

Code : 021827

B.Tech 8th Semester Exam., 2021

INDUSTRIAL POLLUTION

Time : 3 hours

Full Marks : 70

Instructions :

- (i) *The marks are indicated in the right-hand margin.*
- (ii) *There are **NINE** questions in this paper.*
- (iii) *Attempt **FIVE** questions in all.*
- (iv) *Question No. 1 is compulsory.*

1. Choose the correct answer (any seven) :

2×7=14

(a) India faced worse food problem during

(i) 1940s

(ii) 1950s

(iii) 1960s

(iv) 1970s

(b) The main cause of population explosion in India is

(i) poverty

(ii) prosperity

(iii) good health

(iv) higher percentage of female

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(Turn Over)

- (c) The impact of population explosion on environment includes
- (i) global warming
 - (ii) destruction of biodiversity
 - (iii) Both (i) and (ii)
 - (iv) None of the above
- (d) The most widely found pollutant in air is
- (i) CFC
 - (ii) SO₂
 - (iii) CO
 - (iv) CO₂
- (e) Cyclone separator is used to remove
- (i) suspended particulate matters
 - (ii) gaseous pollutant
 - (iii) dissolved gases
 - (iv) NO₂
- (f) PAN stands for
- (i) Propyl Alkaline Nitrate
 - (ii) Peroxyacetyl Nitrate
 - (iii) Peroxy Acetone Nitrate
 - (iv) None of the above

- (g) The earth's water circulatory system is known as
- (i) water cycle
 - (ii) precipitation cycle
 - (iii) hydrological cycle
 - (iv) None of the above
- (h) In biological treatment of industrial wastewaters, facultative ponds work by the presence of
- (i) aerobic bacteria
 - (ii) anaerobic bacteria
 - (iii) reducing bacteria
 - (iv) Both (i) and (ii)
- (i) Increased heartbeat and constriction of blood vessels are the symptoms of
- (i) air pollution
 - (ii) water pollution
 - (iii) noise pollution
 - (iv) thermal pollution

- (i) Higher level of CO in air results into
- (i) laziness
 - (ii) headache
 - (iii) effects on cardiovascular systems
 - (iv) All of the above
2. (a) Draw a neat sketch of hydrological cycle and explain the hydrological cyclic process. Explain the biotic and abiotic components of environment with examples. <https://www.akubihar.com> 4+3=7
- (b) Explain population explosion and its various causes and effects. Explain two major air pollutants and their consequences. 3+4=7
3. (a) Enumerate on various techniques of component separation of solid wastes. Name the various control devices used to control particulate matters. Explain any one of them. 4+4=8
- (b) Name the various water pollutants and enumerate the effects of water pollution. 6

4. (a) Explain the following : 3+3=6
- (i) Biodegradable and non-biodegradable wastes
 - (ii) Recovery of materials from process effluents
- (b) Explain the symbiotic relationship between algae and bacteria in oxidation ponds. Design the dimension of an oxidation pond for treating sewage from a hot climatic residential colony with 5000 persons contributing sewage @ 100 lpcd. The 5-day BOD of the sewage is 200 mg/l and the organic loading on pond is 350 kg BOD/hectare-day. 2+6=8
5. (a) Explain the classification of functional elements of a solid waste management system with the help of flow diagram. 6
- (b) Discuss the sources, impacts, control and measurement of noise pollution. 8
6. (a) Explain the various methods commonly employed for disposal of solid waste with their advantages and disadvantages. 5

(6)

(b) Briefly describe the role of individual in preventing (i) air pollution, (ii) water pollution and (iii) solid waste pollution.

3+3+3=9

7. (a) Explain the following : 4+4=8

(i) Photochemical smog and their impacts

(ii) Lapse rate and inversion phenomena

(b) Describe briefly about modern environmental impact assessment method for hydroelectric project. 6

8. (a) Write a note on the various issues related to enforcement of environmental legislation. How can it be enforced strictly? 7

(b) Describe the power of the State Government to declare air pollution control areas and restriction of use of certain industrial plants as per the Air (Prevention and Control of Pollution) Act, 1981. 7

(7)

9. Write short notes on any four of the following : 3½×4=14

(a) Classification and characteristics of air pollutants

(b) Control devices for control of gaseous emissions

(c) A neat process flow sheet for wastewater treatment with purposes

(d) Methods of sampling for water and wastewater

(e) Techniques to control noise pollution in industries

(f) The National Environmental Tribunal Bill, 1972

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