Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

EIGHTH SEMESTER B.TECH DEGREE EXAMINATION, MAY 2019

Course Code: CE402

Course Name: ENVIRONMENTAL ENGINEERING – II

Max. Marks: 100 Duration: 3 Hours

PART A

Answer any two full questions, each carries 15 marks. Marks

1 a) Define a) Sullage b)Sewage c)Storm water d) Night soil (4)

b) Explain Time of concentration (3)

c) Determine the size of circular sewer for a discharge of 700lps running half full. Assume i=0.0001 and n=0.015 (8)

2 a) Discuss the merits & demerits of separate and combined system of sewage (8)

b) Discuss the purposes served by an inverted siphon with help of a neat sketch. (5)

c) Explain the term relative stability. (2)

3 a) Define a)BOD b)COD (4)

b) Explain physical characteristics of sewage (6)

c) The 5 day BOD of a sewage sample is 150 mg/l. Determine its 3 days 20^0C BOD. Assume deoxygenation constant at 20^0C as 0.1 (5)

PART B

Answer any two full questions, each carries 15 marks.

4 a) Give the flow diagram of a conventional municipal wastewater treatment. (3)

b) A city discharges 100 m^3/s of sewage into a river, which is fully saturated with oxygen flowing at the rate of 1500 m^3/s and with a velocity of 0.2 m/s. The 5 days BOD of sewage at the given temperature is 250 mg/l. Find when and where the critical D.O deficit will occur in the downstream portion of the river and what is its amount? Assume coefficient of purification of the stream (f) as 4 and coefficient of deoxygenation as 0.1. (12)

5 a) Explain sludge volume index. (5)

b) What are the limitations of activated sludge process? (5)

c) Write short notes on rotating biological contactors. (5)

6 a) Compare a standard rate trickling filter with a high rate one. (7)

b) A rectangular grit chamber is designed to remove particle with a diameter 0.2 mm and specific gravity 2.65. The settling velocities of these particles are found to be 0.02 m/s. A flow through velocity of 0.30 m/s will be maintained by the proportioning weir. Determine the channel dimensions for a maximum wastewater flow of 10,000 m^3/day. (8)

PART C

Answer any two full questions, each carries 20 marks.

7 a) Design an imhoff tank to treat the sewage from a small town with a population of 20000 persons ,with sewage flow rate of 180 litres per day (14)

b) What are the advantages and disadvantages of oxidation ponds? (6)

8 a) What are the features of acid regression stage and alkaline fermentation stage of sludge digestion? (10)

b) Explain the working of an Up flow Anaerobic Sludge Blanket (UASB) reactor. Discuss any three drawbacks of UASB. (10)

9 a) What are the methods of sludge disposal. (6)

b) Explain sludge drying bed? (8)

c) What are the various factors affecting sludge digestion? (6)

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Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

EIGHTH SEMESTER B.TECH DEGREE EXAMINATION(S), OCTOBER 2019

Course Code: CE402

Course Name: ENVIRONMENTAL ENGINEERING – II

Max. Marks: 100 Duration: 3 Hours

PART A

Answer any two full questions, each carries 15 marks. Marks

1 a) Differentiate dry weather flow and storm water flow. What are the factors affecting dry weather flow? (5)

b) A town has a population of 100000 persons with a per capita water supply of 150 l/day/person. Design a sewer running full at maximum discharge. Take n=0.013 at all depth of flow. Slope of 1 in 500 and take peak factor of 3 (10)

2 a) A 2% solution of a sewage sample is incubated for 5 days at 20^{o}C. The depletion in oxygen was found to be 5mg/L. Determine the BOD of the sewage? (7)

b) Discuss the importance of self cleaning velocity and limiting velocity in sewers. (4)

c) Discuss the term time of concentration (4)

3 a) Explain Population equivalent (3)

b) Explain the physical, chemical and bacteriological characteristics of sewage (12)

PART B

Answer any two full questions, each carries 15 marks.

