

1.What are the causes of World War II? Explain.

**Basic:** The war was caused by the rise of totalitarian regimes in Germany, Italy, and Japan, and conflicts from unresolved issues of World War I.

**Intermediate:** Aggressive expansionist policies by these nations and the failure of appeasement strategies by other powers contributed to the outbreak of war.

**Advanced:** The Treaty of Versailles' harsh terms on Germany, the global economic depression, and the rise of nationalism and fascism played significant roles.

**Expert:** Ideological conflicts, the desire for territorial expansion, and the failure of the League of Nations to maintain peace were key factors.

**Comprehensive:** The war's roots lay in a complex interplay of political, economic, and social factors that led to a global conflict involving most of the world's nations

2.Why did Nazi Germany and Imperial Japan surrender in 1945?

Surrender of Nazi Germany and Imperial Japan in 1945:

**Basic:** Germany surrendered due to the successful Allied invasions from the west and the Soviet advance from the east. Japan surrendered after the atomic bombings of Hiroshima and Nagasaki.

**Intermediate:** The total destruction of the German military and infrastructure, along with Japan's realisation of inevitable defeat after the nuclear attacks, led to their surrenders.

**Advanced:** Strategic military defeats, coupled with internal political pressures and the threat of further destruction, forced both nations to capitulate.

**Expert:** The Allies' overwhelming military superiority and strategic bombings, along with diplomatic isolation, left Germany and Japan with no viable options but to surrender.

**Comprehensive:** The surrenders were the result of cumulative effects of military defeats, economic exhaustion, the devastation of key cities, and the psychological impact of facing total annihilation

3.Write two basic differences between Gentlemen Opium Monopoly and BengalGovernment Opium Monopoly.

Differences between Gentlemen Opium Monopoly and Bengal Government Opium Monopoly:

**Basic:** The Gentlemen Opium Monopoly was a system where private British traders had the exclusive right to trade opium, while the Bengal Government Opium Monopoly was controlled directly by the colonial government.

**Intermediate:** The Gentlemen's monopoly operated more on informal agreements and personal networks, whereas the Bengal Government's monopoly was a formalised state-run enterprise.

**Advanced:** Under the Gentlemen's monopoly, opium trade was less regulated, leading to widespread smuggling and illegal trade, while the Bengal Government's monopoly attempted to centralise and control opium production and trade more strictly.

**Expert:** The transition from the Gentlemen's monopoly to the Bengal Government's monopoly represented a shift from a laissez-faire approach to a more structured and regulated economic model in colonial India's opium trade.

**Comprehensive:** The Gentlemen Opium Monopoly was characterised by its reliance on private enterprise and profit maximisation with minimal government intervention, whereas the Bengal Government Opium Monopoly reflected the colonial state's efforts to consolidate fiscal control and maximise revenue through direct management of the opium industry

4. Why was the battle of Palashi called a fateful battle?

**Basic:** The Battle of Palashi was called fateful because it marked the start of British rule in India.

**Intermediate:** It was a decisive victory that allowed the British East India Company to establish control over Bengal.

**Advanced:** The battle's outcome shifted the power dynamics in the Indian subcontinent in favour of the British.

**Expert:** The defection of key figures like Mir Jafar to the British side was pivotal in the battle's outcome.

**Comprehensive:** The Battle of Plassey (Palashi) was termed a fateful battle because it marked the beginning of British colonial rule in India, with the victory allowing the British East India Company to establish its dominance over Bengal and eventually over the entire Indian subcontinent

5. When did Bangladesh gain independence?

**Basic:** Bangladesh gained independence on March 26, 1971.

**Intermediate:** The declaration of independence led to the Bangladesh Liberation War.

**Advanced:** The war lasted for nine months, resulting in Bangladesh's sovereignty.

**Expert:** The struggle for independence was fueled by cultural and linguistic identity.

**Comprehensive:** Bangladesh gained independence from Pakistan on 26 March 1971, following a declaration by Sheikh Mujibur Rahman, marking the culmination of the Bangladesh Liberation War and the establishment of Bangladesh as a sovereign nation

6. What did East Pakistan change its name to in 1971?

**Basic:** East Pakistan changed its name to Bangladesh in 1971.

**Intermediate:** The name change reflected the region's new status as an independent nation.

**Advanced:** "Bangladesh" means "Country of Bengal" or "Country of Bengalis."

**Expert:** The name change was part of a broader move towards self-identification and autonomy.

**Comprehensive:** In 1971, East Pakistan changed its name to Bangladesh, which means "Country of Bengal" or "Country of Bengalis" in the Bengali language. The name change officially took place after the leadership of the Mujibnagar government returned from exile on December 22, 1971

7. What is the difference between an enzyme and substrate?

**Basic:** An enzyme is a protein that speeds up chemical reactions, and a substrate is the molecule it acts on.

**Intermediate:** Enzymes bind to substrates and convert them into products.

**Advanced:** The active site of an enzyme is where the substrate binds and the reaction occurs.

**Expert:** Enzymes lower the activation energy required for a reaction involving the substrate.

**Comprehensive:** An enzyme is a protein that acts as a biological catalyst to speed up chemical reactions, while a substrate is the molecule upon which an enzyme acts. The enzyme provides a unique active site that binds to the substrate, facilitating the conversion of the substrate into products through a chemical reaction

8. Why is DNA replication necessary?

**Basic:** DNA replication is necessary for cells to divide and for organisms to grow or repair damaged tissues.

**Intermediate:** It ensures that each new cell has a complete set of DNA, which is crucial for maintaining the genetic information of the organism.

**Advanced:** DNA replication allows for genetic continuity and variation, which are essential for evolution and adaptation.

**Expert:** The process is highly regulated and involves a complex interplay of enzymes, ensuring fidelity and preventing mutations.

**Comprehensive:** DNA replication is a fundamental biological process that duplicates the genetic material, allowing for cell division, the perpetuation of species, and the transmission of genetic traits.

9. Define geography and environmental geography

**Basic:** Geography is the study of Earth's environments, places, and spaces and their interactions. Environmental geography focuses on how humans impact the Earth.

**Intermediate:** Geography examines both the physical features of the Earth and human societies. Environmental geography looks at the relationship between these two.

**Advanced:** Geography explores the spatial relationships and patterns in the natural and human worlds. Environmental geography analyses human effects on nature and vice versa.

**Expert:** Geography integrates natural and social sciences to understand place-making processes. Environmental geography uses this knowledge to address ecological challenges.

**Comprehensive:** Geography is a multidisciplinary field that investigates the complexities of physical landscapes, human activities, and their interdependencies. Environmental geography extends this by assessing the impacts of human actions on the environment and seeking sustainable solutions.

10. Discuss the various types of region and their functions in Bangladesh

**Basic:** Bangladesh has administrative regions like divisions and districts for governance.

**Intermediate:** There are cultural and economic regions based on language, tradition, and economic activities.

**Advanced:** Regions can be classified based on homogeneity, nodality, and programming for planning purposes.

**Expert:** The functional regions include metropolitan areas, agricultural zones, and industrial hubs.

**Comprehensive:** Bangladesh's regions serve various functions from administrative management to economic development, reflecting the country's diverse cultural, economic, and geographical landscapes.

11. Discuss the characteristics of agriculture in Bangladesh

**Basic:** Agriculture is a key employment sector in Bangladesh, primarily involving rice, jute, and tea cultivation.

**Intermediate:** It contributes significantly to the GDP and is vital for food security and employment.

**Advanced:** Agricultural practices are influenced by monsoon patterns, and there is a shift towards diversification and commercial farming.

**Expert:** Challenges include land scarcity, climate change, and the need for sustainable practices.

**Comprehensive:** Bangladesh's agriculture is characterised by its labour-intensive nature, reliance on monsoons, and the recent shift towards high-value crops and technological integration for increased productivity and sustainability.

12. What do you understand about arsenic pollution in groundwater?

**Basic:** Arsenic pollution in groundwater is a health hazard caused by natural and human activities.

**Intermediate:** It leads to arsenic poisoning, which can cause skin lesions and various cancers.

**Advanced:** Arsenic enters groundwater through natural mineral deposits and industrial processes.

**Expert:** Mitigation strategies include water treatment and alternative water sources.

**Comprehensive:** Arsenic pollution is a global issue affecting millions, requiring integrated approaches for detection, prevention, and remediation to protect public health.

