

- (A) 20
- (B) 40
- (C) 70
- (D) 85

Answer: Option C

10. There are thirteen metals which are treated as pollutants. Which of the following metals is not a pollutant?

- (A) Mercury
- (B) Arsenic
- (C) Aluminium
- (D) Lead

Answer: Option C

11. Arsenic pollutant is not generated in _____ industries.

- (A) Tanneries
- (B) Glass & ceramic
- (C) Beverages
- (D) Any of these

Answer: Option C

12. Pick out the wrong statement.

- (A) The concentric layer in atmosphere which contains about 70% of the total mass of atmosphere and characterised by a steady decrease in temperature is called stratosphere
- (B) Stratosphere is rich in ozone and is located just above the troposphere
- (C) Troposphere is a turbulent dusty zone containing much of water vapor and clouds
- (D) The earth's atmosphere is an envelope of gases extending upto a height of about 200 kms

Answer: Option A

13. The pH value of oxidised sewage is about

- (A) 1.8
- (B) 6.2
- (C) 7.3
- (D) 13.4

Answer: Option C

14. On prolonged exposure to high concentration of carbon monoxide (> 5000 ppm), man dies because

- (A) Of clotting of blood
- (B) Of jamming of respiratory tract
- (C) It forms carboxyhemoglobin by combining with haemoglobin of blood, thereby making it incapable of absorbing oxygen
- (D) It forms CO₂ by combining with oxygen present in the blood

Answer: Option C

15. Growth of _____ is promoted by the presence of manganese in water.

- (A) Fles
- (B) Algae
- (C) Micro-organisms
- (D) Mosquitoes

Answer: Option C

16. Presence of nitrogen in high concentration in contaminated air reduces partial pressure of oxygen in lungs, thereby causing asphyxia (suffocation) leading to death from oxygen deficiency. Concentration of N₂ in contaminated air at which it acts as a natural asphyxiate is ≥ _____ percent.

- (A) 84
- (B) 88
- (C) 80
- (D) 92

Answer: Option A

17. In water treatment plant, zeolite process is used to remove the _____ of water.

- (A) Acidity
- (B) Alkalinity

- (C) Hardness
 - (D) Iron & zinc
- Answer: Option C

18. Radioactive solid nuclear wastes are disposed off by

- (A) High temperature incineration
- (B) Pathological incineration
- (C) Pyrolysis
- (D) Underground burial in concrete containers

Answer: Option D

19. Disinfection of water is done to remove

- (A) Color
- (B) Bad taste
- (C) Foul odour
- (D) Bacteria

Answer: Option D

20. Which of the following is an adsorbent used for the removal of SO₂ from gas/air?

- (A) Bog iron
- (B) Limestone powder or alkalised alumina
- (C) Silica gel
- (D) Active carbon

Answer: Option B

21. Noise level audible to audience sitting in the 5th row from the stage during a large orchestra show corresponds to about _____ decibels.

- (A) 105
- (B) 135
- (C) 160
- (D) 185

Answer: Option B

22. 'Safe limit' called Threshold Limit Value (TLV) of carbon monoxide in atmospheric air is < 50 ppm. The main source of carbon monoxide pollutant in air is the

- (A) Industrial chimney exhaust
- (B) Automobiles exhaust
- (C) Photochemical reaction in polluted atmosphere
- (D) Burning of domestic fuel

Answer: Option B

23. The average thickness of ozone layer in stratosphere is about _____ dobson unit (DU).

- (A) 20
- (B) 230
- (C) 750
- (D) 1500

Answer: Option B

24. _____ plant emits large amount of SO₂ as an air pollutant.

- (A) Nitric acid
- (B) Sulphuric acid
- (C) Chlor alkali
- (D) Iron & steel

Answer: Option B

25. CFC (chloro fluoro carbon) is very highly reactive in causing depletion of ozone layer in the atmosphere. Each atom of chlorine liberated from CFC is capable of decomposing _____ molecules of ozone.

- (A) 10²
- (B) 10⁵
- (C) 10⁹
- (D) 10¹⁵

Answer: Option B

26. The main type of sludge gas evolved during sewage treatment in Imhoff tank is

- (A) CO₂
- (B) CH₄
- (C) CO
- (D) H₂

Answer: Option B

27. The upper layer of atmosphere is called the

- (A) Stratosphere
- (B) Troposphere
- (C) Ionosphere
- (D) None of these

Answer: Option A

28. Brown spots in fabrics will be caused by washing with water containing large amount of:

- (A) Iron
- (B) Zinc
- (C) Iodine
- (D) Bromine

Answer: Option A

29. The term Biological Oxygen Demand (BOD) is used in relation to

- (A) Potable water
- (B) Cooling water
- (C) Distilled water
- (D) Industrial effluents

Answer: Option D

30. Which of the following gases is having the widest explosion limit (about 2 to 81% gas in gas-air mixture), rendering it the property of the most explosive gas?

- (A) Hydrogen
- (B) Acetylene
- (C) Carbon monoxide
- (D) Ammonia

Answer: Option B

31. Very small amount of air pollutants are present in stratosphere also; though most of the atmospheric pollutants are present in the troposphere. Which of the following atmospheric pollutants does not cause the ozone layer depletion in atmosphere at tremendous rate?

- (A) CO
- (B) SO₂
- (C) NO_x
- (D) CFC (chloro fluoro carbons)

Answer: Option A

32. Maximum permissible limit of mercury in human blood is _____ micrograms/100 c.c.

- (A) 1
- (B) 7
- (C) 19
- (D) 82

Answer: Option B

33. For existence of aquatic life in water, the dissolved oxygen content in it, should not be less than _____ ppm.

- (A) 10000
- (B) 5
- (C) 500
- (D) 1000

Answer: Option B

34. Soluble silica present in boiler feed water can be removed by

- (A) Coagulation
- (B) Filtration
- (C) Anion exchanger
- (D) Preheating it

Answer: Option C

35. Threshold limit value (TLV) i.e., the maximum permissible safe limit of phosgene gas which Hitler used to use to kill his enemies in 'gas chamber' is about _____ ppm.

- (A) < 1
- (B) 10-100
- (C) 100-200
- (D) 100-1000

Answer: Option A

36. Presence of carbon monoxide in atmosphere produced by decomposition of chlorophyll and haemoglobin breakdown of some animals, beyond TLV (>50 ppm)

- (A) Acts as a green house gas thereby raising earth's temperature
- (B) Causes asphyxia
- (C) Causes increase in sea level
- (D) Enhances the green house effect

Answer: Option B

37. Smog is

- (A) Nothing but black smoke
- (B) A combination of smoke and fog
- (C) A liquid particle resulting from vapor condensation
- (D) A solid particle e.g. fly-ash

Answer: Option B

38. Fluorosis is caused due to the presence of excessive amount of _____ in drinking water.

- (A) Mercury
- (B) Lead
- (C) Fluoride
- (D) Arsenic

Answer: Option C

39. Noise pollution level in a chemical plant is expressed in

- (A) Roentgen
- (B) Decibel
- (C) Hertz
- (D) None of these

Answer: Option B

40. A considerable part of the harmful ultraviolet radiation of the sun does not reach the earth surface, because of the fact that, there is a layer of _____ high above earth's atmosphere, which absorbs it.