4 a) What is oxygen sag curve? Explain various zones of pollution in a river. (6)

b) Design a suitable bar screen for a plant treating a peak flow of 50million litres per day of sewage. Also compute the head loss through such a screen. Assume suitable data wherever necessary. (9)

5 a) Write short notes on flow equalization tank. (3)

b) Explain Streeter Phelp’s equation. (4)

c) Explain the construction and operation of an intermittent sand filter. Mention the advantages and disadvantages of this system (8)

6 Design a conventional trickling filter and its rotary distribution system for treating 5 MLD of sewage with a BOD of 200 mg/l. (15)

PART C

Answer any two full questions, each carries 20 marks.

7 a) Design an imhoff tank to treat the sewage from a small town with a population of 20000 persons ,with sewage flow rate of 180 litres per day (14)

b) What are the advantages and disadvantages of oxidation ponds? (6)

8 a) What is an aerated lagoon? (5)

b) Design a digestion tank for primary sludge with the help of following data (10)

1)Average flow=250mld

2)Total suspended solids in raw sewage=400mg/l

3)Moisture content of digested sludge =85%

Assume any other suitable data you require

c) Explain upflow anaerobic sludge blanket? (5)

9 a) With the help of neat sketch explain the working of sludge digestion tank (12)

b) Write a note on sludge conditioning. (4)

c) Explain the construction and working of sludge lagooning. (4)

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Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

EIGHTH SEMESTER B.TECH DEGREE EXAMINATION, MAY 2019

Course Code: CE404

Course Name: CIVIL ENGINEERING PROJECT MANAGEMENT

Max. Marks: 100 Duration: 3 Hours

PART A

Answer any two full questions, each carries 15 marks. Marks

1 a) Explain the steps involved in realisation of a Construction project. (8)

b) Write short notes on Resource codes. (7)

2 a) What are the advantages of networks over bar charts? (5)

b) Determine the expected completion time, variance and critical pathof the project given below. (10)

Activity	A	B	C	D	E	F	G	H
Predecessors	-	-	A	B	A	C,D	C,D,E	F
T_0 days	2	2	3	4	3	4	3	4
T_L days	5	6	4	6	5	6	5	8
Tp days	7	9	9	10	12	13	6	13

3 a) Following table shows cost and duration of each activity. The indirect cost is Rs.3150/week. Determine the optimum duration of project and minimum cost. (15)

Activity	Predecessor	Normal Duration (weeks)	Normal Cost (Rs)	Crash Duration (weeks)	Crash Cost (Rs)
A	-	7	8,000	4	15500
B	-	9	5,000	6	9500
C	A	5	7,000	2	10,000
D	A	6	9,000	4	16,000
E	B, C	6	6,000	4	12,000

PART B

Answer any two full questions, each carries 15 marks.

4 a) During a dispute, what are the claims that a contractor can put forward against a client? (7)

	b)	Discuss the advantages and disadvantages of arbitration over other methods of settlement of disputes.	(8)
5	a)	What are the various elements that constitute the direct cost of an item/activity in a construction project? How does the direct cost behave as the output volume increases?	(7)
	b)	Explain the problems encountered in Project Management Information System.	(8)
6	a)	List some of the ethical issues commonly found in civil engineering works.	(5)
	b)	Elaborate on the role played by professional bodies in ensuring professional ethics.	(5)
	c)	Describe the components of Project Management Information System.	(5)

PART C

Answer any two full questions, each carries 20 marks.

7	a)	List out the functions of materials management.	(5)
	b)	Explain economic order of quantity.	(5)
	c)	Explain the steps involved in classifying items using ABC analysis	(10)
8	a)	Outline any two important types of contracts.	(10)
	b)	Differentiate between earnest money deposit and security deposit.	(5)
	c)	Discuss the use of a measurement book.	(5)
9	a)	Explain total quality management.	(10)
	b)	Discuss the measures to ensure safety in construction.	(10)

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Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

EIGHTH SEMESTER B.TECH DEGREE EXAMINATION, MAY 2019

Course Code: CE468

Course Name: STRUCTURAL DYNAMICS AND EARTHQUAKE RESISTANT DESIGN

Max. Marks: 100 Duration: 3 Hours

(IS 1893, IS 13920 & IS 4326 are permitted in the exam hall.)