13. Discuss the main greenhouse gases (GHG) and their effects on the environment?

**Basic:** GHGs trap heat in the atmosphere, contributing to global warming.

**Intermediate:** Major GHGs include carbon dioxide, methane, nitrous oxide, and fluorinated gases.

**Advanced:** They result from natural processes and human activities like burning fossil fuels and deforestation.

**Expert:** GHGs lead to climate change, causing extreme weather, sea-level rise, and biodiversity loss.

**Comprehensive:** The accumulation of GHGs in the atmosphere has profound and lasting effects on the environment, necessitating global efforts to reduce emissions and mitigate climate change impacts.

14. What are the characteristics and distinctions between gnosticism, epicureanism, and stoicism?

**Basic:** Gnosticism is a religious philosophy that emphasises secret knowledge for salvation. Epicureanism focuses on pleasure as the greatest good. Stoicism teaches virtue and self-control.

**Intermediate:** Gnosticism believes in a divine spark within select individuals. Epicureanism advocates for simple pleasures and the avoidance of pain. Stoicism values harmony with nature and resilience.

**Advanced:** Gnosticism has a dualistic view of the world. Epicureanism seeks tranquillity through knowledge and friendship. Stoicism promotes living in accordance with reason and virtue.

**Expert:** Gnosticism often views the material world as flawed. Epicureanism teaches that pleasure results from understanding nature. Stoicism believes in an interconnected universe governed by a rational principle.

**Comprehensive:** Gnosticism encompasses various beliefs about the cosmos and salvation, often involving esoteric knowledge and a stark distinction between the spiritual and material realms. Epicureanism is a system of philosophy that regards absence of pain and peace of mind as the highest pleasures, achieved through moderation and understanding the workings of nature. Stoicism is a philosophy that advocates for the development of self-control and fortitude as a means to overcome destructive emotions, aligning with nature's rational order

15. Discuss the main greenhouse gases (GHG) and their effects on the environment?

**Basic:** GHGs trap heat in the atmosphere, leading to global warming.

**Intermediate:** Major GHGs include carbon dioxide, methane, and nitrous oxide, which come from human activities like burning fossil fuels.

**Advanced:** These gases contribute to the greenhouse effect, which causes Earth's temperatures to rise, affecting climate patterns.

**Expert:** GHGs have various sources and complex interactions in the atmosphere, leading to climate change and extreme weather events.

**Comprehensive:** The increase in GHGs due to human activities has led to significant environmental changes, including global warming, sea-level rise, and altered ecosystems. Mitigation efforts focus on reducing emissions and enhancing carbon sinks

16. Why does process philosophy need subjective aims?

**Basic:** Process philosophy sees reality as dynamic and evolving, requiring personal goals for direction.

**Intermediate:** It posits that subjective aims give meaning to the processes of change and development.

**Advanced:** Subjective aims are necessary for individuals to navigate the constant flux of existence.

**Expert:** They provide the intentional framework for understanding and interacting with the unfolding of events.

**Comprehensive:** In process philosophy, subjective aims are essential as they represent the individual's purpose and goals within the ever-changing nature of reality, guiding actions and giving personal significance to life's processes

17. What did Epicurus say about virtue?

**Basic:** Epicurus saw virtue as important for achieving a happy life.

**Intermediate:** He believed virtue leads to pleasure, which is the goal of life.

**Advanced:** Virtues are tools for attaining the stable pleasure of ataraxia.

**Expert:** Epicurus argued that virtues are not inherently good but valuable for the pleasure they produce.

**Comprehensive:** Epicurus taught that virtues are instrumental means to the end of pleasure; they are valuable insofar as they contribute to a life of happiness, which is characterised by the absence of pain and the presence of tranquillity

18. Why did Greek philosophers only have first names?

**Basic:** Greek philosophers are known by their first names due to cultural naming practices.

**Intermediate:** Greeks typically used single names, adding the father's name or city of origin when necessary.

**Advanced:** The use of a single name was common in Greek society, unlike the Roman practice of multiple names.

**Expert:** Greek naming conventions reflected the social and cultural context, which did not emphasise surnames.

**Comprehensive:** The tradition of referring to Greek philosophers by their first names stems from ancient Greek naming practices, where individuals were commonly identified by a single name, sometimes supplemented by their father's name or place of origin for clarity. This contrasts with Roman and later naming conventions, which often included multiple names to indicate family and social status

19. What were the main causes of the French Revolution, and how did they contribute to the rise of Napoleon Bonaparte?

Answer Levels:

**Basic:** The French Revolution was caused by social and economic factors, leading to a change in France's government.

**Intermediate:** The French Revolution began due to inequality, financial crises, and ideas of Enlightenment leading to Napoleon's rise.

**Advance:** The French Revolution's causes were complex, involving fiscal mismanagement, social inequality, and Enlightenment ideals, culminating in a radical change in France's political landscape and the emergence of Napoleon as a significant figure.

**Expert:** The French Revolution was a multifaceted upheaval rooted in structural fiscal deficiencies, societal stratification, and revolutionary ideologies, which dismantled the ancient régime and set the stage for Napoleon's ascendancy and the subsequent reconfiguration of European political boundaries.

**Comprehensive:** The French Revolution, precipitated by a confluence of socioeconomic pressures, the dissemination of Enlightenment thought, and political mismanagement, catalysed a radical transformation of French society, culminating in the overthrow of the monarchy, the Reign of Terror, and the eventual rise of Napoleon Bonaparte, whose military and administrative reforms had lasting impacts on European governance and legal systems.

20. What happens at the molecular level when water freezes, and why does ice have a lower density than liquid water?

Answer Levels:

**Basic:** Water molecules slow down and arrange themselves in a fixed pattern when water freezes, making ice less dense.

**Intermediate:** When water freezes, hydrogen bonds form a crystalline structure, which is less dense than liquid water, causing ice to float.

**Advanced:**Freezing water undergoes a phase transition where water molecules form a hexagonal lattice, resulting in a solid less dense than its liquid form due to the arrangement of hydrogen bonds.

**Expert:**The solidification of water into ice involves a thermodynamic process where kinetic energy is reduced, and water molecules are arranged into a rigid hexagonal crystal structure, leading to an expansion in volume and a decrease in density relative to the liquid state.

**Comprehensive:**The phase change of water to ice is a physical transformation governed by the principles of thermodynamics and intermolecular forces, where a decrease in thermal energy facilitates the formation of a structured hexagonal crystal lattice, resulting in a volumetric expansion and buoyancy of ice due to the anomalous behaviour of hydrogen bonding at lower temperatures.

21.What is the significance of the Fibonacci sequence in nature, and how is it expressed in various biological settings?

Answer Levels:

**Basic:**The Fibonacci sequence is a series of numbers where each number is the sum of the two preceding ones, seen in nature.

**Intermediate:**The Fibonacci sequence appears in nature in various forms, like the arrangement of leaves or the pattern of a pineapple.

**Advanced:**The Fibonacci sequence is a mathematical phenomenon that manifests in nature through various structures, such as the spirals of shells and the branching of trees, illustrating a common growth pattern.

**Expert:**The Fibonacci sequence, characterised by the recurrence relation ( $F(n) = F(n-1) + F(n-2)$ ), is emblematic of an intrinsic mathematical order in biological systems, exemplified by phyllotaxis and the logarithmic spirals of mollusk shells, which adhere to a self-similar growth principle.

**Comprehensive:**The Fibonacci sequence, a series of numbers where each subsequent number is the sum of the two preceding ones, manifests in nature through various phenotypic expressions, such as the arrangement of seeds in a sunflower head or the fractal patterns in Romanesco broccoli, reflecting an underlying mathematical efficiency in biological development and resource allocation.

22.What themes are explored in George Orwell's '1984', and how do they reflect the author's views on government and society?

Answer Levels:

**Basic :**

'1984' explores themes of totalitarianism, surveillance, and individuality.

**Intermediate:**

Orwell's '1984' discusses the dangers of oppressive governments and the loss of personal freedoms.

**Advanced:**

'1984' is a critique of totalitarian regimes, exploring themes of propaganda, the manipulation of truth, and the erasure of individuality, reflecting Orwell's concerns about authoritarian governments.

**Expert:**

George Orwell's '1984' delves into the mechanisms of control in a dystopian society, dissecting the interplay between language, thought, and power, and presenting a foreboding vision of a world where totalitarianism obliterates personal autonomy and historical veracity.

**Comprehensive:**

In '1984', Orwell constructs a harrowing narrative that interrogates the constructs of power and identity within an omnipresent authoritarian regime, utilising the motif of surveillance and the distortion of language as instruments of totalitarian control, ultimately serving as a cautionary tale about the fragility of freedom and the human spirit under oppressive governance.

23. What are the potential risks and benefits of developing autonomous artificial intelligence, and how might it impact future human society?

Answer Levels:

**Basic:**

Autonomous AI refers to machines that can perform tasks without human intervention, with potential risks and benefits.

**Intermediate:**

Autonomous AI could revolutionise industries but also poses ethical questions and potential job displacement.

**Advanced:**

The development of autonomous AI systems presents challenges in ethics, such as decision-making in unpredictable scenarios, and could significantly alter labour markets and societal structures.

**Expert:**

Autonomous AI systems engender profound implications for the future of human-machine interaction, necessitating a reevaluation of ethical frameworks to address issues of accountability, transparency, and the potential for algorithmic bias in decision-making processes.

**Comprehensive :**

The advent of autonomous artificial intelligence heralds a paradigm shift in the interface between humans and technology, raising pivotal questions about the ethical integration of AI in society, the preservation of human agency, and the redefinition of work and creativity in an era increasingly dominated by intelligent machines.

24. What is existentialism, and how does it address the question of human freedom and the search for meaning in life?

Answer Levels:



**Basic:** Existentialism is a philosophy that emphasises individual existence, freedom, and choice.

**Intermediate:** It suggests that individuals are free and responsible for their own actions, which gives life meaning.

**Advanced:** Existentialists believe that society should not restrict an individual's pursuit of authentic choices.

**Expert:** They argue that authenticity arises from personal conviction, not adherence to societal norms.

**Comprehensive:** Existentialism posits that while physical circumstances may limit individuals, they are ultimately free to choose their own path and create meaning for themselves.

25. What are the effects of inflation on an economy, and how do central banks typically respond to high inflation rates?

Answer Levels:

**Basic:** Inflation reduces the purchasing power of money, and central banks often combat it by raising interest rates.

**Intermediate:** High inflation can lead to economic instability; central banks may tighten monetary policy to control it.

**Advanced:** Persistent inflation erodes consumer confidence and savings, prompting central banks to implement contractionary policies.

**Expert:** Central banks aim to manage inflation without triggering recession, using tools like interest rate adjustments.

**Comprehensive:** Inflation impacts various economic sectors differently, and central banks must balance multiple objectives when formulating responses, often using interest rate hikes as a primary tool to curb inflationary pressures.

26. What role does social media play in shaping modern social interactions, and how has it affected individual identity formation?

Answer Levels:

**Basic:** Social media influences how people interact and present themselves online.

**Intermediate:** It offers new ways to connect but can also create pressure to conform to certain online personas.

**Advanced:** Social media platforms can reinforce group norms and affect self-esteem through social comparison.

**Expert:** These platforms shape identity by providing spaces for self-expression and community building.

**Comprehensive:** Social media has fundamentally altered the landscape of social interaction, blurring the lines between public and private selves, and has become a significant factor in the construction of modern identities.

27. What are the primary causes of climate change, and what strategies are being implemented to mitigate its effects?

**Basic:** Climate change is mainly caused by greenhouse gas emissions, and strategies like renewable energy use are being implemented.

**Intermediate:** Fossil fuel combustion is a significant contributor, with mitigation efforts including energy efficiency and reforestation.

**Advanced:** Industrial activities increase atmospheric carbon, leading to global warming, with strategies like carbon pricing being adopted.

**Expert:** Anthropogenic activities disrupt the natural greenhouse effect, necessitating comprehensive policy approaches for mitigation.

**Comprehensive:** The intricate interplay between human activity and natural systems has led to climate change, with multifaceted strategies like international agreements and technological innovations being pursued to address the issue.

**\*\*Criteria/Rubric:\*\***

- Clarity of explanation
- Depth of understanding
- Application of concepts
- Analysis of real-world examples
- Critical thinking about long-term effects