Roll No.														

PRESIDENCY UNIVERSITY
BENGALURU

SCHOOL OF ENGINEERING

TEST 1

Sem & AY: Odd Sem. 2019-20 | **Date**: 30.09.2019

Course Code: CIV 303 | **Time**: 11:00AM to 12:00PM

Course Name: ENVIRONMENTAL POLLUTION AND CONTROL | **Max Marks**: 40

Program & Sem: B.Tech Civil & V | **Weightage**: 20%

Instructions:

i. Answer all the questions
ii. Use of Non-programmable calculators is permitted
iii. Assume suitable data, if necessary, by stating it clearly

Part A [Memory Recall Questions]

Answer all the Questions. Each question carries three marks. (4Qx3M=12M)

1. What are the Functions and responsibilities of CPCB? (C.O.NO.1) [Knowledge]
2. What are the important Environmental Laws in India? (C.O.NO.1) [Knowledge]
3. Why is it important to study environmental ethics? (C.O.NO.1) [Knowledge]
4. Differentiate between bio-degradable and non-biodegradable organic matter with reference to waste water. (C.O.NO.1) [Knowledge]

Part B [Thought Provoking Questions]

Answer all the Questions. Each question carries six marks. (3Qx6M=18M)

5. What are the major causes of water pollution in India? (C.O.NO.1) [Comprehension]
6. How one can contribute positively in preventing water pollution in India? (C.O.NO.1) [Comprehension]
7. Identify the causes of plastic pollution in your locality. Suggest three preventive, and three curative measures to end plastic menace in your locality. (C.O.NO.1) [Comprehension]

Part C [Problem Solving Questions]

Answer the Question. The Question carries ten marks. (1Qx10M=10M)

8. What is the Water Prevention and Control of Pollution Act 1974? Enlist the provisions made in section 17, section 24, section 25 and section 43 of this act. (C.O.1) [Application]

SCHOOL OF ENGINEERING

TEST – 1

Semester: V

Course Code: CIV303

Course Name: Environmental Pollution and Control

Program & Sem: B.Tech Civil V

Date: 30/09/2019

Time: 11:00 am to 12:00Noon

Max Marks: 40

Weightage: 20%

Extract of question distribution [outcome wise & level wise]

Q.NO.	C.O.NO	Unit/Module Number/Unit /Module Title	Memory recall type [Marks allotted] Bloom's Levels			Thought provoking type [Marks allotted] Bloom's Levels			Problem Solving type [Marks allotted]			Total Marks
			K			C			A			
1	1	Module: 1 Pollution, Environmental Laws, Ethics	~~4~~ 3									
2	1	Module: 1 Pollution, Environmental Laws, Ethics	3	~~4~~								
3	1	Module: 1 Pollution, Environmental Laws, Ethics	3		~~4~~							
4	1	Module: 1 Pollution, Environmental Laws, Ethics	3.		~~4~~							
5	1	Module: 1 Pollution,	12				~~8~~					

		Environmental Laws, Ethics										
6	1	Module: 1 Pollution, Environmental Laws, Ethics					8					
7	1	Module: 1 Pollution, Environmental Laws, Ethics					8					
8	1	Module: 1 Pollution, Environmental Laws, Ethics									10	
	Total Marks			~~16~~ 12			~~24~~ 18				10	40

K =Knowledge Level C = Comprehension Level, A = Application Level

Note: While setting all types of questions the general guideline is that about 60%

Of the questions must be such that even a below average students must be able to attempt, About 20% of the questions must be such that only above average students must be able to attempt and finally 20% of the questions must be such that only the bright students must be able to attempt.

[I hereby certify that All the questions are set as per the above guide lines. Dr. Jagadish Godihal]

Reviewers' Comments

SCHOOL OF ENGINEERING

TEST – 1

Semester: V

Course Code: CIV303

Course Name: Environmental Pollution and Control

Program & Sem: B.Tech Civil V

Date 30/09/2019

Time: 11:00 am to 12:00Noon

Max Marks: 40

Weightage: 20%

Part A (4Q x 4M = 16 Marks)

Q No	Solution	Scheme of Marking	Max. Time required for each Question
1	(a). Advise the Central Government on matters relating to pollution (b). Coordinate the activities of the State Boards; (c). Provide Technical assistance to the State Boards, carry out and sponsor investigations and research relating to control of pollution (d). Plan and organize training of personnel (e). Collect, compile and publish technical and statistical data, prepare manuals and code of conduct. (f). To lay down standards	1 X 4 = 4 M	3 Minutes
2	• Water (Prevention and Control of Pollution) Act, 1974; • Air (Prevention and Control of Pollution) Act, 1981, • Environment (Protection) Act, 1986 and Rules thereunder • National Environmental Tribunal Act, 1995 • National Environment Appellate Authority Act, 1997 • The Bio -Medical Waste (Management and Handling) Rules, 1998 • Plastic Waste (Management and Handling) (Amendment) Rules, 2011	1 X 4 = 4 M	3 Minutes
3	• It is concerned with the moral relationships between humans and the world around us. • Do we have special duties, obligations, or responsibilities to other species or nature in general?	1 X 4 = 4 M	4 Minutes