- (A) Hydrogen
- (B) Carbon dioxide
- (C) Ozone
- (D) None of these

Answer: Option C

41. Which of the following is not a weightless pollutant?

- (A) SPM
- (B) Thermal pollution
- (C) Radioactive rays
- (D) Noise pollution

Answer: Option A

42. Noise level inside a jet airliner in normal flight is about _____ decibels.

- (A) 80
- (B) 100
- (C) 125
- (D) 150

Answer: Option B

43. Noise level in a quiet private business office is about _____ decibels.

- (A) 25
- (B) 50
- (C) 70

(D) 85

Answer: Option B

44. Aerosols present in atmospheric air may be

- (A) Positively charged
- (B) Negatively charged
- (C) Neutral
- (D) Combination of all (A), (B) & (C)

Answer: Option D

45. Which of the following fine dust removal equipments is the most efficient?

- (A) Bag filter
- (B) Scrubber
- (C) Electrostatic precipitator
- (D) Cyclone separator

Answer: Option C

46. Fresh domestic sewage is _____ in color.

- (A) Grey
- (B) Dark brown
- (C) Red
- (D) Black

Answer: Option A

47. Pick out the correct statement.

- (A) Chemical oxygen demand (COD) is a measure of chemically oxidisable organic matter present in water
- (B) COD is determined by oxidising the organic matter present in water with potassium dichromate in cone, sulphuric acid solution at boiling temperature for specified time
- (C) COD is related to BOD of a given waste in water but the relationship varies for different wastes. Typically COD of potable water may be 1-2 mg/litre
- (D) All (A), (B) and (C)

Answer: Option D

48. Polyvinyl chloride containers are not suitable for storing

- (A) Foodstuffs
- (B) Woolen clothes
- (C) Metallic powder
- (D) None of these

Answer: Option A

49. Maximum permissible concentration (i.e. TLV) of DDT in public water supply system is _____ micro gram (μ g)/litre.

- (A) 22
- (B) 42
- (C) 332
- (D) 1050

Answer: Option B

50. The resistance of water to the passage of light through it is a measure of the

- (A) Turbidity
- (B) Color
- (C) Hardness
- (D) Dissolved gases

Answer: Option A

51. From pollution control point of view, the maximum permissible concentration of sulphur dioxide in atmospheric air is about _____ ppm.

- (A) 5
- (B) 50
- (C) 500
- (D) 5000

Answer: Option A

52. Carcinogenic air pollutants cause

- (A) Bone decay
 - (B) Cancer
 - (C) Asphyxiation (suffocation)
 - (D) Anemia
- Answer: Option B

53. Fresh sewage is _____ in nature.

- (A) Acidic
 - (B) Neutral
 - (C) Alkaline
 - (D) Highly acidic
- Answer: Option C

54. The destruction of water-borne pathogens is termed as disinfection of water. Which of the following is a water disinfectant?

- (A) Chlorine
 - (B) Alkalis
 - (C) Benzene hexachloride
 - (D) Alkyl benzene sulphonate (ABS)
- Answer: Option A

55. _____ is the process of killing organism in water.

- (A) Coagulation
 - (B) Sterilisation
 - (C) Disinfection
 - (D) Sedimentation
- Answer: Option C

56. The lowest layer of atmosphere is known as the

- (A) Stratosphere
 - (B) Troposphere
 - (C) Ionosphere
 - (D) None of these
- Answer: Option B

57. Salt content in sea water is about _____ percent.

- (A) 0.5
 - (B) 1
 - (C) 3.5
 - (D) 9.05
- Answer: Option C

58. Inhalation of silica dust by human being causes

- (A) Asphyxiation
 - (B) Shortness of breath
 - (C) Tuberculosis
 - (D) Both (B) & (C)
- Answer: Option D

59. High noise levels produced during operation of fans and compressors can be reduced by using

- (A) Mufflers (silencers)
 - (B) Acoustic absorbent
 - (C) Lagging of noisy duct
 - (D) None of these
- Answer: Option A

60. Photochemical smog is formed from automobile exhaust

- (A) By reaction of hydrocarbon & nitric oxide in presence of sunlight
 - (B) Appears only on sunny days
 - (C) Is harmful for crops and trees also besides causing eye irritation & asthma
 - (D) All (A), (B) & (C)
- Answer: Option D

61. Green house gases blanket/block the infrared radiation from earth's surface to the atmosphere leading to its progressive warming up. Which of the following gases does not exhibit green house effect?

- (A) CO₂
- (B) H₂
- (C) SO₃
- (D) N₂

Answer: Option C

62. Which of the following is not a source of ozone emission in the atmosphere?

- (A) Refrigerators
- (B) Xerox machines
- (C) Dermatological photo-therapy equipments
- (D) High voltage electrical equipments

Answer: Option A

63. Which of the following is an adsorbent for removal of nitrogen oxides from gas/air?

- (A) Active carbon
- (B) Silica gel
- (C) Bog iron (iron oxide)
- (D) Pulverised limestone

Answer: Option B

64. Ringelmann chart is used for the evaluation of _____ pollution.

- (A) Air
- (B) Water
- (C) Noise
- (D) Radioactive

Answer: Option A

65. The effect of increase in carbon dioxide level of the atmosphere and its profound effect on our climate is called the

- (A) Catalytic conversion
- (B) Green house effect
- (C) Global warming
- (D) Both (B) and (C)

Answer: Option D

66. Inorganic impurities causing water pollution is

- (A) Fats
- (B) Carbohydrates
- (C) Salts of metals
- (D) Protein

Answer: Option C

67. Which of the following is not a practical method of low level radioactive waste disposal?

- (A) Dilution with inert material
- (B) Discharging to atmosphere through tall stacks after dilution
- (C) Disposing off in rivers & oceans
- (D) Filling in steel crates and shooting it off out of earth's gravity

Answer: Option D

68. In a sedimentation tank, the detention period for water ranges from _____ hours.

- (A) 2 to 4
- (B) 8 to 12
- (C) 16 to 20
- (D) 24 to 32

Answer: Option A

69. Disinfection of water is done to destroy pathogenic bacteria and thus prevent water-borne diseases. Disinfection of water may be done by the use of

- (A) Ozone and iodine
- (B) Chlorine or its compounds
- (C) Ultraviolet light for irradiation of water
- (D) All (A), (B) & (C)

Answer: Option D

70. Inhalation of silica dust by human being during hand drilling in mica mining, lead & zinc mining, silica refractory manufacture and in foundries causes

- (A) Asphyxiation (suffocation)
- (B) Shortness of breath
- (C) Tuberculosis
- (D) All (A), (B) and (C)

Answer: Option D

71. Global warming may result in

- (A) Flood
- (B) Cyclone
- (C) Decrease in food productivity
- (D) All (A), (B) and (C)

Answer: Option D

72. Maximum permissible residual chlorine in treated water should be _____ mg/litre.

- (A) 0.001 to 0.01
- (B) 0.2 to 0.3
- (C) 2 to 3
- (D) 5 to 10

Answer: Option B

73. Ringelmann chart No. 2 corresponds to _____ percent black smoke.

- (A) 10
- (B) 20
- (C) 40
- (D) 80

Answer: Option C

74. The maximum permissible noise level to which a man working in a chemical plant can be exposed for eight hours per day is about _____ decibels.

- (A) 60
- (B) 90
- (C) 105
- (D) 120

Answer: Option B

75. Oilish impurities present the effluent discharged from the electroplating industry is normally not removed by

- (A) Chemical coagulation
- (B) Flootation & skimming
- (C) Centrifugation
- (D) Ultra filtration

Answer: Option A

76. A masonry structure built below ground level, where biochemical reaction takes place due to anaerobic bacteria is called

- (A) Cesspool
- (B) Lagoon
- (C) Skimming mill
- (D) Septic tank

Answer: Option D

77. Pick out the wrong statement

- (A) Low ozone layer thickness in polar regions is due to cold climatic conditions
- (B) Amount of unburnt hydrocarbons emitted by two stroke petrol engine is more as compared to that emitted by a four stroke engine
- (C) Carbon monoxide present in the two stroke petrol engine exhaust is much less as compared to that emitted from a four stroke engine
- (D) Mercury as a pollutant can enter the blood stream & the digestive system/ lungs and is responsible for causing Minamata disease

Answer: Option C

78. Water filtration rate in a slow sand filter ranges from _____ litres/m²/hr.

- (A) 10 to 20
- (B) 100 to 200
- (C) 1500 to 2500
- (D) 4000 to 5000

Answer: Option B

79. _____ content of the phosphate rock is the pollutant of primary interest in a phosphatic fertiliser plant.

- (A) Calcium
- (B) Fluorine
- (C) Phosphorous
- (D) Sulphur

Answer: Option B

80. Color test of water is done with an instrument called

- (A) Tintometer
- (B) Colorimeter
- (C) Electro-chemical cell
- (D) Turbidimeter

Answer: Option A

81. The weakest sound that can be heard by a person in a quiet environment is equivalent to _____ decibel.

- (A) 1
- (B) 5
- (C) 10
- (D) 50

Answer: Option A

82. The maximum CO₂ is emitted into the atmosphere by

- (A) Combustion
- (B) Urea
- (C) Biomass burning
- (D) Trees

Answer: Option A

83. Workers working in _____ industry are most prone to white lung cancer.

- (A) Coal mining
- (B) Limestone mining
- (C) Textile
- (D) Asbestos

Answer: Option C

84. Which of the following processes is involved in the biochemical treatment of sewage effluents?

- (A) Oxidation
- (B) Reduction
- (C) Dehydration
- (D) Fermentation

Answer: Option A

85. Which of the following is a manmade source of air pollution?

- (A) Automobile exhaust
- (B) Forest fire
- (C) Bacterial action in soil and swamp areas
- (D) All (A), (B) and (C)

Answer: Option A

86. The earth's atmosphere is an envelope of gases present upto a height of about _____ kms.

- (A) 10
- (B) 200
- (C) 1000
- (D) 2000

Answer: Option B

87. Which of the following is the most active zone of atmosphere in which weathering events like rain, storm & lightning occur?

- (A) Thermosphere
- (B) Troposphere
- (C) Stratosphere
- (D) None of these

Answer: Option B

88. TLV of NO₂ & NO exposure for the human being is 5 & 25 ppm respectively. Prolonged exposure of human being to NO₂ causes

- (A) Skin disorder
- (B) Bronchitis
- (C) Bone disease
- (D) Cancer

Answer: Option B

89. Lung cancer & DNA breakage are the major ill effects of excessive ozone exposure to human beings. Ozone layer depletion in the atmosphere is mainly caused by the presence of

- (A) CO₂
- (B) SO₂
- (C) Hydrocarbons
- (D) CFC (chloro fluoro carbon)

Answer: Option D

90. The density of the gases (present in air) decreases with increasing altitude to such an extent, that about 70% of the mass of atmospheric air is found in the lower 5 km. of the atmosphere.

This lower region of atmosphere is called the

- (A) Ionosphere
- (B) Troposphere
- (C) Stratosphere
- (D) None of these

Answer: Option B

91. Pick out the wrong statement.

- (A) A slight haze at the top of chimney indicates good combustion in the furnace
- (B) A bag filter incurs very small pressure drop and is very efficient for removal of submicronic dust particles from flue gases at very high temperature
- (C) Electrostatic precipitator is the most efficient dust collection equipment for removal of submicronic dust particles present in flue gas
- (D) None of these

Answer: Option B

92. The progressive warming up of the earth's surface is mainly due to the

- (A) Automobile exhaust
- (B) Blanketing effect of CO₂ in the atmosphere
- (C) De-forestation
- (D) Thickening of ozone layer

Answer: Option B

93. The function of skimming tank in sewage treatment is to remove _____ substances.

- (A) Dissolved solid
- (B) Suspended solid
- (C) Oil & fatty
- (D) Gritty & inorganic

Answer: Option C

94. Hydrogen ion concentration in distilled water is

- (A) 10^{-7}
- (B) 7×10^{-7}
- (C) 10^7
- (D) 7×10^7

Answer: Option A

95. A standard test for determination of hardness in water is termed as _____ test.

- (A) EDTA
- (B) Electrometric
- (C) Total count
- (D) Presumptive

Answer: Option A

96. Infective bacteria in water is killed by the _____ process.

- (A) Sterilisation
- (B) Aeration
- (C) Disinfection
- (D) None of these

Answer: Option A

97. Removal of _____ results from the disinfection of water.

- (A) Turbidity
- (B) Odour
- (C) Hardness
- (D) Bacteria

Answer: Option D

98. Ozone is

- (A) A primary pollutant
- (B) A secondary pollutant
- (C) Impervious to ultra-violet rays
- (D) Both (B) and (C)

Answer: Option D

99. Which of the following is not a natural source of air pollution?

- (A) Volcanic eruptions and lightening discharges
- (B) Biological decay of vegetable matter
- (C) Photochemical oxidation of organic matter
- (D) None of these

Answer: Option D

100. Which of the following is a secondary air pollutant?

- (A) Photochemical smog
- (B) Sulphur dioxide
- (C) Nitrogen dioxide
- (D) Dust particles

Answer: Option A

101. Which of the following is the most widely used disinfectant in water treatment?

- (A) Chlorine
- (B) Irradiation of water by ultraviolet light
- (C) Cation exchanger
- (D) Coagulation

Answer: Option A

102. Presence of nitrogen and phosphorous in waste water discharged into lakes and ponds causes

- (A) Foaming
- (B) Odour nuisances
- (C) Undesirable plant growth
- (D) Turbidity

Answer: Option C

103. There are five concentric layers within the atmosphere which is differentiated on the basis of temperature. The atmospheric layer which lies close to the earth's surface in which human being along with other organisms live is called troposphere. The rate at which air temperature in the troposphere gradually decreases with height is about _____ °C/km.

- (A) 0.05
- (B) 1
- (C) 6.5
- (D) 15

Answer: Option C

104. TLV of lead for public sewer/waste water is about _____ ppm.

- (A) 1
- (B) 25
- (C) 150
- (D) 650

Answer: Option A

105. Threshold limit value (TLV) of CO in air is _____ ppm.

- (A) 5
- (B) 50
- (C) 2000
- (D) 5000

Answer: Option B

106. Major sources of noise in furnace operation arises from air inspirators, combustion, side wall vibrations and fluctuation in the process heat load. A 50% increase in fuel firing rate may increase the furnace noise level by about _____ decibels.

- (A) 3
- (B) 30
- (C) 7
- (D) 70

Answer: Option A

107. Ethanolamine is an absorbent used for the removal of _____ from air/gas.

- (A) HF
- (B) SO₂
- (C) H₂S
- (D) Both (B) & (C)

Answer: Option D

108. Lagoons used for purification of polluted water

- (A) Are large shallow artificial lakes also known as clarification lakes, maturation ponds or oxidation ponds
- (B) Use micro-organisms/bacteria in presence of dissolved oxygen
- (C) Gives an excellent final effluent (with 3 to 4 lagoons arranged in series) having suspended solid < 1 mg/litre and BOD = 3.8 mg/litre
- (D) All (A), (B) & (C)

Answer: Option D

109. Which is the most efficient dust removal equipment for removal of submicronic dust particles from blast furnace gas?

- (A) Packed scrubber
- (B) Gravity settling chamber
- (C) Electrostatic precipitator
- (D) Hydrocyclone

Answer: Option C

110. 5-200 µm size particles are called

- (A) Colloids or aerosols
- (B) Powder
- (C) Dust
- (D) Smoke

Answer: Option A

111. Pick out the wrong statement.

- (A) Biological oxygen demand (BOD) is a characteristic and not a constituent of water
- (B) BOD is a measure of the amount of oxygen which will be demanded & used in 5 days by the biological decomposition of the organic matter present in water stream present as food for the living organism
- (C) BOD is expressed in mg/litre (typically, BOD=2.5 mg/litre for potable water)
- (D) None of these

Answer: Option D

112. A man exposed to excessive noise level in the working environment may suffer from

- (A) Hearing loss
- (B) Rupture of ear drum
- (C) Nervousness & fatigue
- (D) All (A), (B) & (C)

Answer: Option D

113. Presence of nitrates in water in excess of 50 ppm causes

- (A) Methemoglobinemia
- (B) Gastroenteritis
- (C) Asphyxiation
- (D) Tooth decay

Answer: Option A

114. Which is the most widely used coagulant for the treatment of turbid water?

- (A) Alum (aluminium sulphate)
- (B) Lime
- (C) Ferric chloride
- (D) Sodium aluminate

Answer: Option A

115. Black smoke coming out of the chimney of a furnace is an indication of the use of _____ in the furnace.

- (A) Low amount of excess combustion air
- (B) Large quantity of excess combustion air
- (C) Hydrocarbon fuel
- (D) Pulverised coal as fuel

Answer: Option A

116. Higher concentration of nitrogen dioxide in atmospheric air causes

- (A) Cancer
- (B) Bronchitis
- (C) Asphyxiation
- (D) Corrosion

Answer: Option B

117. Biological oxidation ponds remove organic matters present in the polluted water by

- (A) Using the activities of bacteria and other micro organisms
- (B) Aerobic oxidation
- (C) Both (A) & (B)
- (D) Neither (A) nor (B)

Answer: Option C

118. Exposure to SO₂ containing chimney gases results in the

- (A) Reduction in strength of leather & cloth
- (B) Acceleration of corrosion rates of metals
- (C) Increased drying & hardening time of paints
- (D) All (A), (B) and (C)

