fusion with suitable chemical reaction and principle of energy generation.	2
10	(a)	Explain the major strategies to control fission chain reaction in nuclear reactor with suitable diagram	2
	(b)	Explain how community building can help in developing low resilience to disaster.	2
	(c)	Write the importance of commitment and communication in disaster management.	2
		End of Questions	