	• Are our dispositions towards humans different than towards nature? How are they different? • Are there moral laws objectively valid and independent of cultural context, history, situation, or environment?		
4	**A biodegradable material can be defined as a material which can be decomposed by b bacteria or other natural organisms and not be adding to pollution.** Biodegradable wastes are such waste materials which are and can be degraded by natural factors like microbes (e.g. bacteria, fungi and few more), abiotic elements like temperature, UV, oxygen, etc. Some examples of such wastes are food materials, kitchen wastes, and other natural wastes. Microorganisms and other abiotic factors together break down complex substances into simpler organic matters which eventually suspend and fade into the soil. The whole process is natural which can be rapid or slow. Therefore the environmental issues and risks caused by biodegradable wastes are low. **A Non-Biodegradable material can be defined as a kind of substance which cannot be broken down by natural organisms and acts as a source of pollution.** Unlike biodegradable wastes, non-biodegradable cannot be easily handled. Non-biodegradable wastes are those who cannot be decomposed or dissolved by natural agents. They remain on earth for thousands of years without any degradation. Hence the threat caused by them is also more critical. A notable example is the plastics which are a commonly used material in almost every field. To give these plastics a long lasting effect, improved quality plastics are being put to use. This made them more temperature resistant and more durable even after use. Other examples are cans, metals, and chemicals for agricultural and industrial purposes. They are the main causes of air, water and soil pollution and diseases like cancer.	2	5 minutes

Part B (3Q x8 M = 24 Marks)

Q No	Solution	Scheme of Marking	Max. Time required for each Question
5	Water bodies e.g. lake, river, ocean and ground water get contaminated due to discharge of pollutants in the water bodies without any treatment to remove harmful compounds. Water pollution adversely affects not only aquatic plants and animals but it also affects human beings and ecosystems. Major causes of water pollution: Sewage And Waste Water: Sewage, garbage and liquid waste of households, agricultural lands and factories are discharged into lakes and rivers. These wastes contain harmful chemicals and toxins which make the water poisonous for aquatic animals and plants. Dumping: Dumping of solid wastes and litters in water bodies causes huge problems. Litters include glass, plastic, aluminum, etc. Different things take different amount of time to degrade in water. They affect aquatic plants and animals. Industrial Waste: Industrial waste contains pollutants like asbestos, lead, mercury and petrochemicals which are extremely harmful to both people and environment. Industrial waste is discharged into lakes and rivers by using fresh water making the water contaminated. Oil Pollution: Sea water gets polluted due to oil spilled from ships and tankers while traveling. The spilled oil does not dissolve in water and forms a thick sludge polluting the water. Acid Rain: Acid rain is pollution of water caused by air pollution. When the acidic particles caused by air pollution in the atmosphere mix with water vapor, it results in acid rain.	1 x 8 = 8 M	7 Minutes

	Eutrophication. Eutrophication is an increased level of nutrients in water bodies This results in bloom of algae in water. It also depletes the oxygen in water, which negatively affects fish and other aquatic animal population.		
6	Plant trees or any plants near bodies of water so that when it rains, the topsoil with personal chemicals will not get washed away. Big trees will help prevent soil erosion. When the soil is eroded, the pesticides and chemicals on the land will be washed away and carried on the sea. But if there are big trees to stop the eroding of the soil, the oceans will be protected. • In maintaining your lawn, do not use pesticides or any fertilizers. You can prevent highway runoff by simply avoiding pesticides. • If you wish to use cleaning liquids, be sure that these are environmentally safe. • It is not also advised to put oil or any type of chemicals in the toilet or sink since this may end up in the groundwater. • Be responsible for the amount of water that you use every day. If you just watch how much water you use, you will be surprised that you can save a huge amount of money on your bill. For example, when you brush your teeth, use a cup instead of allowing it to flow endlessly. • When cooking your food, do not throw excess fat or oil down in the drain. Drain your dirty dishes in the container and discard it as a solid waste once it is full and it dries. • Do not make your toilet as your wastebasket. Do not flush unnecessary things in the toilet because this will only clog up your drains. It is unsustainable, and it will only lead to massive pollution in the end. • Switch to the use of a water-efficient toilet in your home. If you think this is costly, you can use a brick or a ½ gallon container to reduce the amount of water released in each flush and be able to reduce the space. With this, you can save water which is being unnecessarily flushed down the toilet. • If you are a farmer, allow your animals to graze only when it is a well-vegetated pasture to prevent soil erosion. If you have a garden at home, avoid the use of pesticides to make your plants grow. • Always keep your vehicles in good condition to avoid oil spills in the water.	1 x 8 = 8 M	7 Minutes