Answer: Option D

119. Pick out the correct statement.

- (A) Deforestation helps in controlling the green house effect
- (B) Global warming is detrimental for increase in food productivity and may cause flood and cyclone
- (C) Lightening discharges are natural source of production of SO₂ & H₂S pollutant
- (D) Sulphur dioxide causes death by asphyxiation

Answer: Option B

120. The principal gas evolved from sludge digestion tank is

- (A) CO
- (B) CO₂
- (C) CH₄
- (D) N₂

Answer: Option C

121. Which of the following plants does not emit appreciable amount of SO₂ in atmosphere?

- (A) Thermal power plant
- (B) Petroleum refinery
- (C) Nitric acid plant
- (D) Sulphuric acid plant

Answer: Option C

122. In sewage treatment, the detention period allowed for oxidation ponds ranges from _____ weeks.

- (A) 1 to 2
- (B) 4 to 5
- (C) 9 to 10
- (D) 15 to 20

Answer: Option B

123. The pH value of potable water should be between

- (A) 1 to 1.5
- (B) 6.5 to 8
- (C) 13 to 14
- (D) 4 to 5

Answer: Option B

124. Insufficient washing of sand grains in a rapid sand filter causes

- (A) Air binding
- (B) Shrinkage of filtering media
- (C) Mud balls
- (D) Expansion of filtering media

Answer: Option C

125. Which of the following causes death by asphyxiation, if its presence in atmospheric air exceeds maximum allowable concentration (i.e. > 50 ppm)?

- (A) Benzopyrene
- (B) Peroxyacetyl nitrate
- (C) Carbon monoxide
- (D) Sulphur dioxide

Answer: Option C

126. Lead exhausted in the atmosphere by automobiles using leaded petrol (i.e. tetraethyl lead for improving octane number) is a lethal air pollutant which causes

- (A) Paralysis of muscles & loss of appetite
- (B) Nervous depression
- (C) Gastritis and diarrhea
- (D) All (A), (B) and (C)

Answer: Option D

127. Sulphur dioxide present in the industrial chimney exhaust gases causes

- (A) Respiratory & lung disease
- (B) Reduction in plant's productivity owing to acid rain
- (C) Corrosion of building materials
- (D) All (A), (B) and (C)

Answer: Option D

128. Phenolic water generated in coke ovens & by-product plant of a steel plant are disposed off by

- (A) Quenching of hot coke
- (B) Discharging in the river stream
- (C) Filtration and recycling for cooling coke oven gas
- (D) None of these

Answer: Option A

129. Corrosion in boilers can be prevented by

- (A) Deaeration of feed water
- (B) Enhancing pH of feed water by adding alkali
- (C) Feeding sodium sulphite or hydrazine phosphate to the boilers, which combines with oxygen and prevents corrosion

(D) All (A), (B) and (C)

Answer: Option D

130. During sewage treatment, the sewage is subjected to _____ treatment in Imhoff tank.

- (A) Filtration
- (B) Digestion
- (C) Sedimentation
- (D) Both (B) and (C)

Answer: Option D

131. Fine grit present in sewage is removed in the _____ during sewage treatment.

- (A) Grit chamber
- (B) Detritus tank
- (C) Trickling filter
- (D) Skimming tank

Answer: Option B

132. Which of the following pollutants is absent in the emissions from a fertiliser plant?

- (A) SO_2 & SO_3
- (B) NO_2
- (C) NH_3
- (D) CO

Answer: Option D

133. Out of the following, TLV of _____ is maximum (about 500 ppm).

- (A) Carbon dioxide
- (B) Toluene
- (C) Carbon disulphide
- (D) Acetaldehyde

Answer: Option A

134. The biological decomposition of organic substances in wastes controlled conditions is called

- (A) Incineration
- (B) Biological oxidation
- (C) Composting
- (D) None of these

Answer: Option C

135. Threshold limit value (TLV) means maximum permissible/acceptable concentration. TLV of phosgene in air is about _____ ppm (parts per million).

- (A) 0.002
- (B) 0.2
- (C) 1.2
- (D) 4.8

Answer: Option B

136. Which of the following sources is responsible for maximum air pollution?

- (A) Industrial chimney exhaust
- (B) Forest fire
- (C) Automobiles exhaust
- (D) Photochemical oxidation of organic matter

Answer: Option C

137. As per the world health organisation (WHO) specification, the maximum permissible concentration (i.e., TLV) of particulate matter in air is _____ $\mu\text{g}/\text{m}^3$. (μg -microgram)

- (A) 10
- (B) 90
- (C) 800
- (D) 750

Answer: Option B

138. Water filtration rate in a rapid sand filter ranges from _____ kilolitres/ m^2 /hr.

- (A) 0.1 to 1
- (B) 3 to 6
- (C) 10 to 15

(D) 15 to 20
Answer: Option B

139. Presence of _____ bacteria in water causes disease like typhoid.

- (A) Aerobic
 - (B) Pathogenic
 - (C) Anaerobic
 - (D) Non-pathogenic
- Answer: Option B

140. Oceans act as sinks for atmospheric gases including carbon dioxide whose concentration in the atmosphere is increased by the

- (A) Forestation
 - (B) Rain
 - (C) Green house effect
 - (D) Vegetation
- Answer: Option C

141. In large thermal power stations very fine particulates present in flue gas are removed by

- (A) Wet scrubber
 - (B) Bag filter
 - (C) Electrostatic precipitators
 - (D) Dust catcher
- Answer: Option C

142. Sooty and sulphurous smog formed due to combustion of fossil fuels particularly in winter, continues throughout the day and night. When the moist atmospheric air's water vapor condenses on the solid particles of smoke thereby forming smog (smoke + fog), it causes

- (A) Poor visibility due to sky darkening
 - (B) Irritation in eyes
 - (C) Respiratory trouble
 - (D) All (A), (B) and (C)
- Answer: Option D

143. Which of the following is the most lethal water pollutant?

- (A) Phenol and cyanide
 - (B) Chlorine
 - (C) Alkalis
 - (D) Suspended solids
- Answer: Option A

144. Hazardous/polluting chemical industries should have an 'exclusion zone' with a green belt and general public access prohibited around it, covering a radius of _____ metres.

- (A) 100
 - (B) 1000
 - (C) 400
 - (D) 4000
- Answer: Option B

145. The detrimental effect on organism and water quality with temperature rise of aquatic system is the reduction of _____ of water.

- (A) Dissolved oxygen content
 - (B) Biological oxygen demand
 - (C) Vapor pressure
 - (D) All (A), (B) and (C)
- Answer: Option A

146. The most commonly used chemical coagulant in water treatment is

- (A) Ferrous sulphate
 - (B) Alum
 - (C) Lime
 - (D) Hydrazine
- Answer: Option B

147. Which of the following industries discharge mercury as a pollutant?

- (A) Chloro-alkali industry
 - (B) Tanneries
 - (C) Beverage plant
 - (D) Phosphoric acid plant
- Answer: Option A

148. Which of the following is the most efficient for removal of very finely divided suspended solids and colloidal matter from the polluted water stream?

- (A) Sedimentation tank
- (B) Circular clarifier
- (C) Mechanical flocculation
- (D) Chemical coagulation

Answer: Option D

149. The Killer gas which caused Bhopal gas tragedy in 1984 was

- (A) Phosgene
- (B) Methyl isocyanate (MIC)
- (C) Carbon monoxide
- (D) Sulphur dioxide

Answer: Option B

150. TLV of ammonia, nitrogen dioxide and phenol vapor in air is _____ ppm.

- (A) 5
- (B) 100
- (C) 1000
- (D) 2000

Answer: Option A

151. The common pollutant generated in chlor-alkali industry and battery manufacture is

- (A) Mercury
- (B) Brine
- (C) Phosphate
- (D) None of these

Answer: Option A

152. Nitrogen oxides (NO_x) is not produced in the _____ industry.

- (A) Nitric acid making
- (B) Nitrogenous fertiliser
- (C) Detergent
- (D) Any of these

Answer: Option C

153. Permissible safe limit (TLV) of _____ toxic gas is 100-1000 parts per million (ppm).

- (A) Highly
- (B) Moderately
- (C) Extremely
- (D) Very extremely

Answer: Option B

154. What are the methods of treatment & disposal of radioactive wastes?

- (A) Evaporation & chemical precipitation
- (B) Biological methods & adsorption in ion exchange materials
- (C) Fixing into a solid mass with cement and sinking deep in the sea
- (D) All (A), (B) & (C)

Answer: Option D

155. Deaeration of high pressure boiler feed water is done to reduce

- (A) Foaming from boilers
- (B) Its dissolved oxygen content
- (C) Its silica content
- (D) Caustic embrittlement

Answer: Option B

156. Main pollutants released from petroleum refineries is

- (A) CO, SO₂ & H₂S

- (B) CO₂, NO & SO₃
 - (C) CO₂, H₂S & NO₂
 - (D) SO₃, NO₂ & CO₂
- Answer: Option A

157. Which of the following radioactive wastes emits all α , β & γ rays and hence is the most hazardous of all radioactive emitters?

