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SSC-I NATIONAL BOOK FOUNDATION FBISE

CHEMISTRY TEST - CHAPTER 11: ENVIRONMENTAL CHEMISTRY - AIR

Name:		Roll No.		Section:

Total Time: 2:30 Hour
Time Allowed: 150 Minutes

Total Marks: 150

PAPER OBJECTIVE
SECTION-A (MARKS 150)

NOTE: Section-A is compulsory. All parts of this section are to be answered on these pages and handed over to the center superintendent. Deleting / overwriting is not allowed. Do not use lead pencil.

Q.1 Fill the relevant bubble for each part. All parts carry one mark.

Questions	A	B	C	D	A B C D
1. Air is a _____ of various gases.	Element	Mixture	Solution of a solid	Compound	○●○○
2. Dry air by volume contains about _____ nitrogen.	78%	0.04%	21%	1%	●○○○
3. Dry air by volume contains about _____ oxygen.	78%	0.04%	1%	21%	○○○●
4. The remaining part of dry air is mostly noble gases and:	Methane	Ozone	Chlorine	Carbon dioxide	○○○●
5. The third most abundant gas in dry air is:	Neon	Helium	Carbon dioxide	Argon	○○○●
6. Besides gases, air contains varying amounts of:	Water vapour	Sand	Liquid water only	Metals	●○○○
7. In a tropical rainforest, air may contain up to _____ water vapour.	0.4%	4%	40%	20%	○●○○
8. There is very little water in the air over a:	Lake	Rainforest	Ocean	Desert	○○○●
9. The envelope of gases and water vapour surrounding the Earth is the:	Atmosphere	Hydrosphere	Lithosphere	Biosphere	●○○○
10. Anything in the air, water or soil that harms the environment is a:	Solvent	Pollutant	Nutrient	Catalyst	○●○○
11. Which of the following is an air pollutant?	Argon	Nitrogen only	Sulphur dioxide	Oxygen	○○●○
12. Another example: Which of the following is an air pollutant?	Neon	Argon	Carbon monoxide	Helium	○○●○

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Questions	A	B	C	D	A B C D
13. Pollutants damage the environment, health and:	Colour	Density	Mass	Quality of life	○○○●
14. Sulphur is found naturally in:	Water	Sand	Fossil fuels	Air only	○○●○
15. Burning fossil fuels releases significant amounts of:	Argon	Helium	Neon	Sulphur dioxide	○○○●
16. Sulphur dioxide is a powerful:	Nutrient	Irritant	Catalyst	Solvent	○●○○
17. Sulphur dioxide aggravates:	Fractures	Fever only	Asthma and bronchitis	Headache only	○○●○
18. Sulphur dioxide is responsible for acid rain and:	Tides	Rainbows	Clouds	Haze	○○○●
19. The colour of silk clothes fades in open air due to:	Oxygen	Argon	Sulphur dioxide	Neon	○○●○
20. The important oxides of nitrogen causing pollution are NO and:	N_2	NH_3	NO_2	N_2O_5 only	○○●○
21. Oxides of nitrogen are collectively represented as:	NO_x	NH_3	N_2	NO only	●○○○
22. The biggest source of nitrogen oxides is the burning of:	Sand	Water	Fossil fuels	Wood only	○○●○
23. Car engines produce a lot of:	Helium	Neon	Argon	Nitrogen oxides	○○○●
24. Oxides of nitrogen cause acid rain, photochemical smog and:	Respiratory problems	Fractures	Tides	Rainbows	●○○○
25. Carbon dioxide is a major air pollutant associated with:	Rainbows	Ozone layer only	Climate change	Tides	○○●○
26. Human activities increasing CO_2 levels include burning fossil fuels, deforestation and:	Industrial processes	Farming only	Planting trees	Swimming	●○○○
27. Incomplete combustion occurs when there is not enough:	Nitrogen	Oxygen	Carbon	Water	○●○○
28. Incomplete combustion is a major source of carbon monoxide and:	Oxygen	Particulate matter	Helium	Argon	○●○○
29. Particulate matter refers to fine particles suspended in the air like soot, smoke and:	Argon	Dust	Water	Oxygen	○●○○

Questions	A	B	C	D	A B C D
30. Particulate matter can cause respiratory problems and:	Lung cancer	Fractures	Sprains	Fever only	●○○○
31. Carbon monoxide combines with hemoglobin to form:	Methemoglobin	Carboxyhemoglobin	Hemoglobin A	Oxyhemoglobin	○●○○
32. Carboxyhemoglobin is unable to carry:	Oxygen	Nitrogen	Carbon dioxide	Water	●○○○
33. Carbon monoxide is a _____ and odourless gas.	Green	Red	Blue	Colourless	○○○●
34. Carbon monoxide can cause loss of consciousness, suffocation and:	Death	Fever only	Sleep only	Laughter	●○○○
35. Methane enters the atmosphere from the decomposition of vegetation and:	Waste	Rain	Metal	Sand	●○○○
36. Which is an important source of methane emissions?	Mountains	Deserts	Glaciers	Wetlands	○○○●
37. Another example: Which is an important source of methane emissions?	Rocky hills	Rice fields	Clouds	Snowfields	○●○○
38. Which animals release large amounts of methane during digestion?	Cows, goats and sheep	Birds	Snakes	Fish	●○○○
39. Higher levels of methane contribute to:	Snowfall	Global warming	Ozone formation only	Acid rain only	○●○○
40. Methane is produced when dead plant material decays in the absence of:	Air	Light	Soil	Water	●○○○
41. Ground-level ozone is often called:	Fog	Dew	Mist	Smog	○○○●
42. Ground-level ozone is a _____ pollutant.	Secondary	Radioactive	Natural	Primary	●○○○
43. Ground-level ozone is produced by reactions between nitrogen oxides and:	Volatile organic compounds	Helium	Water	Argon	●○○○
44. VOC stands for:	Vapour Of Carbon	Volatile Organic Compounds	Very Old Carbon	Variable Oxygen Content	○●○○
45. Ground-level ozone forms under the influence of:	Darkness	Moonlight	Cold	Sunlight	○○○●
46. Reactions in sunlight between VOCs and NO_x are called:	Thermal reactions	Photochemical reactions	Redox only	Nuclear reactions	○●○○

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Questions	A	B	C	D	A B C D
47. Sunlight breaks nitrogen dioxide into nitrogen monoxide and:	Argon	Ozone	Hydrogen	Atomic oxygen	○○○●
48. Atomic oxygen reacts with O_2 to form:	Methane	Water	Carbon dioxide	Ozone (O_3)	○○○●
49. Ground-level ozone can irritate respiratory organs and cause:	Asthma	Sprains	Fractures	Tides	●○○○
50. Ground-level ozone also damages vegetation and:	Oceans	Deserts	Rocks	Forests	○○○●
51. A natural source of air pollution is:	Cars	Forest fires	Factories	Power plants	○●○○
52. Another example: A natural source of air pollution is:	Cars	Factories	Power plants	Volcanoes	○○○●
53. Yet another: A natural source of air pollution is:	Factories	Cars	Dust storms	Power plants	○○●○
54. Termites and cows release large amounts of:	Nitrogen	Methane	Oxygen	Helium	○●○○
55. Electrical discharges in the atmosphere produce:	Methane	Nitrogen oxides	Ozone only	Helium	○●○○
56. Most air pollution is the result of burning:	Sand	Metals	Water	Fossil fuels	○○○●
57. Nearly _____ of air pollution comes from cars and motor vehicles.	Ten times	One-tenth	Nothing	Half	○○○●
58. Factories and power plants that burn coal or oil release:	Oxygen	Argon	Poisonous gases	Nitrogen	○○●○
59. C + limited O_2 gives:	O_2C	CO	C_2O	CO_2	○●○○
60. S + O_2 gives:	SO_3	SO	S_2O	SO_2	○○○●
61. N_2 + O_2 at high temperature gives:	2NO	NO_3	NO_2 only	N_2O_3	●○○○
62. 2NO + O_2 gives:	$2NO_3$	N_2O	$2NO_2$	NO_3	○○●○
63. NO_2 is a _____ gas with a pungent odour.	Colourless	Blue	Reddish-brown	Green	○○●○
64. The greenhouse effect is due to gases that absorb:	X-rays	Visible light only	Radio waves only	Infrared radiation	○○○●

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Questions	A	B	C	D	A B C D
65. Which is a greenhouse gas?	Oxygen	Argon	Carbon dioxide	Nitrogen	○○●○
66. Another example: Which is a greenhouse gas?	Oxygen	Nitrogen	Methane	Neon	○○●○
67. Yet another: Which is a greenhouse gas?	Water vapour	Oxygen	Helium	Nitrogen	●○○○
68. When sunlight reaches Earth's surface, some is absorbed, which _____ the earth.	Warms	Cools	Dries	Freezes	●○○○
69. The Earth emits energy as _____ radiation.	Gamma	Infrared	X-ray	Ultraviolet	○●○○
70. Greenhouse gases act like a _____ trapping heat.	Wall	Window	Blanket	Mirror only	○○●○
71. The greenhouse effect reduces thermal energy loss to:	Space	Earth	Oceans	Clouds	●○○○
72. Without the greenhouse effect, the Earth would be much:	Wetter	Hotter	Colder	Drier	○○●○
73. The natural greenhouse effect helps to regulate Earth's:	Temperature	Size	Rotation	Mass	●○○○
74. Increased greenhouse gases enhance the natural greenhouse effect, leading to:	Ice age	Global warming	Tides	Global cooling	○●○○
75. The warming of the atmosphere due to human influence on the greenhouse effect is:	Greenhouse effect	Global warming	Acid rain	Ozone depletion	○●○○
76. If global warming continues, polar ice may melt and cause:	More snow	Falling sea levels	Rising sea levels	Smaller oceans	○○●○
77. Global warming may cause increased risk of floods and:	Earthquakes	Rainbows	Tides	Droughts	○○○●
78. Normal rainwater is saturated with:	Carbon dioxide	Oxygen	Argon	Nitrogen	●○○○
79. The pH of normal rainwater is:	3	5.6	7	9	○●○○
80. Acid rain is defined as rain with pH less than:	5.6	7	8	6.5	●○○○
81. Sulphur dioxide from power plants dissolves in rainwater to create:	Sulphuric acid	Citric acid	Hydrochloric acid	Acetic acid	●○○○

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Questions	A	B	C	D	A B C D
82. Nitrogen oxides from car exhausts form _____ in rainwater.	Hydrochloric acid	Acetic acid	Nitric acid	Citric acid	○○●○
83. Nitrogen dioxide plays a role in the _____ oxidation of sulphur dioxide.	Thermal	Physical	Nuclear	Catalytic	○○○●
84. $2SO_2 + O_2 \rightarrow 2SO_3$, and $SO_3 + H_2O \rightarrow$	H_2SO_4	HSO_3	H_2SO_3	SO_4	●○○○
85. The pH of acid rain can be as low as about:	9	7	5.6	2.1	○○○●
86. The pH of acid rain can be lower than the pH of:	Water	Vinegar or lemon juice	Soap	Milk	○●○○
87. Acid rain can fall hundreds of _____ from its source.	Millimetres	Kilometres	Centimetres	Metres	○●○○
88. Acid rain corrodes metals, stone structures and:	Water	Glass only	Statues	Plastic	○○●○
89. $Fe + H_2SO_4 \rightarrow$	$FeO + H_2$	$Fe_2O_3 + H_2$	$FeS + H_2O$	$FeSO_4 + H_2$	○○○●
90. Marble buildings are disintegrated by acid rain because marble is:	Calcium chloride	Calcium sulphate	Calcium oxide	Calcium carbonate	○○○●
91. $CaCO_3 + H_2SO_4 \rightarrow$	$CaSO_4 + H_2O + CO_2$	$Ca + CO_2$	$CaSO_4 + H_2$	$CaO + H_2$	●○○○
92. Acid rain also kills fish and destroys:	Sand	Rocks	Trees	Clouds	○○●○
93. Lakes and rivers may become too _____ for living things to survive.	Acidic	Basic	Warm	Cold	●○○○
94. Catalytic converters are installed in the _____ system of cars.	Fuel	Brake	Exhaust	Cooling	○○●○
95. A catalytic converter transforms CO to:	C	CO_2	O_2	CH_4	○●○○
96. A catalytic converter transforms NO to:	NO_2	NH_3	N_2 and O_2	N_2O	○○●○
97. A catalytic converter transforms unburned hydrocarbons to CO_2 and:	H_2	H_2O	O_2	CO	○●○○
98. Metals used in catalytic converters include platinum, palladium and:	Copper	Rhodium	Iron	Lead	○●○○
99. $2NO + 2CO \rightarrow$	$N_2 + 2CO_2$	$2N + CO_2$	$NO_2 + C$	$N_2O + CO$	●○○○

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Questions	A	B	C	D	A B C D
100. Which strategy reduces climate change?	Cutting trees	Using more coal	Transition to renewable energy	Burning waste	○○●○
101. Which is a renewable energy source?	Natural gas	Solar	Petroleum	Coal	○●○○
102. Another example: Which is a renewable energy source?	Coal	Natural gas	Petroleum	Wind	○○○●
103. Planting trees reduces CO_2 through:	Decay	Photosynthesis	Respiration	Combustion	○●○○
104. Afforestation means:	Selling wood	Cutting forests	Planting forests where none existed	Burning forests	○○●○
105. Reforestation means:	Replanting forests that were destroyed	Burning forests	Selling wood	Cutting forests	●○○○
106. Promoting organic fertilizers instead of chemical ones is part of:	Combustion	Mining	Sustainable agriculture	Deforestation	○○●○
107. Hydrogen as a clean fuel is part of a:	Coal economy	Oil economy	Gas economy	Hydrogen economy	○○○●
108. A circular economy minimizes waste and promotes:	Recycling	Mining only	Burning	Dumping	●○○○
109. The Paris Agreement aims to limit global warming to well below:	10 °C	5 °C	20 °C	2 °C	○○○●
110. The Paris Agreement also includes a target of:	15 °C	1.5 °C	5 °C	10 °C	○●○○
111. Flue gas desulfurization removes _____ from flue gases.	Sulphur dioxide	Nitrogen	Carbon	Oxygen	●○○○
112. Wet or dry _____ are used in flue gas desulfurization.	Magnets	Scrubbers	Fans	Filters of cloth	○●○○
113. Low sulphur fuels minimize the amount of _____ in the atmosphere.	Sulphuric acid	Nitrogen	Oxygen	Nitric acid only	●○○○
114. Photosynthesis converts CO_2 and water into glucose in the presence of:	Keratin	Hemoglobin	Insulin	Chlorophyll	○○○●
115. Photosynthesis uses energy from the:	Moon	Wind	Sun	Earth only	○○●○
116. The equation of photosynthesis is $6CO_2 + 6H_2O \rightarrow$	$C_6H_{12}O_6 + 6O_2$	$C_6H_{12}O_6 + 6CO_2$	$6O_2$ only	$C_6H_6 + 6O_2$	●○○○

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Questions	A	B	C	D	A B C D
117. Photosynthesis removes _____ from the atmosphere.	Nitrogen	Carbon dioxide	Oxygen	Argon	○●○○
118. Photosynthesis produces glucose and:	Oxygen	Nitrogen	Argon	Methane	●○○○
119. N95 masks are designed to filter out:	Particles	Sound	All gases	Only light	●○○○
120. Gas masks contain _____ filters to absorb certain gases.	Metal	Cotton	Paper	Activated carbon	○○○●
121. Air quality indices use a numerical or _____ scale.	Weight	Length	Colour-coded	Time	○○●○
122. A _____ detector warns people of dangerous levels of CO.	Water	Smoke	Carbon monoxide	Heat	○○●○
123. Carbon monoxide detectors are installed in homes and:	Clouds	Rivers	Offices	Oceans	○○●○
124. A high-risk factor for respiratory disease is:	Exercise	Healthy diet	Sleep	Smoking	○○○●
125. Poor ventilation in homes causes:	Acid rain	Outdoor pollution only	Ozone layer	Indoor pollution	○○○●
126. Pollen, mold spores and dust are:	Pollutant gases	Fuels	Allergens	Acids	○○●○
127. Long-term exposure to pollutants can contribute to:	Asthma and lung cancer	Fractures	Sprains	Colour blindness	●○○○
128. COPD stands for chronic _____ pulmonary disease.	Organic	Oxidative	Obstructive	Operative	○○●○
129. Which is a protective measure against pollution?	Burning waste	Idling vehicles	Smoking	Wearing masks	○○○●
130. Which gas is emitted by volcanoes?	Helium	Sulphur dioxide	Neon	Argon	○●○○
131. Tropospheric ozone is harmful, while stratospheric ozone protects from:	Sound	Ultraviolet radiation	Infrared	Heat only	○●○○
132. Air that contains harmful particles and gases is:	Humid	Dry	Polluted	Clean	○○●○
133. Which of the following is NOT a primary pollutant?	Sulphur dioxide	Carbon monoxide	Nitric oxide	Ground-level ozone	○○○●

Questions	A	B	C	D	A B C D
134. Why do iron nails rust faster in rainwater? Because rainwater is more:	Basic	Neutral	Acidic	Pure	○○●○
135. Which is a harmful effect of carbon monoxide?	Colourful	Toxic to humans	Sweet	Odorous	○●○○
136. Which factor increases CO_2 in the atmosphere?	Using solar	Deforestation	Using wind	Planting trees	○●○○
137. Energy efficiency helps reduce energy _____ and emissions.	Production	Quality	Price	Consumption	○○○●
138. Electric vehicles and public transport reduce emissions from:	Farming	Cooking	Transport	Mining	○○●○
139. Forest regeneration promotes carbon sequestration and:	Pollution	Acid rain	Smog	Wildlife habitat	○○○●
140. Carbon sinks are important areas that:	Release methane	Produce CO	Absorb carbon dioxide	Produce smog	○○●○
141. Which of these is a secondary pollutant?	SO_2	Ozone	CO	Soot	○●○○
142. $SO_2 + H_2O$ gives:	H_2SO_4 only	HNO_3	H_2SO_3 (sulphurous acid)	HCl	○○●○
143. Burning coal releases _____ which contribute to acid rain.	SO_2 and NO_x	Argon	Only CO_2	Only N_2	●○○○
144. The air pollutant most responsible for acid rain along with nitrogen oxides is:	Neon	Sulphur dioxide	Helium	Argon	○●○○
145. Which of these is a major greenhouse gas emitted mostly by burning fossil fuels?	Neon	Helium	Carbon dioxide	Argon	○○●○
146. The gas that causes the greenhouse effect by trapping infrared radiation includes methane and:	Helium	Water vapour	Argon	Neon	○●○○
147. Which technology reduces NO_x and CO emissions from vehicles?	Silencer	Radiator	Battery	Catalytic converter	○○○●
148. Which is a measure to reduce personal exposure to pollution?	Burning waste	Idling vehicles	Smoking	Checking the air quality index	○○○●
149. The unit before Environmental Chemistry - Air is:	Acids, Bases and Salts	Energetics	Organic Chemistry	Hydrocarbons	●○○○
150. The unit after Environmental Chemistry - Air is:	Organic Chemistry	Environmental Chemistry - Water	Hydrocarbons	Biochemistry	○●○○