PART A

Answer any two full questions, each carries 15 marks. Marks

1 a) Distinguish between lumped mass and continuous mass systems. (3)

b) For the free vibration of a damped SDOF system, derive the condition for occurrence of: i) over-damped motion ii) critically damped motion iii) under-damped motion. (12)

2 a) Determine the free vibration displacement response of a SDOF system at t= 5 s for the following data. (5)

Natural frequency = 12 rad/s, Damping ratio = 0.15, Initial velocity = 10 cm/s,Initial displacement = 5 cm.

b) What is harmonic loading? Give examples of any two cases when a system is subjected to harmonic loading. (3)

c) Prove the condition of orthogonality of mode shapes. (7)

3 a) How does the free vibratory response of an undamped SDOF system differ from that of an undamped MDOF system? (3)

b) A model of two storey RCC frame is shown in the figure 1. Determine the natural frequency and mode shapes for the following data. (12)

Cross sectional dimension of column -250 mm by 250 mm

Storey Height – 3m

M 25 grade concrete is used.

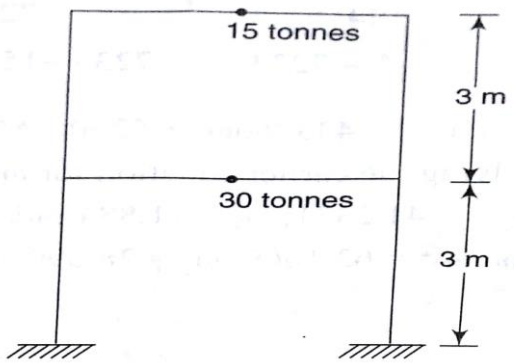

Figure 1

PART B

Answer any two full questions, each carries 15 marks.

4 a) Consider the following causes for the occurrence of earthquakes: i) volcanism ii) rupture of tectonic plates iii) reservoir induced seismicity. Assuming the causes do not occur simultaneously, which of the above three causes will produce earthquake of relatively greater magnitude? Justify your answer. (3)

b) Distinguish between seismogram and accelerogram. (4)

c) Briefly explain the classification of seismic waves. (8)

5 a) Consider the case of an Earthquake which occurred in Kathmandu,Nepal which recorded a Ritcher scale magnitude 7.2 and a MSK scale Intensity IX at its source. Comment on the magnitude and intensity of the earthquake in New Delhi. (3)

b) State the assumptions involved in seismic design as per IS 1893. (4)

c) Enumerate the steps involved in response spectrum method of analysis of buildings. (8)

6 a) A four-storey reinforced concrete frame building as shown is situated in Roorkee. The height between the floors is 3m and total height of the building is 12m.The dead load and normal live load is lumped at respective floors given in the figure as M_4, M_3, M_2 and M_1(Take unit of load as kN). The soil below the foundation is assumed to be hard rock. Assume building is intended to be used as a hospital. Analyse the building using seismic coefficient method and find the base shear as per IS 1893.Distribute the base shear along the height of the building and draw design lateral load distribution and the storey shear force distribution diagram. (12)

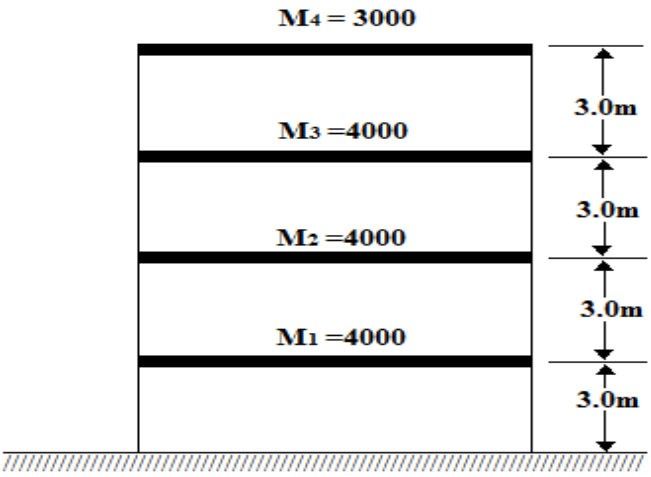

Figure 2

b) Distinguish between ordinary moment resisting frame and special moment resisting frame. (3)

PART C

Answer any two full questions, each carries 20 marks.