- (A) I-131
- (B) Sr-90
- (C) Au-198
- (D) Ra-226

Answer: Option D

158. In sewage treatment, its sedimentation is speeded up by commonly adding

- (A) Hydrochloric acid
- (B) Lime
- (C) Copper sulphate
- (D) Sodium sulphate

Answer: Option B

159. Pick out the correct statement.

- (A) Noise from ball mills can be dealt with by fibre glass lined enclosures
- (B) Noise from vibrating chutes can be reduced by lining the metallic chute with rubber
- (C) Noise of conveyor belt system is reduced by using urethane coated cloth conveyor belts and rubber/plastic covered metallic rollers
- (D) All (A), (B) & (C)

Answer: Option D

160. Thermal pollution of water increases its toxicity and oxidation of oxygen demanding waste besides favouring bacterial growth. A rise in water temperature by 10°C, doubles the toxic effects of _____ present in it.

- (A) Coal ash
- (B) Potassium cyanide
- (C) Ortho-xylene
- (D) None of these

Answer: Option B

161. Beyond what concentration of H₂S in air, acute danger to human life exists?

- (A) 50 ppm
- (B) 100 ppm
- (C) 300 ppm
- (D) 700 ppm

Answer: Option D

162. Presence of high concentration of ozone and smog in atmospheric air causes the

- (A) Embrittlement & decrease of folding resistance of paper
- (B) Cracking of rubber products
- (C) Fading of dye on textiles
- (D) Damage of electrical insulator on high tension power line

Answer: Option B

163. Methyl isocyanate (MIC) gas (TLV <1 ppm), which caused Bhopal gas tragedy in 1984 falls under the category of _____ toxic gas.

- (A) Moderately
- (B) Highly
- (C) Extremely
- (D) Very extremely

Answer: Option D

164. Which of the following air pollutants is not toxic to vegetation i.e., doesn't cause vegetation damage?

- (A) Smog & ozone
- (B) Hydrogen fluoride & nitrogen oxides
- (C) Sulphur dioxide & spray of weed killers
- (D) Carbon monoxide

Answer: Option D

165. Carbonaceous particles having size less than 1 μm are called

- (A) Grit
- (B) Aggregates
- (C) Aerosols
- (D) Smoke

Answer: Option D

166. Exposure to chemicals having carcinogenic properties cause

- (A) Dermatitis (skin disorder)
- (B) Cancer
- (C) Asphyxiation
- (D) Asthma

Answer: Option B

167. White smoke coming out of the chimney of a furnace indicates the use of

- (A) Low excess air
- (B) Very high excess air
- (C) Gaseous fuel in the furnace
- (D) Liquid fuel in the furnace

Answer: Option B

168. High concentration of carcinogenic hydrocarbon pollutants in atmospheric air causes

- (A) Cancer
- (B) Silicosis
- (C) Respiratory disease (e.g., asthma)
- (D) Reduced crop yield

Answer: Option A

169. Most efficient and suitable dust removal equipment for removal of fly-ash from flue gas in a thermal power plant is the

- (A) Gravity settling chamber
- (B) Cyclone separator
- (C) Electrostatic precipitator
- (D) Bag filter

Answer: Option C

170. A 'body' which allows the short wavelength incoming solar radiation to enter in, but does not allow long wave length outgoing infra red radiation to escape out is called the

- (A) Global warming
- (B) Green house
- (C) Atmospheric effect
- (D) Ionosphere

Answer: Option B

171. Pick out the wrong statement pertaining to 'green house' for the plants.

- (A) 'Green house' (made of glass) allows visible sunlight (i.e., short wavelength solar radiation like ultra-violet rays) to pass through the glass and heat up the soil thereby warming up plants inside it
- (B) The emitted longer wavelength radiation (e.g., infrared) is partly reflected and partly absorbed by the glass of the green house
- (C) 'Green house effect' in earth's atmosphere is due to increasing CO_2 level in atmosphere, where CO_2 acts like the glass of 'green house' thereby warming up the earth's surface
- (D) 'Green house' is colder than the outside atmosphere

Answer: Option D

172. The amount of chemical coagulant added for treatment of polluted water _____ with increase in temperature of the polluted water to be treated.

- (A) Decreases
- (B) Increases
- (C) Remain constant
- (D) May increase or decrease; depends on the chemical characteristics of polluted water

Answer: Option A

173. In the context of the chemical process industries, the term BOD is normally associated with the

- (A) Characterisation of solid wastes
- (B) Organic concentration in gaseous effluents
- (C) Characterisation of liquid effluents
- (D) Characterisation of boiler feed water

Answer: Option C

174. Foaming and priming in boiler operation can be reduced by reduction in _____ in feed water.

- (A) Turbidity
- (B) Color (Hazen)
- (C) Total solids
- (D) All (A), (B) & (C)

Answer: Option D

175. Iron & manganese present as pollutant in water cannot be removed by

- (A) Ion exchange process
- (B) Oxidation followed by settling & filtration
- (C) Lime soda process or manganese zeolite process
- (D) Chlorination

Answer: Option D

176. Which of the following is a green house gas other than CO₂?

- (A) Methane
- (B) Nitrous oxide
- (C) Chlorofluoro carbons (CFC)
- (D) All (A), (B) and (C)

Answer: Option D

177. Which is the most practical and economical method for removal of suspended solid matter from polluted water?

- (A) Sedimentation
- (B) Skimming off
- (C) Chlorination
- (D) Biological oxidation

Answer: Option A

178. Aerodynamic noise resulting from turbulent gas flow is the most prevalent source of valve noise in fluid flow control. It is caused due to

- (A) Reynold stresses
- (B) Shear forces
- (C) Both (A) & (B)
- (D) Neither (A) nor (B)

Answer: Option C

179. When the concentration of SO₂ in air is greater than _____ ppm, it gives a pungent smell.

- (A) 0.01
- (B) 0.1
- (C) 1
- (D) 4

Answer: Option D

180. Acute danger to human life (i.e. death) exists, if the concentration of CO₂ in atmospheric air exceeds _____ percent (by volume).

- (A) 1
- (B) 3
- (C) 7
- (D) 20

Answer: Option D

181. Which is the best and the most effective method for the removal of organic contaminant present in the polluted water in very small quantity (say < 200 mg/litre)?