7.	**Causes of plastic pollution in environment are** • Over-usage of plastic bags for shopping • Disposal of plastic products on landfills and soil • Burning of plastic products • More use of plastic toys • Usage of disposal plastic cups, bottles, knives, fork, spoon, containers, etc. • Failure of recycling and reusing of plastic products **Control plastic pollution- Reduce, Reuse and Recycle** • An alternative to plastic utensil should be used. • Avoid using disposable plastic water bottles and use reusable water bottles. • Environmental awareness and education on conservation of environment should be given to people. • Usage of natural packaging materials like banyan leaf, bamboo utensils, etc. should be encouraged in hotels and restaurants. • All the stores and shops must avoid providing plastic carry bags to their customers and should supply cloth bags and reusable carry bags to carry grocery items and dress materials	3 3	7 Minutes

Part C (1Q x 10M = 10Marks)

Q No	Solution	Scheme of Marking	Max. Time required for each Question
8	**Water (Prevention & Control of Pollution) Act, 1974** is a comprehensive legislation that regulates agencies responsible for checking on water pollution and ambit of pollution control boards both at the centre and states. The Water (Prevention & Control of Pollution) Act, 1974 was adopted by the Indian parliament with the aim of prevention and control of Water Pollution in India. **Section 17** of the Water (Prevention & Control of Pollution) Act, 1974 clearly lists all functions of the respective state boards for countering water pollution. The state board of respective states is empowered to plan a comprehensive program for the prevention, control or abatement of pollution of streams and wells, collect and disseminate information relating to water pollution and encourage, conduct and participate in investigations and research relating to problems of water pollution and prevention. **Section 24 and 43** of the Water (Prevention & Control of Pollution) Act, 1974 relate to prohibition on use of stream or well for disposal of polluting matter and penalty for contravention thereof Under the scope of the provision, no person shall knowingly cause or permit any poisonous, noxious or polluting mater as determined by the State Board to enter into any stream or sewer or on land. Anyone failing to abide by the laws of under is liable for imprisonment under Section 24 & Section 43 ranging from not less than one year and six months to six years along with monetary fines. The section further states that No person shall knowingly cause or permit to enter any other matter which may impede the flow of water of the stream causing pollution of any kind. **Section 25** of the Water (Prevention & Control of Pollution) Act, 1974 states that Prior Consent of the State Board under	2 X 5 = 10 M	15 minutes

	section 25 is necessary to set up any industry, plant or process which is likely to discharge sewage or trade effluent into a stream or well or sewer or on land or bring into use any new or altered outlets for the discharge of sewage or begin to make any new discharge of sewage. The section further states that every State Board is liable to maintain a register containing particulars or conditions imposed under the section related to any outlet, or to any effluent, from any land or premises which must be open to inspection by the state board.		

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GAIN MORE KNOWLEDGE
REACH GREATER HEIGHTS

PRESIDENCY UNIVERSITY
BENGALURU

SCHOOL OF ENGINEERING

TEST – 2

Sem & AY: Odd Sem 2019-20 | **Date**: 18.11.2019

Course Code: CIV 303 | **Time**: 11:00 AM to 12:00 PM

Course Name: ENVIRONMENTAL POLLUTION AND CONTROL | **Max Marks**: 40

Program & Sem: B.Tech (CIV) & V | **Weightage**: 20%

Instructions:

(i) ***Answer all the questions***

(ii) ***Use of Non-programmable calculators is permitted***

(iii) ***Assume suitable data, if necessary, by stating it clearly***

Part A [Memory Recall Questions]

Answer all the Questions. Each Question carries two marks. (4Qx2M=8M)

1. List the various types of collection equipment for particulate (C.O.2) [Knowledge]

2. What are the harmful effects of polluted air on human beings? (C.O.2) [Knowledge]
3. If sound pressure is 0.04 Pa, what is the sound pressure level? (C.O.3)[Knowledge]
4. What do you mean by industrial hygiene (C.O.2) [Knowledge]

Part B [Thought Provoking Questions]

Answer the Questions. Each Question carries six marks. (2Qx6M=12M)

5. Explain the causes of soil pollution and methods to control soil pollution (C.O.2) [Comprehension]

6. Explain point and non-point sources of air pollution. What are the primary and secondary air pollutants? Give example. (C.O.2) [Comprehension]

Part C [Problem Solving Questions]

Answer both the Questions. Each Question carries ten marks. (2Qx10M=20M)

7. Identify the four types of common work place health hazards and describe strategies to control Biological hazards and ergonomic hazards. (C.O.2) [Application]

8. a) Given four hours of 95 dBA exposure, two hours of 100 dBA exposure, and two hours of 85 dBA exposure, what is the % dose using the HCA? (Does this person need to be in a hearing conservation program?)
(C.O.3) [Application]

b) Given four hrs of 90 dBA exposure, two hours of 95 dBA exposure, and two hours of 85 dBA exposure, what is the % dose using the PEL? (Is this person over exposed compared to PEL?) (C.O.3) [Application]

SCHOOL OF ENGINEERING

GAIN MORE KNOWLEDGE
REACH GREATER HEIGHTS

TEST – 2

Semester: V
Course Code: CIV303
Course Name: Environmental Pollution Control
Program & Sem: B.Tech Civil V