7 a) With reference to the effect of irregularities on structural behaviour, briefly explain : i) plan irregularities ii) vertical irregularities iii) structural irregularities (15)

b) Distinguish between soft storey and weak storey. (5)

8 a) Distinguish between centre of mass and centre of rigidity of a building. How can the possibility of occurrence of torsional behaviour explained using the relative position of centre of mass and centre of rigidity. (7)

b) Briefly explain the terms : i) strength ii) stiffness iii) ductility. (5)

c) What are shear walls? State the classification of shear walls as per IS 13920. Also use sketches to show the predominant failure modes of squat shear wall and slender shear walls. (8)

9 a) Briefly discuss the provisions of IS 13920 for ductile detailing of RC columns under the following heads: 1) Cross section proportioning and Minimum grades of reinforcing steel and concrete 2) longitudinal reinforcement 3) transverse reinforcement 4) development/ anchorage length requirements. Use neat sketches. (20)

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Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

EIGHTH SEMESTER B.TECH DEGREE EXAMINATION(S), OCTOBER 2019

Course Code: CE468

Course Name: STRUCTURAL DYNAMICS AND EARTHQUAKE RESISTANT DESIGN

Max. Marks: 100 Duration: 3 Hours

(IS 1893, IS 13920 & IS 4326 are permitted in the exam hall.)

PART A

Answer any two full questions, each carries 15 marks. Marks

1 a) State and explain D' Alembert's principle. (3)

b) What is logarithmic decrement , Derive the expression? (6)

c) Derive the expression for free vibration response of an un- damped SDOF system (6)

2 a) What is response spectrum? How is it different from a response history? Enlist the steps involved in developing a response spectrum. Also name the type of response spectra adopted in IS 1893. (7)

b) With regard to free vibration of a MDOF system, define the terms: normal mode shapes and normal frequencies. (4)

c) Enumerate the steps involved in the modal superposition method to obtain response of MDOF systems. (4)

3 a) A two storey RC framed building is idealized using a shear frame model. The total mass and stiffness lumped at each floor is: M_1 = 2000 kg, K_1=150kN/m and M_2=1800 kg, K_2=130 kN/m. Determine the natural frequencies and mode shapes. (12)

b) Prove the orthogonal property of the normal modes for the above system. (3)

PART B

Answer any two full questions, each carries 15 marks.

4 a) With a neat sketch, briefly explain the elastic rebound theory for cause of earthquakes. (6)

b) Distinguish between body waves and surface waves. (4)

c) Distinguish between magnitude and intensity of an earthquake. (5)

5 a) The intensity of shallow focus earthquakes are much higher compared to that of deep focus earthquakes. Discuss. (4)

b) Write short note on Seismic Zoning. (5)

c) State the earthquake resistant design philosophy as per IS 1893. Also comment on difference in the maximum extent of damage suffered by an earthquake resistant (6)

building and an earthquake proof building in the event of a major earthquake.

6 a) A five-storey reinforced concrete frame building situated in Delhi. The height between the floors is 3.5 m and total height of the building is 17.5 m. The dead load and normal live load is lumped at respective floors. The lumped mass at roof is 2000kg and for all other floors it is 3000 kg. The soil below the foundation is assumed to be medium rock. Assume building is intended to be used as a hospital. Analyse the building using seismic coefficient method and find the base shear as per IS 1893. Distribute the base shear along the height of the building and draw design lateral load distribution and the storey shear force distribution diagram. (12)

b) Is the result of seismic coefficient method sufficient for the design of the above building? Also state the conditions as per IS 1893 which warrants a dynamic analysis to be performed on any given building? (3)

PART C

(Answer any two full questions, each carries 20 marks.)

7 a) Briefly explain the effect of the following irregularities on the seismic behaviour of buildings: (i) soft storey frame (ii) re-entrant corners (iii) discontinuous shear wall. Also use neat sketches to show one remedial measure for each of the cases. (15)

b) Briefly explain pounding effect in buildings. Also state the provisions of IS 1893 to avoid pounding effect. (5)

8 a) Distinguish between centre of mass and centre of rigidity of a building. How can the possibility of occurrence of torsional behaviour explained using the relative position of centre of mass and centre of rigidity. (7)

b) What is special confining reinforcement? How does it aid to improve the ductility of RC structural elements? (5)

c) What are shear walls? Explain the design criteria and Draw the typical reinforcement detailing of RC shear wall as per IS 13920. (8)

9 a) Briefly discuss the provisions of IS 13920 for ductile detailing of RC beams under the following heads: i) Cross section proportioning and Minimum grades of reinforcing steel and concrete ii) longitudinal reinforcement iii) transverse reinforcement iv) development/ anchorage length requirements. Use neat sketches. (15)

b) Sketch the typical detailing of RC beam column joint as per IS 13920 (5)

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Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

EIGHTH SEMESTER B.TECH DEGREE EXAMINATION, MAY 2019

Course Code: CE474

Course Name: MUNICIPAL SOLID WASTE MANAGEMENT

Max. Marks: 100 Duration: 3 Hours

PART A

Answer any two full questions, each carries 15 marks. Marks

1 a) Classify solid waste based on source and define each. (10)

b) What are the physical characteristics of MSW? (5)

2 a) Using the data for a MSW sample provided below, find the average moisture content of the sample. Base your calculations on a 100 kg sample size. (5)

Component	Moisture content (%)	Weight (%)
Paper waste	7	25
Yard waste	55	18
Food waste	65	20
Plastic	2	5
Wood	20	8
Glass	3	7
Metals	3	9
Textiles	12	8

b) What are the advantages of estimating the quantity of waste generated? (5)

c) Write the impact of industrial waste on environment (5)

3 a) Estimate the energy content on dry and ash free dry basis of a solid waste sample with the following compositions. Assume over all moisture and ash content of solid wastes is 21% and 5% respectively. Assume a mass of 100kg. (10)

Component	Food waste	paper	Card board	plastics	Garden Trimming	Wood	Tin can
% by weight	15	45	10	10	10	5	5
Energy kJ/kg	4650	16750	16300	32600	6500	18600	700

b) What are the impacts of C&D waste on environment? (5)

PART B

Answer any two full questions, each carries 15 marks.

4	a)	Write a note on mechanical volume reduction.	(5)
	b)	With a flow chart, explain recovery of resources from solid waste.	(10)
5	a)	What is the role of transfer station in solid waste management?	(5)
	b)	Explain the procedure adopted for chemical and biological conversion of solid waste.	(10)
6	a)	What is the significance of component separation in solid waste management?	(5)
	b)	Describe magnetic separation and the equipment used for it.	(5)
	c)	What are the various collection systems in MSWM?	(5)

PART C

Answer any two full questions, each carries 20 marks.

7	a)	Write the Indore process and its advantages.	(8)
	b)	With neat sketch explain the various parts of an Incinerator.	(8)
	c)	Explain the composition of Incinerator effluent gas.	(4)
8	a)	Explain vermi composting.	(7)
	b)	Define incineration and its merits and demerits	(8)
	c)	What are the benefits of composting?	(5)
9	a)	Explain the components of Sanitary landfill with neat sketch.	(14)
	b)	Write briefly on anaerobic digestion of waste?	(6)

Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

EIGHTH SEMESTER B.TECH DEGREE EXAMINATION(S), OCT 2019

Course Code: CE474

Course Name: MUNICIPAL SOLID WASTE MANAGEMENT

Max. Marks: 100 Duration: 3 Hours

PART A

Answer any two full questions, each carries 15 marks. Marks

1 a) What are the various categories of waste? (5)

b) Write the factors affecting the generation of municipal solid waste (5)

c) What are the components of agricultural waste? How are they stored? (5)

2 a) Determine the average moisture content of municipal solid waste of a typical Indian city from the following data. (5)

Description	**Weight (%)**	**Moisture Content (%)**
Food Waste	40	70
Yard Waste	3.5	60
Paper	.75	6
Plastic	.9	2
Glass	0.5	2
Metal	.7	2
Textile	2	8
Leather	.4	10
Miscellaneous	8.25	10
Stone/Brick	43	8

b) What are the physical characteristics of municipal solid waste? (5)

c) Write the important points to be considered while storing the hazardous waste (5)

3 a) How solid wastes from Industries are managed? (5)

b) Write a brief note on radioactive waste. (5)

c) Explain any one method of estimation of generation rate of municipal solid waste. (5)

PART B

Answer any two full questions, each carries 15 marks.

4	a)	What are the factors that have to be considered while fixing collection route?	(5)
	b)	Explain the operations carried out in a transfer station.	(5)
	c)	Explain the relevance of resource conservation.	(5)
5	a)	What are the types of compactors employed for mechanical volume reduction?	(5)
	b)	Component separation enhances the municipal solid waste management system. True or false? Justify your answer.	(5)
	c)	What is the major cause for the inefficiency of waste to energy projects in India? How can it be overcome?	(5)
6	a)	What is the collection services employed to collect residential solid waste.	(5)
	b)	Describe chemical volume reduction with advantages and disadvantages.	(7)
	c)	What are the advantages of reducing size of solid waste?	(3)

PART C

Answer any two full questions, each carries 20 marks.

7	a)	Compare area method and trench method of land fill with suitable sketches.	(10)
	b)	Draw the neat sketch of an incinerator and describe the functions.	(8)
	c)	What ate the components of effluent gas from an incinerator	(2)
8	a)	Compare Indore process and Bangalore process of composting with advantages and disadvantages.	(10)
	b)	Explain biogas digester with the help of a neat sketch	(10)
9	a)	What are the types of incinerators? Which one is most common type?	(7)
	b)	What are the advantages of composting	(6)
	c)	Explain the different stages of anaerobic digestion of waste.	(7)

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Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

EIGHTH SEMESTER B.TECH DEGREE EXAMINATION, MAY 2019

Course Code: CE482

Course Name: ENVIRONMENTAL IMPACT ASSESSMENT

Max. Marks: 100 Duration: 3 Hours

PART A

Answer any two full questions, each carries 15 marks. Marks

1	a)	Distinguish between primary pollutants and secondary pollutants	(6)
	b)	What are the impact of air pollutants on human, vegetation and environment?	(9)
2	a)	Differentiate between surface water pollution and ground water pollution	(5)
	b)	Explain any five sources of water pollution?	(10)
3	a)	Explain any two water borne diseases	(6)
	b)	Discuss the sources, effects and control measures for carbon monoxide	(9)

PART B

Answer any two full questions, each carries 15 marks.

4	(a)	Write a note on classification of solid wastes.	(7)
	(b)	What are the effects of urbanization on land degradation?	(8)
5	(a)	Define equivalent sound pressure level. How noise is measured?	(5)
	(b)	Describe in detail various control measures for Noise Pollution.	(10)
6	a)	What is noise? With examples explain continuous and intermittent noise	(7)
	b)	Write notes on e-waste and radio-active wastes.	(8)

PART C

Answer any two full questions, each carries 20 marks.

7		Explain stepwise process for conducting EIA with a flowchart	(20)
8	a)	Discuss in detail about global warming and climate change.	(10)
	b)	Explain the need for conducting EIA for a thermal power plant.	(10)
9	a)	List different types of checklist. Explain any two with example	(10)
	b)	With example discuss the type and scale of impacts	(10)

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Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

EIGHTH SEMESTER B.TECH DEGREE EXAMINATION(S), OCTOBER 2019

Course Code: CE482

Course Name: ENVIRONMENTAL IMPACT ASSESSMENT

Max. Marks: 100 Duration: 3 Hours

PART A

Answer any two full questions, each carries 15 marks.

			Marks
1	a)	What are the impacts of air pollution on human beings?	(7)
	b)	What are secondary air pollutants? Explain any two.	(8)
2		Discuss physical, chemical and biological characteristics of water.	(15)
3	a)	Differentiate natural and anthropogenic sources of air pollution	(6)
	b)	Discuss the sources and impacts of thermal pollution on water quality	(5)
	c)	List the major pollutants of water	(4)

PART B

Answer any two full questions, each carries 15 marks.

4	a)	What is e-waste? Identify the impacts of e-waste on environment	(7)
	b)	Classify solid wastes based on source. Explain any two in detail	(8)
5		Explain about the sources and effects of noise pollution	(15)
6	a)	What are the effects of urbanization on land degradation?	(7)
	b)	Write a short note on the methods to control noise pollution	(8)

PART C

Answer any two full questions, each carries 20 marks.

7	a)	Explain different types of environmental impacts with examples.	(8)
	b)	Define climate change. What are the adverse effects of climate change? How to mitigate them?	(12)
8	a)	Explain screening and scoping in EIA?	(10)
	b)	Identify the major considerations to be given in screening and scoping of an airport	(10)
9	a)	Illustrate overlay method	(10)
	b)	Discuss the ill-effects of deforestation	(10)

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Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

EIGHTH SEMESTER B.TECH DEGREE EXAMINATION, MAY 2019

Course Code: CE488

Course Name: DISASTER MANAGEMENT

Max. Marks: 100 Duration: 3 Hours

PART A

Answer any two full questions, each carries 15 marks.

			Marks
1	a)	Explain differences between hazards and disasters.	(8)
	b)	Define the terms risk, vulnerability and crisis.	(7)
2	a)	Explain the concept of green house effect.	(7.5)
	b)	What is Global Warming and what are the main causes of global warming.	(7.5)
3	a)	Write a short note on the impact of earthquakes.	(7.5)
	b)	Explain the term vulnerability with respect to earthquakes	(7.5)

PART B

Answer any two full questions, each carries 15 marks.

4	a)	How do tsunamis originate?	(4)
	b)	Why tsunamis become disastrous when they approach coastal regions?	(6)
	c)	How will you assess the vulnerability of a coast to the attack of tsunamis?	(5)
5	a)	List any five probable impacts of cyclones	(5)
	b)	Explain the origin of cyclones	(4)
	c)	Explain any one application of technology in cyclone disaster management	(6)
6	a)	How do soils originate?	(4)
	b)	What is soil degradation?:	(5)
	c)	Explain the impacts of addition of e-waste to soils	(6)

PART C

Answer any two full questions, each carries 20 marks.

7	a)	What is water pollution. Briefly explain.	(2)
	b)	List out the major causes of water pollution and describe	(8)
	c)	Explain ‘point sources’ and ‘non-point sources’ of pollution with an example.	(6)
	d)	List out the major water pollutants.	(4)
8	a)	What is air pollution.	(2)

	b)	Discuss the major causes of air pollution.	(6)
	c)	What are the classification of air pollutants? Explain with example.	(6)
	d)	Describe the impacts of air pollution.	(6)
9	a)	Write a short note on flood forecasting	(5)
	b)	What are the mitigation measures for flood disaster?	(8)
	c)	What are the impacts of a cyclone?	(7)

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Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

EIGHTH SEMESTER B.TECH DEGREE EXAMINATION, MAY 2019

Course Code: CE494

Course Name: ENVIRONMENTAL HEALTH AND SAFETY

Max. Marks: 100 Duration: 3 Hours

PART A

Answer any two full questions, each carries 15 marks. Marks

1	a)	What are Occupational diseases? Explain any two occupational diseases (causes, effects on human body and preventive measures) caused by particulate matter arising from various industries.	(6)
	b)	Explain the difference between Lethal Dose (LD) and Effective Dose (ED) of toxins? Explain LD_{50} and ED_{50}	(5)
	c)	Discuss the health hazards arising from chemical fumes, mist, vapour and gases from various industries	(4)
2	a)	Explain local, systemic and chronic effects of industrial toxins.	(5)
	b)	Define Noise. Briefly explain the noise exposure regulations given by OSHA	(5)
	c)	Briefly discuss the classification of Biohazardous agents	(5)
3	a)	Explain the toxic effects of Lead and Chromium Heavy metals for workers handling it in industries. What are the modes through which these metals enter into the human body?	(5)
	b)	Explain Material Safety Data Sheet (MSDS)	(5)
	c)	Explain the different methods of control of chemical hazards arising due to dust and fumes	(5)

PART B

Answer any two full questions, each carries 15 marks.

4	a)	What are Ionizing Radiations? Explain the health effects of radiations on human body	(5)
	b)	Discuss the different health effects on humans and animals due to the depletion of Ozone layer	(5)
	c)	Explain the different safety aspects that are to be ensured while working on temporary scaffoldings and platforms in construction industries	(5)

5	a)	Explain the concept of clean coal combustion technology. Discuss the different clean coal combustion technologies adopted in thermal power plants	(5)
	b)	Explain the different safety actions to be taken when an electrical emergency arises	(5)
	c)	Discuss the safety methods which are to be adopted by workers handling Concrete in construction industry	(5)
6	a)	Explain the different methods of disposal of Radio-active waste	(6)
	b)	Discuss the various aspects of safety for workers engaged in Welding and Cutting work of metals	(4)
	c)	What precautions should workers take when transporting (moving) materials manually and mechanically	(5)

PART C

Answer any two full questions, each carries 20 marks.

7	a)	Discuss the different Eco-Friendly energy technologies	(6)
	b)	Define Hazardous waste. Explain in detail the characterization and classification of Hazardous waste	(10)
	c)	Explain the pollution control measures for handling suspended particulate matter in cement manufacturing industries	(4)
8	a)	Explain the various pollution control measures taken in Thermal Power Plants	(5)
	b)	Explain in detail the effluent quality standards of waste water	(10)
	c)	Explain the various treatment methods adopted for disposal of Hazardous waste	(5)
9	a)	Explain the pollution control measures taken in dyeing and pigment industries	(8)
	b)	Explain the recycling and reuse of radioactive waste material	(6)
	c)	Discuss in detail the pollution control measures taken for textile and tannery industries waste.	(6)

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Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

EIGHTH SEMESTER B.TECH DEGREE EXAMINATION(S), OCTOBER 2019

Course Code: CE494

Course Name: ENVIRONMENTAL HEALTH AND SAFETY

Max. Marks: 100 Duration: 3 Hours

PART A

Answer any two full questions, each carries 15 marks. Marks

1	a)	Explain any two occupational related diseases.	(6)
	b)	Describe the role of an industrial hygienist.	(5)
	c)	Write the effects of lead on occupational health.	(4)
2	a)	What do you mean by ionizing radiation? Explain types of ionizing radiation.	(5)
	b)	Explain any two biological agents causing health hazards.	(5)
	c)	Write note on dust and fume with examples.	(5)
3	a)	What are the local, systemic and chronic effects of industrial toxicology?	(6)
	b)	Write a short note on noise exposure regulation.	(5)
	c)	Explain how oxides of carbon effect human health?	(4)

PART B

Answer any two full questions, each carries 15 marks.

4	a)	Explain the major health effects of radiation on human body	(6)
	b)	Explain the effects of air pollution on plants	(6)
	c)	Distinguish between the disposal techniques of low level, intermediate level and high level radioactive wastes.	(3)
5	a)	Elaborate various electrical hazards.	(7)
	b)	What are the effects of electric shock on human body?	(4)
	c)	Explain the hazards in excavation sites and the safety precautions to be taken to safeguard the workers	(4)
6	a)	What is ozone depletion? Explain its effects in global environment.	(7)
	b)	Write short note on the safety aspects of the following	
		(i)Scaffolding and working platform	(4)
		(ii)Welding and cutting	(4)

PART C

Answer any two full questions, each carries 20 marks.

7	a)	Differentiate point and non point source of water pollution with example.	(4)
	b)	Define hazardous waste? Explain the criteria for identification of hazardous waste	(8)
	c)	Explain the characteristic and classification of hazardous waste.	(8)
8	a)	What are the various types of pollution from cement industry? Explain the methods of control of pollution from cement industry.	(10)
	b)	Explain the environmental impact of dyes and pigments.	(5)
	c)	What are the major pollutions in textile industry?	(5)
9	a)	Explain the various health hazards arising from polluted water.	(6)
	b)	Discuss the major sources of pollution and pollution control in thermal power plant	(7)
	c)	How does tanneries cause water pollution? Point out its pollution effects.	(7)

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