- (A) Lagooning

- (B) Activated carbon adsorption
 - (C) Biological oxidation pond
 - (D) Chemical coagulation
- Answer: Option B

182. Shouting by a man at his full voice corresponds to a voice level of about _____ decibels.

- (A) 25
- (B) 50
- (C) 80
- (D) 120

Answer: Option C

183. Which of the following pollutants, if present in atmosphere is detectable by its odour ?

- (A) CO
- (B) SO₂
- (C) NO₂
- (D) CO₂

Answer: Option B

184. Which of the following dust collection equipments is the least efficient (for sub-micronic particles)?

- (A) Dust catcher (gravity type)
- (B) Cyclone separator
- (C) Bag filter
- (D) Hollow wet scrubber

Answer: Option A

185. Removal of _____ is accomplished by aeration of water.

- (A) Dissolved gases
- (B) Suspended solids
- (C) Dissolved solids
- (D) None of these

Answer: Option A

186. Which of the following is not a secondary air pollutant?

- (A) Ozone
- (B) Photochemical smog
- (C) Sulphur dioxide
- (D) All (A), (B) & (C)

Answer: Option C

187. Coal washing waste water containing about 3% suspended solids (comprising of clay, slate, stone etc.) is treated for solid particles removal

- (A) By chemical coagulation
- (B) In sedimentation tanks equipped with mechanical scrapper
- (C) In vacuum filter
- (D) In clarifiers

Answer: Option B

188. In water treatment, alum [Al₂(SO₄)₃] is used for the process of

- (A) Filtration
- (B) Coagulation
- (C) Sedimentation
- (D) Disinfection

Answer: Option B

189. Particles having diameter greater than 75 μm (micrometer = 10⁻⁶ mm) are called

- (A) Grit
- (B) Dust
- (C) Powder
- (D) Smoke

Answer: Option A

190. Pick out the wrong statement

- (A) The concentric atmosphere layer just above troposphere is called stratosphere, which is rich in ozone
- (B) Mesosphere is characterised by very low atmospheric pressure and low temperature
- (C) Troposphere is a dusty zone containing water vapor and clouds
- (D) The radio waves used in the long distance radio communication are reflected back to earth by stratosphere

Answer: Option D

191. Inhalation of silica dust causes a disease called

- (A) Bronchitis
- (B) Silicosis
- (C) Pneumoconiosis
- (D) None of these

Answer: Option B

192. Pick out the wrong statement.

- (A) Biological oxygen demand (B.O.D.) value of a sewerage sample is always lower than its chemical oxygen demand (C.O.D.) value
- (B) Environmental pollution by NO_x emission is much higher by four stroke petrol engines as compared to the two stroke engines
- (C) Temperature in stratosphere rises with increasing altitude
- (D) The characteristic of a green house body is that it allows the long wavelength incoming solar radiation to come in but does not allow the short wavelength infra red radiation to escape out of the earth's atmosphere

Answer: Option D

193. Suspended solid present in the waste water generated in blast furnace gas cooling and cleaning plant is removed by

- (A) Biological oxygen pond
- (B) Radial settling tank (thickener) using coagulant (lime & ferrous sulphate)
- (C) Lagoons
- (D) Filtration

Answer: Option B

194. Carbon monoxide is a pollutant, which causes

- (A) Respiratory disease (e.g. asthma)
- (B) Asphyxiation (suffocation) leading to death
- (C) Retardation in crop growth
- (D) Damage to building materials like marble

Answer: Option B

195. A shallow pond in which the sewage is retained and biologically treated is called

- (A) Oxidation
- (B) Imhoff tank
- (C) Lagoon
- (D) Skimming tank

Answer: Option A

196. During which of the following operating conditions of an automobile, carbon monoxide content in the exhaust gas is maximum?

- (A) Idle running
- (B) Acceleration
- (C) Cruising
- (D) Deceleration

Answer: Option A

197. Pick out the wrong statement.

- (A) Benzopyrene which causes cancer is present in traces in tobacco, charcoal & petrol driven automobile exhaust
- (B) NO_2 is capable of penetrating the troposphere and can absorb both ultraviolet & visible light
- (C) Hydrocarbon pollutants are produced by sweet gum, oak & natural rubber trees
- (D) H_2S is not at all produced during combustion of sulphur bearing fuels as all the sulphur is oxidised to SO_2

Answer: Option D

198. 'Particulate' air pollutants are finely divided solids and liquids. Which of the following is not a 'particulate'?

- (A) Dust & mists
- (B) Smoke & fumes
- (C) Photochemical smog & soot
- (D) None of these

Answer: Option D

199. Main pollutants released from iron & steel industry is

- (A) CO, CO₂ & SO₂
- (B) H₂S, NO & SO₃
- (C) CO₂, H₂S & NO₂
- (D) SO₃, NO₂ & CO₂

Answer: Option A

200. Presence of dissolved impurities of _____ is responsible for the red brownish color of water.

- (A) Carbonates
- (B) Bi-carbonates
- (C) Iron & manganese
- (D) Arsenic

Answer: Option C

201. Noise produced by cooling fans (employed in air cooled heat exchangers or cooling tower) is mainly caused due to the turbulence created by blade passage through air. It can be reduced by use of a slower fan

- (A) With greater number of blades
- (B) Of increased diameter
- (C) Both (A) & (B)
- (D) Neither (A) nor (B)

Answer: Option C

202. Turbidity of water is an indication of the presence of

- (A) Suspended inorganic matter
- (B) Dissolved solids
- (C) Floating solids
- (D) Dissolved gases

Answer: Option A

203. The major reason of hydrodynamic noise (i.e., noise resulting from liquid flow) is

- (A) Pipe vibrations
- (B) Cavitation
- (C) Boundary layer separation
- (D) Fluctuation in liquid flow

Answer: Option B

204. The concentration of water vapour in troposphere, which depends upon the altitude & temperature, varies in the range of zero to _____ percent.

- (A) 1
- (B) 4
- (C) 8
- (D) 12

Answer: Option B

205. Dust collection efficiency of a cyclone separator depends upon its

- (A) Diameter
- (B) Inlet gas velocity
- (C) Overall height
- (D) All (A), (B) & (C)

Answer: Option D

206. Pick out the one which is not a chemical coagulant.

- (A) Aluminium sulphate
- (B) Ferrous sulphate
- (C) Hydrated lime

(D) Chloramine
Answer: Option D

207. Which of the following is the most severe air pollutant?

- (A) Hydrocarbons
- (B) NO_x
- (C) SO₂
- (D) CO

Answer: Option B

208. Inhalation of lead compounds present in the automobile exhausts (using leaded petrol) causes

- (A) Blood poisoning
- (B) Anaemia
- (C) Nervous system disorder
- (D) All (A), (B) and (C)

Answer: Option D

209. In troposphere (the weather domain), the temperature 't' at height 'h' above the sea level in metres is given by (where, temperature at sea level is 15°C and t is in °C.)

- (A) $t = 15 - 0.0065h$
- (B) $t = 15 + 0.0065h$
- (C) $t = 0.0035h - 15$
- (D) $t = 15 - 0.0035h$

Answer: Option A

210. Pick out the wrong statement.

- (A) Catalytic converter is fitted in automobiles to reduce carbon monoxide concentration in exhaust emissions
- (B) Inhalation of pollutant carbon monoxide results in death by asphyxiation
- (C) Sulphur dioxide is the main pollutant emitted from the exhaust of petrol driven automobiles
- (D) Decomposition of plants containing chlorophyll is a natural source of carbon monoxide in atmosphere

Answer: Option C

211. The ratio of oxygen available to the oxygen required for stabilisation of sewage is called the

- (A) Bacterial stability factor
- (B) Relative stability
- (C) Biological oxygen demand (BOD)
- (D) Oxygen ion concentration

Answer: Option B

212. Irradiation of water by ultraviolet light of suitable wavelength is commonly used for disinfection of water in

- (A) Food industry
- (B) Municipal sewage treatment
- (C) Petroleum refinery
- (D) Iron & steel plant

Answer: Option A

213. Ozone level is generally found to be depleted in India in the month of

- (A) February
- (B) July
- (C) April
- (D) December

Answer: Option D

214. Persons working in cement plants and limestone quarries are more prone to disease like

- (A) Cancer
- (B) Asthma
- (C) Silicosis
- (D) Fluorosis (bone disease)

Answer: Option C

215. Thermal pollution due to excessive heat & temperature in the working place causes

- (A) Reduction in working efficiency of manpower
 - (B) Fatigue
 - (C) High breathing rate
 - (D) All (A), (B) & (C)
- Answer: Option D

216. Presence of soluble organics in polluted water causes

- (A) Undesirable plants growth
 - (B) Depletion of oxygen
 - (C) Fire hazards
 - (D) Explosion hazards
- Answer: Option B

217. Replenishment of dissolved oxygen in water stream polluted with industrial waste occurs by

- (A) Natural aeration of water stream
 - (B) Photosynthetic action of algae
 - (C) Both (A) & (B)
 - (D) Neither (A) nor (B)
- Answer: Option C

218. Presence of iron and manganese in water causes

- (A) Reduction in its dissolved oxygen content
 - (B) Discoloration of bathroom fixtures
 - (C) Temporary hardness
 - (D) None of these
- Answer: Option B

219. The main industrial source of emission of hydrogen sulphide air pollutant is

- (A) Petroleum refineries
 - (B) Coal based thermal power plants
 - (C) Pulp and paper plant
 - (D) Metallurgical roasting & smelting plant
- Answer: Option B

220. TLV of mercury in potable (drinking) water is about _____ ppm.

- (A) 0.001
- (B) 0.1
- (C) 1
- (D) 5

Answer: Option A

221. Limestone powder is injected during pulverised coal burning in boilers to _____ the flue gases.

- (A) Reduce SO_2 content in
- (B) Catalytically convert SO_2 to SO_3 in
- (C) Increase the dew point of
- (D) None of these

Answer: Option A

222. Bacterial aerobic oxidation of polluted water in biological oxidation ponds is done to purify it. Presence of bacteria helps in

- (A) Coagulation and flocculation of colloids
- (B) Oxidation of carbonaceous matter to CO_2
- (C) Nitrification or oxidation of ammonia derived from breakdown of nitrogenous organic matter to the nitrite and eventually to the nitrate
- (D) All (A), (B) and (C)

Answer: Option D

223. Bag filter design is predominantly dependent on gas temperature, as it affects the gas density & viscosity and the selection of filtering material. The pressure drop in a bag filter is

- (A) Inversely proportional to viscosity of gas
- (B) Proportional to the viscosity & density of the gas
- (C) Proportional to the pressure of the gas
- (D) Both (B) and (C)

Answer: Option D

224. Presence of a certain minimum quantity of fluorine is desirable in potable water to prevent

- (A) Dental cavities
- (B) Scale formation
- (C) Water-borne disease
- (D) Corrosion

Answer: Option A

225. Presence of _____ hardness is responsible for the temporary hardness in water.

- (A) Carbonate
- (B) Calcium
- (C) Chloride
- (D) Sulphate

Answer: Option B

226. Pick out the wrong statement.

- (A) Caustic embrittlement of boiler's metallic parts is caused by high concentration of caustic soda in boiler feed water
- (B) Cooling and freezing of water kills the bacteria present in it
- (C) With increasing boiler operating pressure of steam, the maximum allowable concentration of silica in feed water goes on decreasing
- (D) Dissolved oxygen content in high pressure boiler feed water should be nil

Answer: Option B

227. The type of bacteria which is active in trickling filter during biological treatment of sewage is the _____ bacteria.

- (A) Anaerobic
- (B) Saprophytic
- (C) Aerobic
- (D) Parasitic

Answer: Option C

228. Foul odour and bad taste of water is removed by treating with

- (A) Alum
- (B) Bleaching powder
- (C) Activated carbon
- (D) Copper sulphate

Answer: Option C

229. Particulates (< 1µm size) remaining suspended in air indefinitely and transported by wind currents are called

- (A) Fumes
- (B) Mists
- (C) Smoke
- (D) Aerosols

Answer: Option D

230. World environment day is observed every year on the 5th of

- (A) June
- (B) December
- (C) July
- (D) September

Answer: Option A

231. Waste/polluted water discharged from electroplating, blast furnace and coal mining industries contain mainly _____ substances.

- (A) Radioactive
- (B) Organic
- (C) Inorganic
- (D) None of these

Answer: Option C

232. Smoke is produced due to

- (A) Insufficient supply of combustion air and insufficient time for combustion

- (B) Poor quality of fuel and improper mixing of fuel & combustion air
 - (C) Poor design & overloading of furnace
 - (D) All (A), (B) and (C)
- Answer: Option D

233. Septic tanks are used for the _____ of the deposited solids.

- (A) Separation
- (B) Anaerobic decomposition
- (C) Aerobic decomposition
- (D) None of these

Answer: Option B

234. Maximum allowable noise exposure limits for a man working for 8 hours a day in a noisy chemical plant is about _____ decibels.

- (A) 20
- (B) 60
- (C) 90
- (D) 120

Answer: Option C

235. Which of the following is the most detrimental for water used in high pressure boiler?

- (A) Silica
- (B) Turbidity
- (C) Phenol
- (D) Dissolved oxygen

Answer: Option A

236. Automobile exhaust is passed through two compartments catalytic converter employing platinum as catalyst for

- (A) Conversion of CO into CO₂ in the second compartment
- (B) Conversion of NO_x into N₂ and NH₃ in the first compartment
- (C) Oxidation of unburnt hydrocarbon fuel in the second compartment
- (D) All (A), (B) and (C)

Answer: Option D

237. Atmospheric pollution caused by the exhaust gas of supersonic transport air-crafts is mostly in the atmospheric region called

- (A) Thermosphere
- (B) Stratosphere
- (C) Troposphere
- (D) Mesosphere

Answer: Option B

238. The widest explosive limit is of _____, thereby making it the most explosive gas.

- (A) Acetylene
- (B) Petrol vapor
- (C) Hydrogen
- (D) Carbon monoxide

Answer: Option A

239. _____ is removed from water by lime-soda process.

- (A) Foul smell and taste
- (B) Iron and manganese
- (C) Temporary hardness
- (D) Permanent hardness

Answer: Option C

240. Presence of volatile compounds like gasoline, oil, alcohol, ether etc. in municipal sewers may cause

- (A) Explosion
- (B) Non biodegradable foam
- (C) Undesirable plant growth
- (D) Corrosion

Answer: Option A

241. Most of the atmospheric air pollutants are present in large quantity in

- (A) Stratosphere
- (B) Thermosphere
- (C) Troposphere
- (D) Mesosphere

Answer: Option C

242. Green house effect is accentuated by

- (A) Deforestation
- (B) Rapid industrialisation
- (C) Increased transportation activity
- (D) All (A), (B) and (C)

Answer: Option D

243. Sound produced by an automobile horn heard at a distance of 1.5 metres corresponds to about _____ decibels.

- (A) 90
- (B) 120
- (C) 150
- (D) 180

Answer: Option B

244. Operating principle of cyclone separator is based on the action of _____ dust particles.

- (A) Diffusion of
- (B) Centrifugal force on
- (C) Gravitational force on
- (D) Electrostatic force on

Answer: Option B

245. Death may occur, when SO₂ concentration in atmospheric air exceeds _____ ppm.

- (A) 20
- (B) 100
- (C) 400
- (D) 200

Answer: Option C

246. Peroxyacetyl nitrate (PAN), a pollutant is found in the

- (A) Automobile exhaust
- (B) Flue gas of coal based power plant
- (C) Exhaust of nitric acid plant
- (D) Exhaust of sulphuric acid plant

Answer: Option A

247. Fluorosis (a bone disease) is caused by the presence of high concentration of _____ in atmospheric air.

- (A) Hydrocarbons
- (B) Hydrogen fluoride
- (C) Hydrogen sulphides
- (D) Nitrogen dioxide

Answer: Option B

248. Lagooning process is mainly a means of the

- (A) Sludge disposal
- (B) Reduction of excessive flow in sewers
- (C) Biological treatment of wastes
- (D) None of these

Answer: Option A

249. _____ cannot control the noise pollution.

- (A) Use of silencers
- (B) Green house gases
- (C) Vibration damping
- (D) Tree plantation

Answer: Option B

250. Siderosis is a disease caused by the inhalation of _____ dust.

- (A) Coal
- (B) Silica
- (C) Iron
- (D) None of these

Answer: Option C

251. Which of the following is the most major constituents of air pollutants?

- (A) Oxides of sulphur
- (B) Oxides of nitrogen
- (C) Carbon monoxide
- (D) Hydrogen sulphide

Answer: Option A

252. Noise level heard inside a bus in busy city traffic or inside a sub-way train corresponds to about _____ decibels.

- (A) 75
- (B) 95
- (C) 120
- (D) 140

Answer: Option B

253. Tri-sodium phosphate is used in boiler water treatment to reduce

- (A) Turbidity
- (B) Caustic embrittlement
- (C) Suspended silica
- (D) Dissolved oxygen

Answer: Option B

254. A gas is termed as non-toxic, if its maximum permissible concentration (TLV) ranges from _____ ppm.

- (A) 1000 to 2000
- (B) 3000 to 6000
- (C) 6000 to 9000
- (D) 10000 to 100000

Answer: Option D

255. Moist atmospheric air at high temperature (e.g., in summer) having high concentration of sulphur dioxide causes

- (A) Fading of dyes on textiles
- (B) Corrosion, tarnishing & soiling of metals
- (C) Reduced strength of textiles
- (D) All (A), (B) and (C)

Answer: Option D

256. 'Pneumoconiosis' is a disease caused by the inhalation of _____ dust.

- (A) Coal
- (B) Uranium ore
- (C) Iron ore
- (D) Lime

Answer: Option A

257. Which of the following acts as a natural source of air pollution?

- (A) Forest fire
- (B) Deforestation
- (C) Volcanic eruption
- (D) None of these

Answer: Option C

258. COD of raw municipal sewage may be in the range of about _____ mg/litre.

- (A) 1-2
- (B) 5-10
- (C) 90-120
- (D) 1500-2500

Answer: Option C

259. Exposure to small amount of _____ results in high blood pressure & heart disease in human beings.

- (A) Hydrogen sulphide
- (B) Mercury
- (C) Cadmium
- (D) Asbestos

Answer: Option C

260. Maximum permissible limit of industrial noise as recommended by World Health Organisation (WHO) is _____ decibels.

- (A) 35
- (B) 75
- (C) 95
- (D) 105

Answer: Option B

261. Noise level during normal conversation among men is about _____ decibels.

- (A) 10
- (B) 45
- (C) 90
- (D) 115

Answer: Option B

262. Exposure to chemicals having carcinogenic properties cause

- (A) Dermatitis (skin disorder)
- (B) Cancer
- (C) Asphyxiation (suffocation)
- (D) Asthma

Answer: Option B

263. Ionisation potential employed in the industrial electrostatic precipitator is of the order of

- (A) 30 to 70 kV DC
- (B) 30 to 70 kV AC
- (C) 230 V AC
- (D) 230 V DC

Answer: Option A

264. World's worst radioactive pollution was caused by nuclear reactor disaster which occurred in

- (A) Arizona (U.S.A.)
- (B) Chernobyl (undivided U.S.S.R.)
- (C) Pennsylvania (U.S.A.)
- (D) Moscow (U.S.S.R.)

Answer: Option B

265. Phenolic water generated in coke ovens & by-product plant attached to an integrated steel plant containing phenol in concentration of less than 100 mg/litre can be removed by

- (A) Chlorination
- (B) Treating in biological oxygen pond
- (C) Chemical coagulation
- (D) None of these

Answer: Option B

266. High noise level in a chemical plant can be controlled by the

- (A) Suppression of noise at the source itself
- (B) Path control of noise
- (C) Protection of operating personnel
- (D) All (A), (B) & (C)

Answer: Option D

267. Industrial workers working in leather tanning & manufacturing units are prone to suffer from

- (A) Respiratory ailments (e.g. bronchitis)

- (B) Skin diseases (e.g. dermatitis)
 - (C) Silicosis
 - (D) Blurred vision
- Answer: Option B

268. 80% less than 200 mesh size particles are called

- (A) Smoke
 - (B) Powder
 - (C) Grit
 - (D) Aggregates
- Answer: Option B

269. _____ substances present in sewage are removed in grit chamber during sewage treatment.

- (A) Organic
 - (B) Fatty
 - (C) Inorganic
 - (D) Dissolved
- Answer: Option C

270. Which of the following is the common pollutant emitted from metallurgical smelters, thermal power plant and cement plants?

- (A) NO_x
 - (B) Hg
 - (C) SO_2
 - (D) F
- Answer: Option C

271. Maximum allowable concentration of CO_2 in air for safe working is _____ ppm (parts per million).

- (A) 50
 - (B) 1000
 - (C) 2000
 - (D) 5000
- Answer: Option D

272. Higher concentration of CO_2 in atmosphere

- (A) Allows visible solar radiation (ultraviolet) of short wave-length to pass through
 - (B) Reflects and absorbs the longer wavelength (infra-red) radiations
 - (C) Prevents solar heat being radiated out completely, resulting in 'heat trap' i.e., global warming
 - (D) All (A), (B) and (C)
- Answer: Option D

273. Dissolved oxygen content in river water is around _____ ppm.

- (A) 5
 - (B) 100
 - (C) 250
 - (D) 500
- Answer: Option A

274. Inhalation of lead compounds present in automobile exhaust (using leaded petrol) causes

- (A) Blood poisoning
 - (B) Anaemia
 - (C) Nervous system disorder
 - (D) All (A), (B) & (C)
- Answer: Option D

275. Direct reaction of unsaturated hydrocarbons with either NO or NO_2 produces an eye irritating pollutant compound known as

- (A) Photochemical smog
 - (B) Peroxyacetyl nitrate (PAN) or methyl nitrite
 - (C) Benzopyrene
 - (D) Polyacrylonitrile
- Answer: Option B

276. Maximum permissible turbidity in potable water is _____ ppm.

- (A) 1
- (B) 10
- (C) 250
- (D) 1000

Answer: Option B

277. Presence of excess fluorine in water causes

- (A) Dental cavity
- (B) Tooth decay
- (C) Fluorosis
- (D) Respiratory disease

Answer: Option C

278. TLV of aldrin in public water supply system is about _____ µg/litre.

- (A) 0.5
- (B) 17
- (C) 357
- (D) 1097

Answer: Option B

279. H₂S present in gaseous stream can be removed by adsorption on

- (A) Silica gel
- (B) Active carbon
- (C) Bog iron
- (D) Limestone powder

Answer: Option C

280. Aerobic biological oxidation ponds used for the purification of polluted water

- (A) Destroys/removes pathogen from the sewage
- (B) Is not very effective for non-biodegradable substances (e.g. ABS) containing effluents
- (C) Destroys/removes pathogen much more effectively if the sewage is chlorinated
- (D) All (A), (B) & (C)

Answer: Option D

281. Radioactive substances present in the polluted water stream can be removed by

- (A) Biological oxygen treatment
- (B) Coagulation and filtration
- (C) Adsorption in ion exchange materials
- (D) None of these

Answer: Option C

282. Iron & manganese present in the polluted water is removed by

- (A) Simple filtration
- (B) Oxidation followed by settling & filtration
- (C) Chemical coagulation
- (D) Chlorination only

Answer: Option B

283. TLV of ozone (O₃) and phosgene (COCl₂) in air is _____ ppm.

- (A) 0.1
- (B) 25
- (C) 100
- (D) 1000

Answer: Option A

284. BOD of raw municipal sewage may be in the range of about _____ mg/litre.

- (A) 1-2
- (B) 5-10
- (C) 150-300
- (D) 2000-3000

Answer: Option C

285. Presence of bacteria in potable (drinking) water causes

- (A) Turbidity

- (B) Disease
 - (C) Bad odour
 - (D) Bad taste & colour
- Answer: Option B

286. Tolerable limit of nitrogen oxides in air is _____ ppm.

- (A) 0.1
- (B) 1
- (C) 5
- (D) 25

Answer: Option C

287. Noise level heard at a distance of about 100 metres from a jet engine with after burner is about _____ decibels.

- (A) 120
- (B) 140
- (C) 170
- (D) 200

Answer: Option C

288. Presence of _____ in water stream are deleterious to aquatic life.

- (A) Soluble and toxic organics
- (B) Suspended solids
- (C) Heavy metals and cyanides
- (D) All (A), (B) & (C)

Answer: Option D

289. Scale formation in boiler is controlled by

- (A) Preheating of feed water
- (B) Reduction in hardness, silica & alumina in feed water
- (C) Keeping the pH value of feed water just below 7
- (D) Eliminating H₂S in feed water

Answer: Option B

290. Noise emitted by a ventilation fan at a distance of 3 metres is about _____ decibels.

- (A) 85
- (B) 105
- (C) 125
- (D) 145

Answer: Option B

291. Main pollutant present in automobile exhaust is

- (A) CO
- (B) CO₂
- (C) NO
- (D) Hydrocarbons

Answer: Option A

292. The main pollutant in waste water discharged from a petroleum refinery is oil (both in free and emulsified form). Free oil is removed by

- (A) Biological oxygen pond
- (B) Aerated lagoons
- (C) Trickling filters
- (D) Gravity separator having oil skimming devices

Answer: Option D

293. Pollution by particulate matter emission in the atmosphere does not take place during metal

- (A) Grinding
- (B) Machining
- (C) Cutting
- (D) Polishing

Answer: Option D

294. Dose of chlorine for disinfection of water is about _____ mg/litre of water.