

**QUESTION**

1. The following information relates to the operations of a company for the year ended 31st December 2018:

Revenue 1,000,000  
Cost of sales 600,000  
Selling expenses 100,000  
Administrative expenses 150,000  
Depreciation 50,000  
Interest on bank loan 20,000  
Dividend received 10,000  
Profit on sale of machinery 15,000  
Loss on sale of investments 5,000

2. The following information relates to the operations of a company for the year ended 31st December 2018:

Revenue 1,200,000  
Cost of sales 750,000  
Selling expenses 120,000  
Administrative expenses 180,000  
Depreciation 60,000  
Interest on bank loan 25,000  
Dividend received 12,000  
Profit on sale of machinery 18,000  
Loss on sale of investments 6,000

3. The following information relates to the operations of a company for the year ended 31st December 2018:

Revenue 1,500,000  
Cost of sales 900,000  
Selling expenses 150,000  
Administrative expenses 200,000  
Depreciation 70,000  
Interest on bank loan 30,000  
Dividend received 15,000  
Profit on sale of machinery 20,000  
Loss on sale of investments 7,000

**ANSWER**

Particulars	2018
Revenue	1,000,000
Cost of sales	(600,000)
Gross profit	400,000
Selling expenses	(100,000)
Administrative expenses	(150,000)
Depreciation	(50,000)
Interest on bank loan	(20,000)
Dividend received	10,000
Profit on sale of machinery	15,000
Loss on sale of investments	(5,000)
Operating profit	100,000

Particulars	2018
Revenue	1,200,000
Cost of sales	(750,000)
Gross profit	450,000
Selling expenses	(120,000)
Administrative expenses	(180,000)
Depreciation	(60,000)
Interest on bank loan	(25,000)
Dividend received	12,000
Profit on sale of machinery	18,000
Loss on sale of investments	(6,000)
Operating profit	120,000

Particulars	2018
Revenue	1,500,000
Cost of sales	(900,000)
Gross profit	600,000
Selling expenses	(150,000)
Administrative expenses	(200,000)
Depreciation	(70,000)
Interest on bank loan	(30,000)
Dividend received	15,000
Profit on sale of machinery	20,000
Loss on sale of investments	(7,000)
Operating profit	200,000

Particulars	2018
Revenue	1,200,000
Cost of sales	(750,000)
Gross profit	450,000
Selling expenses	(120,000)
Administrative expenses	(180,000)
Depreciation	(60,000)
Interest on bank loan	(25,000)
Dividend received	12,000
Profit on sale of machinery	18,000
Loss on sale of investments	(6,000)
Operating profit	120,000

Operating profit is the profit earned from the operations of the business after deducting all operating expenses from the revenue. It is also known as Earnings Before Interest and Taxes (EBIT). Operating profit is a measure of the company's ability to generate profit from its core operations.





**QUESTION 1**

1.1.1. The following information relates to the operations of a company for the year ended 31 December 2018:

- Revenue: 1000
- Cost of Sales: 600
- Administrative Expenses: 100
- Depreciation: 50
- Interest on Bank Loan: 20
- Income Tax: 30
- Dividend Received: 10
- Profit on Sale of Investment: 10

**QUESTION 2**

2.1.1. The following information relates to the operations of a company for the year ended 31 December 2018:

- Revenue: 1000
- Cost of Sales: 600
- Administrative Expenses: 100
- Depreciation: 50
- Interest on Bank Loan: 20
- Income Tax: 30
- Dividend Received: 10
- Profit on Sale of Investment: 10

**QUESTION 3**

3.1.1. The following information relates to the operations of a company for the year ended 31 December 2018:

- Revenue: 1000
- Cost of Sales: 600
- Administrative Expenses: 100
- Depreciation: 50
- Interest on Bank Loan: 20
- Income Tax: 30
- Dividend Received: 10
- Profit on Sale of Investment: 10

**QUESTION 4**

4.1.1. The following information relates to the operations of a company for the year ended 31 December 2018:

- Revenue: 1000
- Cost of Sales: 600
- Administrative Expenses: 100
- Depreciation: 50
- Interest on Bank Loan: 20
- Income Tax: 30
- Dividend Received: 10
- Profit on Sale of Investment: 10

**QUESTION 5**

5.1.1. The following information relates to the operations of a company for the year ended 31 December 2018:

- Revenue: 1000
- Cost of Sales: 600
- Administrative Expenses: 100
- Depreciation: 50
- Interest on Bank Loan: 20
- Income Tax: 30
- Dividend Received: 10
- Profit on Sale of Investment: 10



Revenue	1000
Cost of Sales	600
Administrative Expenses	100
Depreciation	50
Interest on Bank Loan	20
Income Tax	30
Dividend Received	10
Profit on Sale of Investment	10

QUESTION 6

Revenue	1000
Cost of Sales	600
Administrative Expenses	100
Depreciation	50
Interest on Bank Loan	20
Income Tax	30
Dividend Received	10
Profit on Sale of Investment	10

QUESTION 7

Revenue	1000
Cost of Sales	600
Administrative Expenses	100
Depreciation	50
Interest on Bank Loan	20
Income Tax	30
Dividend Received	10
Profit on Sale of Investment	10

QUESTION 8

Revenue	1000
Cost of Sales	600
Administrative Expenses	100
Depreciation	50
Interest on Bank Loan	20
Income Tax	30
Dividend Received	10
Profit on Sale of Investment	10

QUESTION 9



THE UNIVERSITY OF CHICAGO  
DEPARTMENT OF CHEMISTRY  
GENERAL CHEMISTRY

EXPERIMENT 10: THE CHEMISTRY OF THE CARBON-CHLORINE BOND

10.1. Introduction: The carbon-chlorine bond is one of the most important functional groups in organic chemistry. It is found in a wide variety of natural and synthetic compounds, including chlorinated hydrocarbons, pharmaceuticals, and polymers. The purpose of this experiment is to study the properties and reactions of carbon-chlorine compounds.

10.2. Objectives: The objectives of this experiment are to identify the carbon-chlorine bond in various compounds, to study the reactivity of carbon-chlorine compounds, and to determine the mechanism of the reaction of carbon-chlorine compounds with nucleophiles.

10.3. Materials and Apparatus: The materials and apparatus required for this experiment are listed in the table below.

10.4. Procedure: The procedure for this experiment is described in the following sections.

10.4.1. Synthesis of Chloroacetic Acid: Chloroacetic acid is synthesized by the reaction of acetic acid with phosphorus pentachloride. The reaction is carried out in a round-bottom flask equipped with a magnetic stirrer and a reflux condenser.

10.4.2. Identification of Chloroacetic Acid: The identity of the product is confirmed by measuring its boiling point and by performing a qualitative test for chlorine. The boiling point of chloroacetic acid is 190°C at 10 mm Hg. The qualitative test for chlorine involves the reaction of the compound with silver nitrate, which produces a white precipitate of silver chloride.

10.4.3. Reaction of Chloroacetic Acid with Nucleophiles: Chloroacetic acid reacts with various nucleophiles to form different products. The reaction of chloroacetic acid with sodium hydroxide yields sodium acetate and hydrogen chloride.

10.4.4. Reaction of Chloroacetic Acid with Ammonia: Chloroacetic acid reacts with ammonia to form N-chloroacetamide. The reaction is carried out in a round-bottom flask equipped with a magnetic stirrer and a reflux condenser.

10.5. Results and Discussion: The results of the experiment are discussed in the following sections.

THE UNIVERSITY OF CHICAGO  
DEPARTMENT OF POLITICAL SCIENCE  
POL 301: POLITICAL THEORY

PHILOSOPHY OF POLITICAL ACTION: FROM PLATO TO RAWLS

The course examines the philosophical foundations of political action, tracing the lineage from ancient Greek thought to modern liberal theory. It begins with Plato's *Republic*, exploring the concept of justice and the ideal state, and moves through Aristotle's *Nicomachean Ethics* and *Politics*, which discuss the nature of the polis and the virtues of citizenship.

The course then turns to the medieval and early modern periods, including Aquinas's synthesis of Aristotelian ethics with Christian theology, and the rise of social contract theory. It covers Hobbes's *Leviathan*, Locke's *Two Treatises of Government*, and Rousseau's *The Social Contract*, examining how these thinkers justified the legitimacy of political authority and the rights of individuals.

The final section of the course focuses on contemporary political philosophy, starting with Rawls's *A Theory of Justice* and his concept of the "veil of ignorance." It also touches upon other influential thinkers like Nozick, Dworkin, and Sen, and discusses the application of these theories to current issues of justice, equality, and the role of the state.

**Prerequisites:** PHIL 101 (Introduction to Philosophy) and POL 101 (Introduction to Political Science) are required for enrollment in this course.

**Texts:** The primary texts for the course are Plato's *Republic*, Aristotle's *Nicomachean Ethics* and *Politics*, Aquinas's *Summa Theologiae*, Hobbes's *Leviathan*, Locke's *Two Treatises of Government*, Rousseau's *The Social Contract*, and Rawls's *A Theory of Justice*.

**Grading:** The course is graded on a pass/fail basis. Students are evaluated based on their performance in class discussions, written assignments, and a final exam.

**Office Hours:** The instructor is available for office hours on Tuesdays and Thursdays, 10:00 AM to 12:00 PM, in the Department of Political Science building.

**Contact:** For more information, please contact the course coordinator at [email address].

**Additional Information:** This course is part of the Philosophy of Political Action program. Students interested in this program should consult the program website for details on requirements and opportunities.

Section 1

Section 2

Section 3

Section 4

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**THE UNIVERSITY OF CHICAGO**  
**PH.D. PROGRAM IN POLITICAL SCIENCE**  
**THESIS REQUIREMENTS**

**1. THE THESIS**

The thesis is a written document that demonstrates the student's ability to conduct original research and to write in a clear, concise, and logical manner. It is a major requirement for the Ph.D. program and is typically completed during the final year of study. The thesis should be a substantial contribution to the field of political science and should be written in a style that is consistent with the standards of the discipline. The thesis is typically 100-150 pages in length and is divided into several chapters. The first chapter is the introduction, which sets the stage for the research. The subsequent chapters are the literature review, the methodology, the results, and the conclusion. The thesis is typically defended in a public hearing, where the student presents the findings of the research to a committee of faculty members.

**2. THE DEFENSE**

The defense is a public hearing where the student presents the findings of the research to a committee of faculty members. The defense is typically held in a lecture hall or a similar setting. The student presents the thesis to the committee and answers questions from the members. The committee then discusses the thesis and makes a decision on whether the student has met the requirements for the Ph.D. degree. The defense is a critical part of the process and is often the most stressful part of the thesis process. The student should be prepared to defend their research and to answer questions from the committee. The defense is typically held in a public setting, so the student should be prepared to handle any questions or criticisms from the audience.

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**3. THE THESIS PROCESS**

The thesis process is a long and often stressful process. It typically takes 1-2 years to complete. The student should start working on the thesis as early as possible and should seek advice from their advisor and other faculty members. The thesis process is a critical part of the Ph.D. program and is often the most challenging part of the process. The student should be prepared to work hard and to persevere through the challenges of the process.

**RESEARCH REPORT**  
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**RESEARCH REPORT**

1. **Introduction**  
This report discusses the findings of a study conducted in 2023. The study aimed to explore the impact of various factors on the performance of a specific system. The results indicate that there is a significant correlation between the variables studied.

2. **Methodology**  
The research was conducted using a quantitative approach. Data was collected through a series of experiments and surveys. The analysis was performed using statistical software to identify trends and correlations. The sample size was carefully selected to ensure the validity of the results.

3. **Results and Discussion**  
The findings of the study show that the system's performance is highly dependent on the input variables. There is a clear trend where increasing the input leads to a corresponding increase in output. The data suggests that the system is more efficient under certain conditions than others.

4. **Conclusion**  
Based on the results, it can be concluded that the system performs best when the input variables are optimized. Further research is needed to explore the long-term effects and to refine the model. The current findings provide a solid foundation for future studies in this area.

5. **References**  
The following references were used in the preparation of this report:  
- Smith, J. (2021). *Advanced System Analysis*. New York: Academic Press.  
- Doe, A. (2020). *System Performance Evaluation*. London: Springer.

6. **Appendix**  
Detailed data tables and charts are provided in the appendix for further reference. These include the raw data from the experiments and the results of the statistical analysis.

7. **Disclaimer**  
The information contained in this report is for informational purposes only. It is not intended to be used as a substitute for professional advice. The authors assume no liability for any errors or omissions.

8. **Contact Information**  
For more information, please contact the lead researcher at [email address].  
The research was supported by the [Organization Name].  
Date of publication: [Date].

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The first part of the paper discusses the theoretical framework of the study, which is based on the idea that the political system is a complex and dynamic system. The second part of the paper discusses the empirical findings of the study, which show that the political system is indeed a complex and dynamic system. The third part of the paper discusses the implications of the study for the political system. The fourth part of the paper discusses the limitations of the study. The fifth part of the paper discusses the conclusions of the study.

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The second part of the paper discusses the empirical findings of the study, which show that the political system is indeed a complex and dynamic system. The third part of the paper discusses the implications of the study for the political system. The fourth part of the paper discusses the limitations of the study. The fifth part of the paper discusses the conclusions of the study.

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THE UNIVERSITY OF CHICAGO  
DEPARTMENT OF POLITICAL SCIENCE  
POL 301: POLITICAL THEORY

LECTURE 1: THE FOUNDATIONS OF POLITICAL THEORY

1. Introduction to the course and the central questions of political theory.

2. The concept of justice and the social contract tradition.

3. The role of the state and the limits of political power.

4. The relationship between liberty and equality.

5. The concept of the good and the role of the philosopher-king.

6. The concept of the citizen and the role of the polis.

7. The concept of the individual and the role of the state.

8. The concept of the community and the role of the individual.

9. The concept of the nation and the role of the state.

10. The concept of the world and the role of the state.

**QUESTIONNAIRE**  
**ON THE**  
**USE OF**  
**THE**  
**TELEPHONE**

1. **Name:** \_\_\_\_\_  
2. **Address:** \_\_\_\_\_  
3. **City:** \_\_\_\_\_

4. **How long have you been using the telephone?**  
\_\_\_\_\_

5. **What is the main reason for using the telephone?**  
\_\_\_\_\_

6. **How many times a week do you use the telephone?**  
\_\_\_\_\_

7. **What is the most important use of the telephone?**  
\_\_\_\_\_

8. **Do you use the telephone for business purposes?**  
\_\_\_\_\_

9. **What is the most important use of the telephone for business purposes?**  
\_\_\_\_\_

10. **Do you use the telephone for social purposes?**  
\_\_\_\_\_

11. **What is the most important use of the telephone for social purposes?**  
\_\_\_\_\_

12. **Do you use the telephone for entertainment purposes?**  
\_\_\_\_\_

13. **What is the most important use of the telephone for entertainment purposes?**  
\_\_\_\_\_

THE UNIVERSITY OF CHICAGO  
DEPARTMENT OF CHEMISTRY  
PHYSICAL CHEMISTRY  
PHYSICAL CHEMISTRY 301

1. The following table shows the rate constants for the reaction of a certain radical with a certain substrate at various temperatures. The activation energy for this reaction is 15.0 kJ/mol. Calculate the pre-exponential factor,  $A$ , for this reaction.

Temperature (K)	Rate constant (s <sup>-1</sup> )
298	1.0 × 10 <sup>-4</sup>
308	1.5 × 10 <sup>-4</sup>
318	2.5 × 10 <sup>-4</sup>
328	4.0 × 10 <sup>-4</sup>
338	6.5 × 10 <sup>-4</sup>

2. The following table shows the rate constants for the reaction of a certain radical with a certain substrate at various temperatures. The activation energy for this reaction is 15.0 kJ/mol. Calculate the pre-exponential factor,  $A$ , for this reaction.

Temperature (K)	Rate constant (s <sup>-1</sup> )
298	1.0 × 10 <sup>-4</sup>
308	1.5 × 10 <sup>-4</sup>
318	2.5 × 10 <sup>-4</sup>
328	4.0 × 10 <sup>-4</sup>
338	6.5 × 10 <sup>-4</sup>

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1. Financial Statements

Prepare the following financial statements for the year ended 31/12/2018:

Particulars	2017	2018
Assets		
Fixed Assets	1000	1200
Current Assets	200	300
Total Assets	1200	1500
Equity and Liabilities		
Share Capital	1000	1000
Reserves	200	500
Current Liabilities	200	300
Total Equity and Liabilities	1200	1500

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THE UNIVERSITY OF CHICAGO  
DEPARTMENT OF CHEMISTRY  
PHYSICAL CHEMISTRY

PHYSICAL CHEMISTRY OF POLYMERS AND COMPOSITES

1. **Introduction**  
This course is designed to provide a comprehensive overview of the physical chemistry of polymers and composites.

Topic	Weeks	Prerequisites
1. Introduction	1-2	None
2. Thermodynamics of Polymers	3-4	Thermodynamics
3. Kinetics of Polymerization	5-6	Chemical Kinetics
4. Rheology of Polymers	7-8	Fluid Mechanics
5. Composites	9-10	Materials Science

2. **Thermodynamics of Polymers**  
This section covers the thermodynamic properties of polymers, including the Gibbs free energy of mixing and the Flory-Huggins theory.

Equation	Derivation	Applications
$\Delta G_{mix} = RT \sum_i n_i \ln \phi_i$	Flory-Huggins	Phase diagrams
$\chi_{FH} = \frac{z}{kT} (\epsilon_{12} - \frac{\epsilon_{11} + \epsilon_{22}}{2})$	Flory-Huggins	Phase diagrams
$\chi_{HS} = \frac{z}{kT} (\epsilon_{12} - \frac{\epsilon_{11} + \epsilon_{22}}{2}) - \frac{z}{kT} (\frac{\epsilon_{11} + \epsilon_{22}}{2} - \frac{\epsilon_{11} + \epsilon_{22}}{2})$	Hildebrand-Scott	Phase diagrams

3. **Kinetics of Polymerization**  
This section covers the kinetics of polymerization, including the rate of polymerization and the degree of polymerization.

Equation	Derivation	Applications
$R_p = k_p [M] [M^*] - k_t [M^*]^2$	Steady state	Rate of polymerization
$\bar{P}_n = \frac{k_p [M]}{k_t [M^*]}$	Steady state	Degree of polymerization
$\bar{P}_w = \frac{k_p [M]}{k_t [M^*]} \frac{1 + \frac{k_{tr}}{k_p [M]}}{1 + \frac{k_{tr}}{k_p [M]}}$	Steady state	Degree of polymerization

4. **Rheology of Polymers**  
This section covers the rheology of polymers, including the stress-strain relationship and the time dependence of the stress.

Equation	Derivation	Applications
$\sigma = E \epsilon$	Hooke's law	Elasticity
$\sigma = \eta \dot{\epsilon}$	Newtonian fluid	Viscosity
$\sigma = G \dot{\epsilon}$	Maxwell model	Viscoelasticity
$\sigma = E \epsilon + \eta \dot{\epsilon}$	Maxwell model	Viscoelasticity

5. **Composites**  
This section covers the properties of composites, including the mechanical properties and the failure mechanisms.

Equation	Derivation	Applications
$E_c = V_f E_f + V_m E_m$	Mixing rule	Mechanical properties
$\sigma_c = V_f \sigma_f + V_m \sigma_m$	Mixing rule	Mechanical properties
$\epsilon_c = \epsilon_f = \epsilon_m$	Strain compatibility	Mechanical properties
$\sigma_c = \frac{E_c \epsilon_c}{1 + \frac{E_c \epsilon_c}{E_f \epsilon_f}}$	Mixing rule	Mechanical properties

THE UNIVERSITY OF CHICAGO  
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**RESEARCH REPORT**  
**ON THE**  
**RECENT DEVELOPMENTS**

IN THE THEORY OF GROUPS AND ALGEBRAS

The purpose of this report is to provide a comprehensive survey of the recent developments in the theory of groups and algebras. The report is organized into several sections, each dealing with a different aspect of the subject.

The first section deals with the theory of groups, and the second section deals with the theory of algebras. The third section deals with the theory of representations, and the fourth section deals with the theory of modules. The fifth section deals with the theory of rings, and the sixth section deals with the theory of fields.

**1. THE THEORY OF GROUPS**  
The theory of groups is one of the most fundamental branches of mathematics. It has many applications in physics, chemistry, and biology. The theory of groups is concerned with the study of the properties of groups, and the relationships between different groups.

The theory of groups is a very rich and diverse subject. It has many different branches, and each branch has its own set of problems and techniques. The theory of groups is a very active area of research, and there are many new results being discovered all the time.

**2. THE THEORY OF ALGEBRAS**  
The theory of algebras is another fundamental branch of mathematics. It is concerned with the study of the properties of algebras, and the relationships between different algebras. The theory of algebras is a very rich and diverse subject, and it has many different branches.

The theory of algebras is a very active area of research, and there are many new results being discovered all the time. The theory of algebras is a very rich and diverse subject, and it has many different branches. The theory of algebras is a very active area of research, and there are many new results being discovered all the time.

The theory of algebras is a very rich and diverse subject, and it has many different branches. The theory of algebras is a very active area of research, and there are many new results being discovered all the time.

**3. THE THEORY OF REPRESENTATIONS**  
The theory of representations is a branch of mathematics that is concerned with the study of the properties of representations. It is a very rich and diverse subject, and it has many different branches. The theory of representations is a very active area of research, and there are many new results being discovered all the time.



**RESEARCH REPORT**  
**THE EFFECTS OF**  
**TECHNOLOGY ON**  
**TEACHING AND LEARNING**

Area	Impact	Notes
Classroom Management	Enhanced	Use of digital tools for tracking student progress and behavior.
Instructional Methods	Transformed	Integration of multimedia and interactive content into lessons.
Student Engagement	Increased	Use of gamification and collaborative learning environments.
Assessment and Feedback	Streamlined	Automated grading systems and instant feedback loops.
Professional Development	Facilitated	Online courses and webinars for teacher training.
Accessibility	Improved	Remote learning options for students with disabilities.
Cost Efficiency	Variable	Reduction in paper and physical resource costs.
Privacy and Security	Concerns	Need for robust data protection measures for student information.
Equity	Challenges	Digital divide issues affecting access to technology resources.

**CONCLUSIONS AND RECOMMENDATIONS**

Conclusion	Recommendation
Technology has significantly impacted the educational landscape.	Invest in teacher training and professional development.
Integration of technology is essential for modern education.	Ensure equitable access to digital resources for all students.
Continuous evaluation and adaptation are necessary for success.	Establish clear policies for data privacy and security.

This report provides a comprehensive overview of the current state of technology in education and offers actionable insights for stakeholders.



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