Date: 18/11/2019
Time: 11 am to 12 Noon
Max Marks: 40
Weightage: 20%

Extract of question distribution [outcome wise & level wise]

Q.NO.	C.O.NO	Unit/Module Number/Unit /Module Title	Memory recall type [Marks allotted] Bloom's Levels	Thought provoking type [Marks allotted] Bloom's Levels	Problem Solving type [Marks allotted]	Total Marks
			K 8	C 12	A 20	40
1			2			2
2			2			2
3			2			2
4			2			2
5				6		6
6				6		6
7					10	10
8					10	10
	Total Marks		8	12	20	40

K =Knowledge Level C = Comprehension Level, A = Application Level

Note: While setting all types of questions the general guideline is that about 60%

Of the questions must be such that even a below average students must be able to attempt, About 20% of the questions must be such that only above average students must be able to attempt and finally 20% of the questions must be such that only the bright students must be able to attempt.

Annexure- II: Format of Answer Scheme

GAIN MORE KNOWLEDGE
REACH GREATER HEIGHTS

SCHOOL OF ENGINEERING

TEST – 2

Semester: V
Course Code: CIV303
Course Name: Environmental Pollution Control
Program & Sem: B.Tech Civil V

Date: 18/11/2019
Time: 11 am to 12 Noon
Max Marks: 40
Weightage: 20%

Part A

(4Q x2 M = 8Marks)

Q No	Solution	Scheme of Marking	Max. Time required for each Question
1	Types of collection equipment are: i) Settling Chambers ii) Cyclones iii) Wet Collectors iv) ESP v) Filters	2	3 minutes
2	Low level exposure Irritates eyes Causes inflammation of respiratory tract Can develop into chronic respiratory diseases	2	3 minutes
3	$20 \times \text{Log} \frac{0.02Pa}{0.00002Pa} = 60dB$	2	2 minutes
4	Industrial Hygiene – the science of protecting the health and safety of workers through: Anticipation, Recognition, Evaluation, and Control of workplace conditions that may cause workers' injury or illness.	2	3 minutes

Part B

(2Q x6 M = 12 Marks)

Q No	Solution	Scheme of Marking	Max. Time required for each Question
5	Urbanisation... Industrial Wastes... Mining... Agricultural Wastes... Domestic Wastes And Garbage... Radioactive Wastes... Reducing chemical fertilizer and pesticide use. Recycling Recycling paper, plastics and other materials reduces the volume of refuse in landfills. Reusing of materials such as plastic bottles, glass, etc Re-forestation, Planting trees or re-forestation helps prevent soil erosion and pollution.	2 marks each	9 minutes

6	Point sources: Industries; Non point sources: Vehicular Primary Air Pollutants Harmful substance that is emitted directly into the atmosphere Examples, SPM, SO_x, NO_x, HC, CO Secondary Air Pollutant Harmful substance formed in the atmosphere when a primary air pollutant reacts with substances normally found in the atmosphere or with other air pollutants PAN, PAB	2 marks each	**6 minutes**

Part C (2Q x 10M = 20 Marks)

Q No	Solution	Scheme of Marking	Max. Time required for each Question
7	Four common health hazards are: Chemical, Biological, Physical and Ergonomic Protection against biological hazards: Practice universal precaution with: Blood, Bodily fluids Practice personal hygiene Provide proper first aid Cuts/Scratches Vaccinations Wear proper PPE/clothing, Use insect repellent Provide proper ventilation or other appropriate environmental controls Protection against ergonomic hazards: Use ergonomically designed tools Use correct work practices Proper lifting techniques Ask for help when handling: Heavy loads Bulky/Awkward materials Properly fitting PPE	2 marks for diagram 4 marks each	18 Minutes
8	$\left[\frac{4}{32}+\frac{2}{8}+\frac{2}{16}\right]\times 100 = 50\%$ of PEL Answer: Borderline, since dose = 50% $\left[\frac{4}{\infty}+\frac{2}{8}+\frac{2}{\infty}\right]\times 100 = 25\%$ of PEL Answer: No, since dose <100%	5 marks 5 marks	12 minutes

Roll No												

PRESIDENCY UNIVERSITY
BENGALURU

SCHOOL OF ENGINEERING

END TERM FINAL EXAMINATION

Semester: Odd Semester: 2019 - 20
Course Code: CIV 303
Course Name: ENVIRONMENTAL POLLUTION CONTROL
Program & Sem: B.Tech (CIV) & V (DE-II)

Date: 24 December 2019
Time: 9:30 AM to 12:30 PM
Max Marks: 80
Weightage: 40%

Instructions:

(i) Read all the questions carefully and answer accordingly.
(ii) Answer all the questions
(iii) Use of Non-programmable calculators is permitted
(iv) Assume suitable data, if necessary, by stating it clearly

Part A [Memory Recall Questions]

Answer all the Questions. Each Question carries 2 marks. (8Qx2M=16M)

1. What is environmental ethics? Why it is important for civil engineers? (C.O.No.1) [Knowledge]
2. What are the Functions and responsibilities of SPCB? (C.O.No.1) [Knowledge]
3. Distinguish between primary and secondary air pollutants mentioning two example for each type. (C.O.No.1) [Knowledge]
4. What are the main drivers of soil pollution in non-agricultural land uses? (C.O.No.2) [Knowledge]
5. List four health effects of noise pollution. (C.O.No.3) [Knowledge]
6. What is the importance of monitoring of noise level in workplace (C.O.No.3) [Knowledge]
7. Why environmental auditing is very important in industries? (C.O.No.4) [Knowledge]
8. What do you understand by environmental impact assessment? (C.O.No.4) [Knowledge]

Part B [Thought Provoking Questions]

Answer all the Questions. Each Question carries 6 marks. (4Qx6M=24M)

9. Under the Environment Act, the Central Government is empowered to take measures necessary to protect and improve the quality of environment by setting standards for emissions and discharges of pollution in the atmosphere by any person carrying on an industry or activity; regulating the location of industries. What is the purpose of the Environmental Protection Act 1986? (C.O.No.1) [Comprehension]

10. Read the following paragraph and answer the questions mentioned after the paragraph.
Water is essential for life. Without water there would be no life. We usually take water as granted for its purity, but we must ensure the quality of water. Pollution of water originates from human activities. Through different paths, pollution reaches to ground water. Easily identified source or place of pollution is called as point source. Example- Municipal and industrial discharge pipes, where pollutants enter the water source. Non-point source of pollution are those where a source of pollution cannot be easily identified. Example- Agricultural runoff, acid rains etc.

i) How do you classify the various sources of water pollution?

ii) What are the point sources of water pollution?

iii) Name any two non-point sources of water pollution

(C.O.No.2) [Comprehension]

11. The questionability as to how far the violation of liberties essential for life caused by environmental pollution lies within the scope of article 21 has been discussed by the High Court of Andhra Pradesh in T.Damodar Rao V. S.O Municipal Corporation. The court observed that the enjoyment of life and its attainment and fulfillment guaranteed by Article 21 of the Constitution embraces the protection and preservation of nature's gifts without which life cannot be enjoyed and in that case slow poisoning by the polluted atmosphere caused by environmental pollution was regarded as violation of article 21 of the constitution. If the environment is polluted no one can enjoy life fully because the chances of being affected by various diseases are higher and it can also deprive the person of proper sleep, food, peaceful living etc. The studies on noise pollution also prove that normal tolerance of noise in human beings lies between 40-50dB and exposure to noise of more than 90dB may result in permanent hearing loss. Taking these harmful ill effects of noise pollution into consideration, the Noise pollution (regulation and control) rules, 2000 was passed to keep a control on the noise levels. Provide the role and responsibility of the public at large and regulatory bodies in particular to control menace of noise pollution in India.

(C.O.No.3) [Comprehension]

12. The problem of water borne diseases is especially prevalent where general hygiene and environmental sanitation are poor and where there is a shortage of protected water supply. It is believed that 80% of all diseases in the world are caused by inadequate sanitation, polluted water or unavailability of water. Poverty, illiteracy, overcrowding and low health services are contributing factors that directly or indirectly affect the prevalence of water borne diseases.
What are the common water borne diseases prevalent in India, how they transmit and suggest two control measures.

(C.O.No.4) [Comprehension]

Part C [Problem Solving Questions]

Answer all the Questions. Each Question carries 10 marks. (4Qx10M=40M)

13. The settling chamber is the simplest type of equipment used for collection of solid particulates. Explain with a neat sketch, the principle, construction and working of a settling chamber. How can its efficiency be improved?

(C.O.No.2) [Application]

14. Noise is one of the most common occupational health hazards. In heavy industrial and manufacturing environments. To prevent adverse outcomes of noise exposure, noise levels should be reduced to acceptable levels. The best method of noise reduction is to use engineering modifications to the noise source itself, or to the workplace environment. Where technology cannot adequately control the problem, personal hearing protection (such as ear muffs or plugs) can be used. Personal protection, however, should be considered as an interim measure while other means of reducing workplace noise are being explored and implemented. Based on this note analyse the following situations

    a) Given four hours of 90 dBA exposure, two hours of 95 dBA exposure, and two hours of 85 dBA exposure, what is the % dose using the HCA? (Does this person need to be in a hearing conservation program?)

    b) Given four hrs of 80 dBA exposure, two hours of 90 dBA exposure, and two hours of 85 dBA exposure, what is the % dose using the PEL? (Is this person over exposed compared to PEL?) (C.O.No.3) [Application]

15. Identify the four types of common work place health hazards and describe strategies to control chemical hazards and physical hazards. (C.O.No.2) [Application]

16. The Government of India (GOI) launched the Swachh Bharat Mission (Urban) [SBM (U)], with the vision of ensuring hygiene, waste management and sanitation across the nation, as a tribute to Mahatma Gandhi on his 150th birth anniversary, to be celebrated in the year 2019. SBM (Urban) is being implemented by the Ministry of Housing and Urban Affairs (MHUA). Explain six key thrust areas of mission and five key strategic elements in implementing it.

(C.O.No.4) [Application]

GAIN MORE KNOWLEDGE
REACH GREATER HEIGHTS

SCHOOL OF ENGINEERING

END TERM FINAL EXAMINATION

Extract of question distribution [outcome wise & level wise]

Q.NO.	C.O.NO (% age of CO)	Unit/Module Number/Unit /Module Title	Memory recall type [Marks allotted] Bloom's Levels	Thought provoking type [Marks allotted] Bloom's Levels	Problem Solving type [Marks allotted]	Total Marks
			K	C	A	
1	1	Module: 1 Pollution, Environmental Laws, Ethics	2			2
2	1	Module: 1 Pollution, Environmental Laws, Ethics	2			2
3	2	Module: 2: Air and Soil Pollution	2			2
4	2	Module: 2: Air and Soil Pollution	2			2
5	3	Module: 3: Noise Pollution	2			2
6	3	Module: 3: Noise Pollution	2			2
7	4	Module: 4: Environmental Hygiene	2			2
8	4	Module: 4: Environmental Hygiene	2			2
9	1	Module: 1 Pollution, Environmental Laws, Ethics		6		6

10	2	Module: 2: Air and Soil Pollution		6		6
11	3	Module: 3: Noise Pollution		6		6
12	4	Module: 4: Environmental Hygiene		6		6
13	1	Module: 1 Pollution, Environmental Laws, Ethics			10	10
14	2	Module: 2: Air and Soil Pollution			10	10
15	3	Module: 3: Noise Pollution			10	10
16	4	Module: 4: Environmental Hygiene			10	10
	Total Marks		16	24	40	80

K =Knowledge Level C = Comprehension Level, A = Application Level

Note: While setting all types of questions the general guideline is that about 60%

Of the questions must be such that even a below average students must be able to attempt, About 20% of the questions must be such that only above average students must be able to attempt and finally 20% of the questions must be such that only the bright students must be able to attempt.

I hereby certify that all the questions are set as per the above guidelines.

Faculty Signature:

(Dr. Jagdish H Godihal)

Reviewer Comment:

Format of Answer Scheme

SCHOOL OF ENGINEERING

GAIN MORE KNOWLEDGE
REACH GREATER HEIGHTS

SOLUTION

Semester: Odd Semester: 2019-20
Course Code: CIV303
Course Name: Environmental Pollution Control
Program & Sem: B.Tech (Civil) & V (DE-I)

Date: 24 Dec 2019
Time: 9:30 AM to 12:30 PM
Max Marks: 80
Weightage: 40%

Part A (2Q x 8M = 16Marks)

Q No	Solution	Scheme of Marking	Max. Time required for each Question
1	Environmental ethics refers to the values attached with environment. It studies the moral relationship of humankind with its environment. Environment plays an important role by – providing resources – sustaining life – waste management It is important to study environment ethics as it brings us closer and the help us understand the relationship. It will help in many ways: – Provide better quality living to current generation – Protect environment for future generation through regulated use of environment – It will help spread awareness among people and thus protect the environment – It sustains other species as well which is moral responsibility of one species i.e. humankind towards all others	1 1	5
2	To advice the Central Government, in any matter concerning the prevention, control or abatement of air/water pollution. To advice the State Government, on any matter to plan and cause to be executed a nationwide programme for the prevention, control or abatement of air/water pollution. To collect information relating water/air pollution and to encourage, conduct, participate in investigations and research relating to problems of water pollutions. To plan a comprehensive programme through mass media for prevention, control or abatement of air /water pollution.	2	5
3	Primary are emitted directly into the air from a specific source while secondary are not emitted directly from a source but are formed in the atmosphere. A primary pollutant is an air pollutant emitted directly from a source. Example, SPM, HC,CO, NO_x, SO_x	1	5

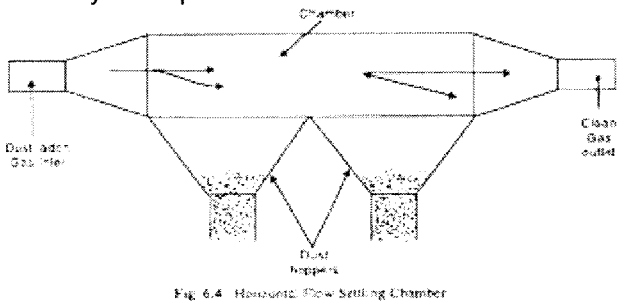
	A secondary pollutant is not directly emitted as such, but forms when other pollutants (primary pollutants) react in the atmosphere. Examples:PAN,PAB, Photochemical oxidants	1	
4	Urban activities generate large quantities of city wastes including several non-biodegradable materials (such as plastic bags, plastic bottles, plastic wastes, glass bottles, glass pieces, stone / cement pieces).If it uncollected, they cause soil pollution. The emission of toxic and foul gases from landfills pollutes the environment and causes serious effects on health of some people. The unpleasant smell causes inconvenience to other people	1 1	5
5	Noise health effects are the physical and psychological health consequences of regular exposure to consistent elevated sound levels. Elevated workplace or environmental noise can cause hearing impairment, tinnitus, hypertension, ischemic heart disease, annoyance, and sleep disturbance. Changes in the immune system and birth defects have been also attributed to noise exposure	2	5
6	Measuring noise levels and workers' noise exposures is the most important part of a workplace hearing conservation and noise control program. It helps identify work locations where there are noise problems, employees who may be affected, and where additional noise measurements need to be made	2	5
7	The major objective of performing environmental audits is controlling the pollution. It also helps in improving the production safety and to making sure the prevention and reduction of the chemical waste. It also provides performance reviews of industrial working facilities and its possible impact on the surroundings.	2	5
8	Environmental Impact Assessment (EIA) is a process of evaluating the likely environmental impacts of a proposed project or development, taking into account inter-related socio-economic, cultural and human-health impacts, both beneficial and adverse.	2	5

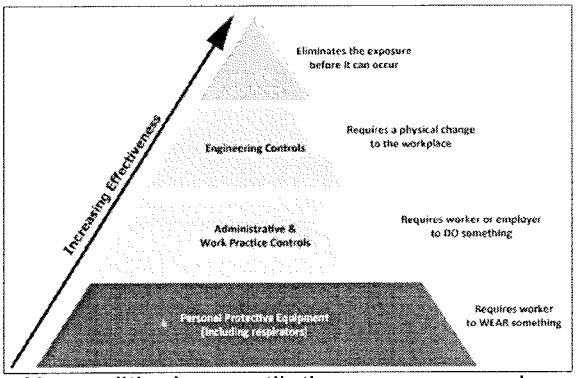
Part B (4Q x 6M = 24 Marks)

Q No	Solution	Scheme of Marking	Max. Time required for each Question
9	An Act to provide for the protection and improvement of environment and for matters connected therewith. Whereas the decisions were taken at the United Nations Conference on the Human. Environment held at Stockholm in June, 1972, in which India participated, to take appropriate steps for the protection and improvement of human environment; and Whereas it is considered necessary further to implement the decisions aforesaid in so far as they relate to the protection and improvement of environment and the prevention of hazards to human beings, other living creatures, plants and property; Be it enacted by Parliament in the Thirty-seventh Year of the Republic of India	6	10
10	Sources of water pollution: • Sewage • Runoff of Pesticides & Fertilizers • Solid Waste Disposal • Untreated Effluents from Industrial and other activities • Chemical and Oil Spills	½ x 6	10

	Point sources, Non point sources	3	
11	(1) The noise levels in any area / zone shall not exceed the ambient air quality standards in respect of noise as specified in the Schedule. (2) The authority shall be responsible for the enforcement of noise pollution control measures and the due compliance of the ambient air quality standards in respect of noise. (3) The respective State Pollution Control Boards or Pollution Control Committees in consultation with the Central Pollution Control Board shall collect, compile and publish technical and statistical data relating to noise pollution and measures devised for its effective prevention, control and abatement.	3x2	10
12	Infections in which the enteric microorganism enters the water source through faecal contamination and transmission occurs by the ingestion of contaminated water Route of transmission and infection depends on • Amount of faecal contamination in water • Concentration of pathogens in the faecal contamination • Survival of the pathogenic organism in water • Infectivity of the organism • Individual Health status Control Improvement of microbiological water quality (water treatment or source protection) Examples: Typhoid and Cholera	2 x 3	10

Part C (4Q x 10M = 40Marks)

Q No	Solution	Scheme of Marking	Max. Time required for each Question
13	This is a simple particulate collection device using the principle of gravity to settle the particulate matter in a gas stream passing through its long chamber. The primary requirement of such a device would be a chamber in which the carrier gas velocity is reduced so as to allow the particulate matter to settle out of the moving gas stream under the action of gravity. This particulate matter is then collected at the bottom of the chamber. The chamber is cleaned manually to dispose the waste.  Fig. 6.4 Horizontal Flow Settling Chamber	5	15

	The velocity of the particles in the settling chamber can be obtained by Stokes' law as follows: Vs = (g(rp -r) D2) /18 μ Where, D = Diameter of the particle. g = acceleration due to gravity rp = density of the particle r = density of the gas μ = viscosity of the gas • Provide enlarged areas to minimize horizontal velocities and allow particulates to settle out • Usual velocity through settling chambers is between 0.5 to 2.5 m/s. For best results gas flow should be uniformly maintained at less than 0.3 m/s. • Usually effective for particles > 50 μm. • Some settling chambers are just enlarged conduits, while others have horizontal shelves and baffles (spaced about 2.5 cm apart), which shorten the settling path and thus improve removal efficiency • Simple in design and operation, but require relatively large space for installation and have relatively low efficiency, especially for removal of smaller particles.	5	
14	$\left[\frac{4}{32}+\frac{2}{8}+\frac{2}{16}\right]\times 100 = 50\%$ of PEL Answer: Borderline, since dose = 50% $\left[\frac{4}{\infty}+\frac{2}{8}+\frac{2}{\infty}\right]\times 100 = 25\%$ of PEL Answer: No, since dose <100%	5 5	15
15	Four common health hazards are: Chemical, Biological, Physical and Ergonomic  Air conditioning ventilation emergency plans etc	5 5	15
16	Key thrust areas of the mission include, ▪ Elimination of open defecation ▪ Eradication of Manual Scavenging by converting insanitary toilets to sanitary ▪ Modern and Scientific Municipal Solid Waste Management	5	15

	▪ Effecting behavioural change regarding healthy sanitation practices ▪ Awareness generation about sanitation and its linkage with public health ▪ Capacity Augmentation for Urban Local Bodies (ULBs) to create an enabling environment for private sector participation Key strategies Comprehensive Sanitation Planning comprising of City Level Sanitation Plans, State Sanitation Concept and State Sanitation Strategy. Behavioral Change Strategy and Information, Education and Communication Enabling private sectors Capacity building Special focus groups identified by the states	5	

Roll No												

PRESIDENCY UNIVERSITY
BENGALURU

SCHOOL OF ENGINEERING

END TERM FINAL EXAMINATION

Semester: Odd Semester: 2019 - 20 | **Date**: 24 December 2019

Course Code: CIV 311 | **Time**: 9:30 AM to 12:30 PM

Course Name: ENVIRONMENTAL GEOTECHNICS AND SW MANAGEMENT | **Max Marks**: 80

Program & Sem: B.Tech (CIV) & VII (DE-IV) | **Weightage**: 40%

Instructions:

(i) Read the question properly and answer accordingly.

(ii) Question paper consists of 3 parts.

(iii) Use of Scientific and Non-programmable calculators are permitted.

Part A [Memory Recall Questions]

Answer all the Questions. Each Question carries 4 marks. (5Qx4M=20M)

1. Name any four ways to detect waste contamination. (C.O.No.1) [Knowledge]
2. Name the four characteristics of hazardous wastes. (C.O.No.1) [Knowledge]
3. What are the disadvantages of incineration? (C.O.No.2) [Comprehension]
4. What is the economic significance of waste recycling? (C.O.No.4) [Knowledge]
5. Name any four types of geosynthetics. (C.O.No.3) [Comprehension]

Part B [Thought Provoking Questions]

Answer all the Questions. Each Question carries 5 marks. (4Qx5M=20M)

6. Describe the elements of solid waste management. (C.O.No.1) [Knowledge]
7. Discuss the advantages of biomethanation. (C.O.No.2) [Comprehension]
8. Explain geonets and geogrids with neat diagrams (C.O.No.3) [Comprehension]
9. Explain the recycle potential of flyash. (C.O.No.4) [Knowledge]

Part C [Problem Solving Questions]

Answer all the Questions. Each Question carries 10 marks. **(4Qx10M=40M)**

10. Estimate the density of solid wastes sample on discarded basis

Components	% by mass	% moisture content
Food wastes	60	70
Garden trimmings	14	6
Cardboard	6	5
Plastic	8	2
Textiles	2	10
Rubber	3	2
Leather	3	10
Misc. organics	4	30

The total mass of solid waste is 100 kg. (C.O.No.1) [Knowledge]

11. The windrow composting system has a volume rate of material to be composted as 64 m^3/da The detention time for composting system 35 days. The dimensions of rectangular windrows are length 80m, height 4m and width 1m. Assume space between two windrows 1.5m and space around perimeter of composting area 2m. Find out

    i. Total volume of material in m^3 available for composting [3M]
    ii. Number of windrows required for composting material [2M]
    iii. Total area of windrows [2M]
    iv. Total area of required for composting [3M]

(C.O.No.2) [Comprehension]

12. The tyre inflation pressure for a vehicle on a pavement with average stone diameter 50 mm is 650 kPa. Assume the geotextile is placed beneath stone base course. Calculate required grab tensile strength of the geotextile. Assume 50 % of total ultimate grab strain will mobilize. [6M]

    Also give the derivation for the maximum strain in geotextile without any stone breakage. [4M]

(C.O.No.3) [Comprehension]

13. For the nonwoven heat-bounded geotextile, maximum tensile force of 9kN is taken by 30cm initial length geotextile material and final length was observed to be 48cm. It was observed that upto limit of proportionality, for 12kN/m tensile stress, stain is 10%. Nominal thickness of geotextile is 0.33mm. Calculate

    I. Strength (kN/m) [2M]
    II. Percentage Strain [2M]
    III. Toughness [3M]
    IV. Modulus of elasticity [3M]

(C.O.No.3) [Comprehension]