

# GRADE 12 INVESTIGATION TO DETERMINE THE INTERNAL

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**What is the use of potentiometer to determine internal resistance of a cell 12th?** In order to calculate internal resistance, we use a potentiometer to calculate the voltage across the battery when no current is passing through it, and then we can attach a resistor in parallel to the battery and recalculate the voltage across it. When current flows through the battery, the balancing length reduces.

**How do you determine the internal resistance of a cell experiment?** You can calculate the internal resistance of a cell by changing the external resistance of the circuit and recording the terminal PD of the cell. When a graph is plotted the gradient is the negative value of 'r' while the y-intercept should be equal to the EMF of the cell.

**What is the motor effect grade 12?** The motor effect is the phenomenon whereby a current-carrying conductor placed in a magnetic field experiences a magnetic force perpendicular to the current in the conductor and magnetic field through it.

**What is the internal resistance of a cell?** Internal resistance refers to the opposition to the flow of current offered by the cells and batteries themselves resulting in the generation of heat. Internal resistance is measured in Ohms.

**How to determine emf and internal resistance of an electrical cell?**  $\epsilon = I(R + r) = V + Ir$   $V = \epsilon - Ir$ , this is in the form  $y = mx + c$  (a straight line graph). Plot a graph of V against I and draw a line of best fit. The y-intercept will be the emf and the gradient will be the negative internal resistance.

**Which device is used for measuring the internal resistance of a cell?**

Potentiometer. A potentiometer is an instrument used to measure the internal resistance of a cell by balancing it against the potential difference produced by passing a known current through a known variable resistance.

**How is internal resistance determined?** To begin, Internal Resistance Formulas should first be understood in their simplest form before trying more complex applications. The Internal Resistance formula shows the relationship between voltage, current, power input, and Internal Resistance: Internal Resistance = Voltage – Current.

**How do you determine the internal resistance of a battery?** A good test of a battery's condition, or internal resistance, is taking the difference between no-load and loaded terminal voltage, divided by the test current.

**How is the internal resistance of a cell determined using voltmeter answer?**

Hence  $V = IR = E - Ir$  This indicates the value of  $V$  is less than  $E$  by an amount equal to the fall of potential inside the cell due to its internal resistance.

**How do you investigate the motor effect?** Investigating the Motor Effect A single loop of wire is placed within a horse-shoe magnet and connected to an external battery. The direction of current is determined by how the wire is connected to the battery. When the battery is switched on, the wire moves either upwards or downwards due to the motor force.

**How to use Fleming's left hand rule?**

**What is the difference between the motor effect and generator effect?** Electric motor follows Fleming's left-hand rule. Electric generator follows Fleming's right-hand rule. The working principle of a motor is based on the current-carrying conductor that experiences a force when it is kept in the magnetic field. The working principle of the generator is based on electromagnetic induction.

**What are the two causes of internal resistance in a cell?**

**What does the internal resistance of a cell always act in?** always acts in the cell in open circuit.

**What is the difference between resistance and internal resistance?** Resistance is a physical quantity that is the measurement of the ability to resist the flow of electrons or current. The internal resistance of a cell or battery is the resistance offered by it. This occurs due to the presence of ions which obstruct the flow of electrons.

**What is the formula for internal resistance?**  $V=IR$ , according to Ohm's Law. The letters V, I, and R stand for voltage, current, and resistance, in this case, internal resistance. Ans. The following is the formula for calculating resistance using Ohm's Law:  $R = V / I$ , where R denotes the resistor's resistance in ohms and V denotes the voltage drop in volts.

**What is the symbol for internal resistance?** However, if we include the internal resistance, the total resistance will be  $R+r$ , where r is the internal resistance. In this case, the voltage can be expressed as emf (?).

**What is the formula for lost voltage?** The Voltage Drop Formula  $V = R \times I$  (also called Ohm's law) gives the voltage drop across an electric element where resistance (R) is measured in ohm "  $\Omega$  ," and current (I) is measured in amperes "A." Ohm's law is also part of the constitutive equations, where they express the physics of the component.

**How to determine the internal resistance of a cell?** Calculation of Internal Resistance- Ohm's law  $r=E/V$  this is the equation to find the internal resistance of a cell using Ohm's law.

**On what factors does internal resistance depend?** The electromotive force of a cell is always greater than the potential difference across the same cell. Thus, the internal resistance of a cell depends on the factors like distance between the electrodes, the temperature, the effective area of the electrodes and the concentration of the solution.

**What is the theory of internal resistance?** In electrical engineering, a practical electric power source which is a linear circuit may, according to Thévenin's theorem, be represented as an ideal voltage source in series with an impedance. This impedance is termed the internal resistance of the source.

**How do you test for internal resistance?** Direct Current Internal Resistance, DCIR or DCR can be measured with a battery tester by applying a low current followed by higher current on the battery within a short period, and then record the changes of battery voltage  $V$  and current  $I$ . Based on Ohm's Law,  $DCIR = V/I$ .

**How do you find internal resistance and EMF?** The emf  $E$  of a battery is given by the equation  $E = V + Ir$ , where  $V$  is the terminal voltage of the battery,  $r$  is the internal resistance of the battery, and  $I$  is the current in the circuit.

**How to find EMF without current?** The EMF or electromotive force is the energy supplied by a battery or a cell per coulomb ( $Q$ ) of charge passing through it. The magnitude of emf is equal to  $V$  (potential difference) across the cell terminals when there is no current flowing through the circuit.

**On what principle does the potentiometer work 12th?** The basic principle of the potentiometer is that the potential drop across any section of the wire will be directly proportional to the length of the wire, provided the wire is of a uniform cross-sectional area and a uniform current flows through the wire.

**How is the internal resistance of a cell determined using voltmeter Class 12?** Hence  $V = IR = E - Ir$  This indicates the value of  $V$  is less than  $E$  by an amount equal to the fall of potential inside the cell due to its internal resistance.

**What is the internal resistance of a cell 12?** The internal resistance of a cell of e.m.f is  $5 \times 10^{-2} \Omega$ .

**What is the use of potentiometer as a voltage divider Class 12?** The potentiometer can be used as a voltage divider to obtain a manually adjustable output voltage at the slider (wiper) from a fixed input voltage applied across the two ends of the potentiometer. This is their most common use.

**What is the working rule of potentiometer?** The basic potentiometer working principle is based on the fact that the potential across any piece of the wire is directly proportional to the length of the wire, which has a uniform cross-sectional area and the constant current flowing through it.

**What is the formula for potentiometer?** For a primary circuit of the potentiometer the potential gradient remains the same. Potential gradient is calculated as  $K = V/L$ , where  $V$  is the voltage across the potentiometer wire and the  $L$  is the length of the wire in the potentiometer. So the unit of potential gradient is volts/meter.

**How does a potentiometer regulate the current within a circuit?** The wiper terminal is connected to a sliding contact that moves along a resistive element. When the wiper terminal is moved, the amount of resistance between the input terminal and the output terminal changes. This change in resistance controls the amount of current that flows through the circuit.

**How to determine the internal resistance of a cell using a potentiometer?** Measurement of internal resistance of a cell using potentiometer: The cell of emf,  $E$  (internal resistance  $r$ ) is connected across a resistance box ( $R$ ) through key  $K_2$ . We know  $I_1$ ,  $I_2$  and  $R$ , so we can calculate  $r$ .

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**How do you determine internal resistance experimentally?**  $\epsilon = I(R + r) = V + Ir$  ?  
 $V = \epsilon - Ir$  , this is in the form  $y = mx + c$  (a straight line graph) ? Plot a graph of  $V$  against  $I$  and draw a line of best fit. The y-intercept will be the emf and the gradient will be the negative internal resistance.

**What is the formula for internal resistance Grade 12?**  $V = IR$ , according to Ohm's Law. The letters  $V$ ,  $I$ , and  $R$  stand for voltage, current, and resistance, in this case, internal resistance. Ans. The following is the formula for calculating resistance using Ohm's Law:  $R = V/I$ , where  $R$  denotes the resistor's resistance in ohms and  $V$  denotes the voltage drop in volts.

**What is the normal internal resistance of a 12v battery?** The internal resistance of a 12 volt car battery is 0.02 ohms. What is the maximum power it can deliver? According to maximum power transfer theorem, maximum power can be transferred

when the external load is equal to the internal resistance of the source.

**What is the difference between emf and voltage?** Difference Between Voltage and EMF Emf is the voltage developed between two terminals of a battery or source, in the absence of electric current. Voltage is the potential difference developed between the two electrode potentials of a battery under any conditions.

**Why potentiometer is preferred over voltmeter class 12?** The potentiometer is preferred over voltmeter for measurement of emf of cell because the potentiometer does not draw any current for itself from the primary circuit. Therefore it gives more accurate measurement thereby acting as an ideal voltmeter.

**What is a voltage divider circuit explain using an example?** Voltage division is the result of distributing the input voltage among the components of the divider. A simple example of a voltage divider is two resistors connected in series, with the input voltage applied across the resistor pair and the output voltage emerging from the connection between them.

**What is the difference between a potentiometer and a voltmeter?** A potentiometer is a three terminal measuring device used to measure the unknown EMF of a source (such as a cell) by comparing it with a known EMF. The voltmeter is a two terminal measuring device which is used to determine the potential difference (or voltage) between any two terminals in an electric circuit.

## **Trakhees Civil Engineering Department: Questions and Answers**

**Q: What is the role of the Trakhees Civil Engineering Department?**

**A:** The Trakhees Civil Engineering Department is responsible for the planning, design, and regulation of all civil engineering infrastructure within the Trakhees Free Zone in Dubai, United Arab Emirates. The department oversees the construction of roads, bridges, drainage systems, and other essential facilities to support the growth and operation of businesses within the free zone.

**Q: What are the main responsibilities of the department?**

**A:** The department's responsibilities include:

- