

QUESTIONNAIRE REPORT SHEET

iPQUGHG.V1.1

iPQ.No	Correct Answer	Points	Explanation
UGHG01	3	2.5	Answer = 3 Both Explanation : The program is being run by Green Business Certification Inc. (GBCI), in collaboration with the World Resources Institute and ICLEI - Local Governments for Sustainability. The goal of the program is to increase the global talent base of city climate planning professionals through the provision of training and professional certification.
UGHG02	4	2.5	Answer = 4 All off the above Explanation : The City Climate Planner program ensures urban professionals are equipped to support local climate action planning. Including developing greenhouse gas (GHG) emission inventories Climate action planning and climate adaptation planning

iPQ.No	Correct Answer	Points	Explanation
UGHG03	3	2.5	Answer = 3 Both Explanation : The City Climate Planner program represents distinct professional areas of practice that offer: Professionalized career path A professionalized career path for those interested in tackling climate change at the local level Quality assurance A quality assurance mechanism and recognition of expertise for employers Technically sound practices A set of practices to enhance the overall quality of climate action planning and policy development Global professional network Ability to foster communities of practice or professional associations Guide policy Ability to guide policy and promote city-scale sustainable development and climate action by linking inventory findings to broader local and national climate goals
UGHG04	4	2.5	Answer = 4 All of the above Explanation : The credential is ideal for those working on GHG emission inventories, including: Local government professionals Consultants Academic/nonprofit groups
UGHG05	3	2.5	Answer = 3 Both options correct Explanation : The City Climate Planner program is administered by Green Business Certification Inc. in partnership with the World Resources Institute and ICLEI Local Governments for Sustainability. With funding from the Korea Green Growth Trust Fund, the World Bank and international partners developed the program.

iPQ.No	Correct Answer	Points	Explanation
UGHG06	2	2.5	Answer = 2 Development that meets the needs of the present generation without compromising the ability of the future generation to meet their own needs Explanation : Development that meets the needs of the present generation without compromising the ability of the future generation to meet their own needs
UGHG07	4	2.5	Answer = 4 Climate risks Explanation : Climate risks are risks that are caused by changes in the climate.
UGHG08	3	2.5	Answer = 3 Agriculture, Construction, Retail, Energy, Tourism, and Transportation Explanation : Agriculture, Construction, Retail, Energy, Tourism, and Transportation are the Primary Industries.

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UGHG09	4	2.5	Answer = 4 All of the above Explanation : • Ecological footprint: environmental; • Socially responsible investments (social); • Health and demographic risks (social); • Protection of personal data of customers and employees (social); • Business ethics and corporate governance • Tax transparency and corporate governance • Green buildings (environmental); • Renewable energy—environmental; • Socially responsible deliveries; • Property rights protection; corporate governance; • Accounting and finance—corporate governance
UGHG10	2	2.5	Answer = 2 Framework Convention on Climate Change, UN FCCC;The Kyoto Protocol;The Paris Climate Agreement Explanation : Framework Convention on Climate Change, UN FCCC; The Kyoto Protocol; The Paris Climate Agreement
UGHG11	2	2.5	Answer = 2 Stationary combustion, mobile combustion, process emissions, and fugitive emissions Explanation : Stationary combustion, mobile combustion, process emissions, and fugitive emissions

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UGHG12	1	2.5	Answer = 1 Emissions from fuel combustion at off-site energy sources for the generation of energy purchased by the organization Explanation : Emissions from fuel combustion at off-site energy sources for the generation of energy purchased by the organization
UGHG13	4	2.5	Answer = 4 All of the above Explanation : • Static Combustion - Emissions from fuel combustion, eg boilers, gas turbines. Heat generation, steam and mechanical work; • Technological emissions - Emissions from technological processes; • Mobile Combustion - Emissions from vehicles used in the activities of the organization; • Fugitive Emissions - Leaks from equipment (e.g. refrigeration systems), leaks from systems where fossil fuels are stored.
UGHG14	3	2.5	Answer = 3 Direct measurements, calculations based on a carbon mass balance, calculations based on the emission factor Explanation : Direct measurements, calculations based on a carbon mass balance, calculations based on the emission factor
UGHG15	3	2.5	Answer = 3 44 Explanation : CO₂ has 44.01 amu. One mole of any compound weighs grams. Carbon dioxide molecules weigh 44.01g per mole, while sodium sulfide formula units weigh 78.04g. The molar masses are 44.01 and 78.04 g/mol. 04-Aug-2022.
UGHG16	3	2.5	Answer = 3 Carbon footprint Explanation : Carbon footprint

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UGHG17	4	2.5	Answer = 4 All of the above Explanation : Provide routine and consistent checks to ensure data integrity, correctness, and completeness; Identify and address errors and omissions; Document and archive inventory material and record all QC activities.
UGHG18	1	2.5	Answer = 1 75% Explanation : Cities are integral to tackling the global climate crisis. An estimated 75 percent of the world's energy-related greenhouse gas emissions come from cities, a number that will likely continue to increase as two-thirds of all people are expected to live in urban areas by mid-century.
UGHG19	2	2.5	Answer = 2 Greenhouse gases Explanation : Greenhouse gases - GHG
UGHG20	1	2.5	Answer = 1 CO₂, CH₄ Explanation : CO₂, CH₄
UGHG21	3	2.5	Answer = 3 Both options correct Explanation : Effective mitigation and adaptation planning should be evidence-based: Grounded in a scientific understanding of climate change when possible, and informed by local knowledge
UGHG22	3	2.5	Answer = 3 Both Chronic and emerging urban challenges Explanation : If cities and subnational governments do not take bold and decisive action to address both chronic and emerging urban challenges, then the vision of sustainable and equitable urban futures will not be guaranteed.

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UGHG23	1	2.5	Answer = 1 Scaling Explanation : Scaling																																				
UGHG24	3	2.5	Answer = 3 2,200 tonnes of CH4 Explanation : 1 tonne of SF6 = 23900 78 tonnes of N2O = 24180 2,200 tonnes of CH4 = 4600 4,000 metric tons of CO2 = 4000 <table><tr><th>Name</th><th>Formula</th><th>GWP values in IPCC Second Assessment Report¹⁹(CO₂e)</th><th>GWP values in IPCC Third Assessment Report²⁰(CO₂e)</th><th>GWP values in IPCC Fourth Assessment Report²¹(CO₂e)</th><th>GWP values in IPCC Fifth Assessment Report²²(CO₂e)</th></tr><tr><td>Carbon dioxide</td><td>CO₂</td><td>1</td><td>1</td><td>1</td><td>1</td></tr><tr><td>Methane</td><td>CH₄</td><td>21</td><td>23</td><td>25</td><td>28</td></tr><tr><td>Nitrous oxide</td><td>N₂O</td><td>310</td><td>296</td><td>298</td><td>265</td></tr><tr><td>Sulfur hexafluoride</td><td>SF₆</td><td>23,900</td><td>22,200</td><td>22,800</td><td>23,500</td></tr><tr><td>Carbon tetrafluoride</td><td>CF₄</td><td>6,500</td><td>5,700</td><td>7,390</td><td>6,630</td></tr></table>	Name	Formula	GWP values in IPCC Second Assessment Report ¹⁹ (CO ₂ e)	GWP values in IPCC Third Assessment Report ²⁰ (CO ₂ e)	GWP values in IPCC Fourth Assessment Report ²¹ (CO ₂ e)	GWP values in IPCC Fifth Assessment Report ²² (CO ₂ e)	Carbon dioxide	CO ₂	1	1	1	1	Methane	CH ₄	21	23	25	28	Nitrous oxide	N ₂ O	310	296	298	265	Sulfur hexafluoride	SF ₆	23,900	22,200	22,800	23,500	Carbon tetrafluoride	CF ₄	6,500	5,700	7,390	6,630
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UGHG25	1	2.5	Answer = 1 1																																				
UGHG26	2	2.5	Answer = 2 2050																																				
UGHG27	2	2.5	Answer = 2 Burning oil, gas, and coal																																				
UGHG28	4	2.5	Answer = 4 All of the above																																				
UGHG29	2	2.5	Answer = 2 50%																																				
UGHG30	3	2.5	Answer = 3 Carbon capture and storage																																				
UGHG31	3	2.5	Answer = 3 30%																																				
UGHG32	4	2.5	Answer = 4 All of the above																																				

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UGHG33	4	2.5	Answer = 4 All of the above Explanation : Significance of Mitigation Measures To avoid significant human interference with the climate system and ensure sustainability To stabilize greenhouse gas levels in a sufficient time frame To allow ecosystems to adapt naturally to climate change To ensure that food production is not threatened To enable economic development to proceed in a sustainable manner.
UGHG34	4	2.5	Answer = 4 All of the above
UGHG35	4	2.5	Answer = 4 All of the above Explanation : Efforts for Adaptation Large-scale infrastructure changes: Building flood defenses against sea-level rise and installing water-permeable pavements to better deal with floods and stormwater and improve water storage and use. Plan for heatwaves and higher temperatures: Improving the quality of road surfaces to withstand hotter temperatures Building global consensus to address the issue of refugee migrations due to climate change. Understanding, identifying and moving towards more climate resilient agriculture. Making the most of any potential beneficial opportunities associated with climate change for example, longer growing seasons or increased yields in some regions. Behavioural shifts such as individuals using less water, farmers planting different crops and more households and businesses buying flood insurance.
UGHG36	3	2.5	Answer = 3 Both options correct Explanation : The Greenhouse Gas Protocol provides the foundation for sustainable climate strategies. GHG Protocol standards are the most widely used accounting tools to measure, manage and report greenhouse gas emissions.

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UGHG37	4	2.5	Answer = 4 All of the above Explanation : An LGO inventory can be used to: • Develop a baseline (and base year) against which GHG developments can be compared. • Regularly reflect and report a true account of emissions generated by LGO. • Identify problem areas in local government operations through facility and activity benchmarking, e.g., identify opportunities to improve energy efficiency in municipal buildings or water supply. • Demonstrate leadership in climate change mitigation by setting a GHG reduction target for LGO. • Increase consistency and transparency in GHG accounting and reporting among institutions.
UGHG38	1	2.5	Answer = 1 Base year inventory Explanation : It is necessary to include the corresponding emission source in the inventory of the base year for the purpose of measuring the impact of an emissions reduction measure on local government operations (LGO) for those LGOs that will take place in subsequent years.
UGHG39	4	2.5	Answer = 4 All of the above Explanation : The following cases shall trigger a recalculation of base year emissions: • Structural changes in the reporting organization that have a significant impact on the company's base year emissions. • Changes in calculation methodology or improvements in the accuracy of emission factors or activity data that result in a significant impact on the base year emissions data • Discovery of significant errors, or a number of cumulative errors that are collectively significant.

iPQ.No	Correct Answer	Points	Explanation
UGHG40	4	2.5	Answer = 4 All of the above Explanation : Quality control (QC) is a set of technical activities that measure and control the quality of the inventory as it is being developed. They are designed to: Provide routine and consistent checks to ensure data integrity, correctness, and completeness. Identify and address errors and omissions. Document and archive inventory material and record all QC activities
UGHG41	3	2.5	Answer = 3 Both options correct Explanation : Quality assurance (QA) activities include a planned system of review procedures conducted by personnel not directly involved in the inventory compilation/ development process. Reviews, preferably performed by independent third parties, should take place when an inventory is finalized following the implementation of QC procedures. Reviews verify that data quality objectives were met and that the inventory represents the best possible estimates of emissions and sinks given the current state of scientific knowledge and data available.
UGHG42	4	2.5	Answer = 4 All of the above Explanation : The inventory boundary is clearly and correctly defined. All required emission sources are included and noted. keys have been used appropriately. The data are time- and geographically-specific to the inventory boundary and technology-specific to the activity being measured • Data are sourced from reliable and robust sources. referenced appropriately
UGHG43	1	2.5	Answer = 1 They represent an absolute emission reduction because they are expressed as a percent reduction from a base year. Explanation : Base year emissions goals represent a reduction in emissions relative to an emissions level in a historical base year. They are framed in terms of a percent reduction of emissions compared to a base year emissions level, and therefore correspond to an absolute reduction in emissions.
UGHG44	1	2.5	Answer = 1 Base year emissions goals Explanation : Base year emissions goals. - Single year goal

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UGHG45	4	2.5	Answer = 4 All of the above Explanation : To calculate mineral industry emissions, cities will need to know: • Major mineral production industries within the city boundary • Annual mineral product output and raw material consumption in the industrial process • Emission factor of raw material or product
UGHG46	4	2.5	Answer = 4 All of the above Explanation : The Global Protocol for Community-Scale Greenhouse Gas Inventories (GPC) has been designed to allow city inventories to be aggregated at subnational and national levels in order to: • Improve the data quality of a national inventory, particularly where major cities' inventories are reported; • Measure the contribution of city mitigation actions to regional or national GHG emission reduction targets; • And identify innovative transboundary and cross-sectoral strategies for GHG mitigation.
UGHG47	4	2.5	Answer = 4 All of the above Explanation : Cities are the communication, commercial, and cultural hubs of the world. In addition, they are a major and growing source of energy consumption and greenhouse gas (GHG) emissions. Access to high-quality data is necessary for a city to be able to take effective measures to mitigate climate change and track its progress. A GHG inventory is the first step in climate action planning. An inventory enables cities to comprehend the emissions contribution of various community activities.

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UGHG48	3	2.5	Answer = 3 Both options correct Explanation : The GPC requires cities to report emissions by gas, scope, sector, and subsector and add them using two complementary methods: Scope framework: This totals scope 1, 2, and 3 emissions. Scope 1 (territorial) accounts for all city-produced GHG emissions, consistent with national GHG reporting. City-induced framework: GHG emissions from city activities. It includes scope 1 (territorial), 2, and 3 emission sources, which are found in most cities and have standardized methods.
UGHG49	4	2.5	Answer = 4 Relevance, completeness, consistency, transparency and accuracy. Explanation : A city GHG inventory shall follow the principles of relevance, completeness, consistency, transparency and accuracy.
UGHG50	4	2.5	Answer = 4 7 Explanation : The assessment boundary shall include all seven Kyoto Protocol GHGs occurring within the geographic boundary of the city, as well as specified emissions occurring out-of-boundary as a result of city activities. The inventory shall cover a continuous 12-month period.
UGHG51	1	2.5	Answer = 1. Base year emissions goals Explanation : Base year emissions goals - Multi-year goal
UGHG52	4	2.5	Answer = 4 All of the above Explanation : City GHG inventories shall report the following information: Description of the inventory boundary Information on emissions and Information on emission changes Information on methodologies and data quality

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UGHG53	3	2.5	Answer = 3 Both options correct Explanation : It is good practice to start data collection activities with an initial screening of available data sources. This will be an iterative process to improve the quality of the data used and should be driven by the following primary considerations: Data should come from reliable and robust sources. Data should be time- and geographically-specific to the inventory boundary, and technology-specific to the activity being measured.
UGHG54	4	2.5	Answer = 4 All of the above Explanation : Establish collection processes that lead to continuous improvement of the data sets used in the inventory Prioritize improvements on the collection of data needed to improve estimates of key categories which are the largest, have the greatest potential to change, or have the greatest uncertainty Review data collection activities and methodological needs on a regular basis to guide progressive, and efficient, inventory improvement Work with data suppliers to support consistent and continuing information flows
UGHG55	4	2.5	Answer = 4 All of the above Explanation : The following information should be requested and recorded when sourcing data: • Definition and description of the data set: time series, sector breakdown, units, assumptions, uncertainties and known gaps • Frequency and timescales for data collection and publication • Contact name and organization(s)
UGHG56	1	2.5	Answer = 1 Scaling factor Explanation : Where the best available activity data do not align with the geographical boundary of the city or the time period of the assessment, the data can be adapted to meet the inventory boundary by adjusting for changes in activity using a scaling factor.

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UGHG57	3	2.5	Answer = 3 Higher concentrations of greenhouse gases Explanation : When fossil fuels are burned, a significant amount of carbon dioxide, which is a gas that contributes to global warming, is released into the atmosphere. Greenhouse gases are the primary contributor to global warming because of their ability to retain heat in the atmosphere.
UGHG58	3	2.5	Answer = 3 CFC Explanation : CFC is an abbreviation for chlorofluorocarbons, which are explained below. In addition to contributing to the greenhouse effect by causing heat to be retained in the atmosphere, these gases are primarily to blame for the depletion of the ozone layer.
UGHG59	1	2.5	Answer = 1 The emission of more greenhouse gases is a natural process that will continue unabated. Explanation : The increase in emissions of greenhouse gases is not a result of any kind of natural process; rather, it is the result of an increase in the number of industrial activities.
UGHG60	3	2.5	Answer = 3 Ethane Explanation : Ethane is found in very low concentrations, and as a result, it does not significantly contribute to the effects of greenhouses; rather, the conversion of ethane to methane contributes significantly more to the effects of greenhouses.
UGHG61	2	2.5	Answer = 2. Fixed level goals Explanation : Fixed level goals Inventory for 2020. In the case of Melbourne, current inventory required to determine quantity of offsets necessary to cover remainder of emissions, as well as GHG inventory in 2020.

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UGHG62	1	2.5	Answer = 1 N₂O – 12% Explanation : Explanation: N₂O is at a level of 12%. The relative global warming potential of N₂O is 6%, which is significantly lower than that of the other gases mentioned, which all contribute to global warming. The amount of heat that a greenhouse gas traps in the atmosphere over a certain amount of time in comparison to the amount of heat that is trapped in the atmosphere by CO₂ is the measurement that is used to determine the relative global warming potential.
UGHG63	4	2.5	Answer = 4 All of the above Explanation : The term "global warming potential" refers to the amount of heat that any greenhouse gas in the atmosphere can absorb when expressed as a multiple of the amount of heat that can be absorbed by the same quantity of carbon dioxide. The global warming effect is caused by a combination of all of these factors.
UGHG64	4	2.5	Answer = 4 Carbon tetrafluoride Explanation : It has a lifetime of 50,000 years in the atmosphere and has a greenhouse warming potential that is 6,500 times higher than that of CO₂. Furthermore, it is extremely stable.
UGHG65	4	2.5	Answer = 4 PFTBA Explanation : Radiative efficiency is the term that is used to define the strength of greenhouse gases; a better definition for it would be the change in radiative forcing per change in the atmospheric concentration of a gas. Radiative efficiency is the term that is used to define the strength of greenhouse gases. It is denoted by the unit of measure Wm⁻² ppb⁻¹. The climate-altering effects of a single molecule of PFTBA are roughly comparable to those of 7100 molecules of carbon dioxide.
UGHG66	2	2.5	Answer = 2 Sulfur hexafluoride Explanation : The Intergovernmental Panel on Climate Change found that sulfur hexafluoride has a global warming potential that is 22,200 times higher than that of CO₂ over a period of one hundred years. This makes it the most potent greenhouse gas ever researched by the IPCC. As the gas is exhaled, it builds up in the atmosphere for many centuries in a nearly untouched state. This continues until the gas is eventually destroyed.

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UGHG67	3	2.5	Answer = 3 Removal of CO₂ from the atmosphere & Storing it by depositing it in the reservoir Explanation : Carbon sequestration is the process of removing carbon dioxide from the atmosphere and storing it in a non-atmospheric location. It is one strategy for reducing the levels of carbon dioxide in the atmosphere, which can help to slow the progression of global warming. The United States Geological Survey (USGS) is conducting research on the geological and biological sequestration of carbon.
UGHG68	3	2.5	Answer = 3 A lack of moisture leads to the escape of heat. Explanation : Whenever the sun's heat and light strike a dry desert, the granules in the upper layer absorb and emit heat into the air. During the day, the sun's energy is radiated by sand, which superheats the air and causes temperatures to rise. However, because there is no sunshine to reheat the air at night, much of the heat in the sand soon radiates into the air, rendering the desert and its environment colder.
UGHG69	4	2.5	Answer = 4 None Explanation : Enhanced weathering is a term that refers to the process in which the rate of natural weathering can be sped up by dispersing finely powdered silicate rocks, such as basalt, over land or water. This speeds up the chemical processes that permanently remove carbon dioxide from the atmosphere and deposit it as solid carbonate minerals or ocean alkalinity. These processes are responsible for climate change.
UGHG70	4	2.5	Answer = 4 Each of the preceding options Explanation : All of the sources mentioned above act as storage sites for carbon dioxide.
UGHG71	3	2.5	Answer = 3 Base year intensity goals Explanation : Base year intensity goals - Per capita goal -Inventory for 2007 and 2030

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UGHG72	3	2.5	Answer = 3 Longer Explanation : Infrared radiation refers to the portion of the electromagnetic spectrum that stretches from the end of the visible-light range that corresponds to long wavelengths, or red, all the way to the beginning of the microwave range. The infrared spectrum can be broken down into three distinct areas: the near-infrared, the medium-infrared, and the far-infrared.
UGHG73	1	2.5	Answer = 1 Carbon dioxide Explanation : The concentration of carbon dioxide is the highest among the greenhouse gases; its concentration can range anywhere from 9 to 26%. Methane, another important gas, makes up about 4 to 9% of the atmosphere, while ozone makes up about 3 to 7% of the atmosphere.
UGHG74	1	2.5	Answer = 1 Gases that trap heat inside the atmosphere Explanation : Greenhouse gases are primarily to blame for the absorption of thermal radiation by the earth's atmosphere. As a result of this absorption, the surface temperature of the earth has risen to an overall higher level.
UGHG75	3	2.5	Answer = 3 Base year intensity goals Explanation : Base year intensity goals - Per GDP goal - Inventory for 2010 and 2015
UGHG76	4	2.5	Answer = 4. 33 °C Explanation : The greenhouse effect is a natural occurrence that maintains the temperature on earth at a level that is optimal for the survival of life. The remainder of the radiation, which amounts to roughly half of it, travels to the planet where it is taken up by the oceans and the land. This helps to keep the ground warm and also provides food for a variety of organisms, including plants, animals, and people.

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UGHG77	2	2.5	Answer = 2 Ultraviolet radiation Explanation : The wavelengths of ultraviolet light can range anywhere from 100 to 400 nanometers, but the portion of the spectrum that contains the most energy can be found in the range of 100 to 200 nanometers.
UGHG78	2	2.5	Answer = 2 Hydrogen Explanation : Methane, carbon dioxide, nitrous oxide, and water vapor are the primary greenhouse gases that contribute to the greenhouse effect. Other contributing gases include argon and krypton. The greenhouse effect is caused by certain gases that both absorb and emit radiant energy in the thermal infrared spectrum. These gases are referred to as greenhouse gases (GHG or GhG).
UGHG79	4	2.5	Answer = 4 All of the above Explanation : Cities shall account for emissions of the seven gases currently required for most national GHG inventory reporting under the Kyoto Protocol: Carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF₆), and nitrogen trifluoride (NF₃).
UGHG80	4	2.5	Answer = 4 Baseline scenario goals Explanation : Baseline scenario goals - Inventory for 2020 and a projected BAU inventory for 2020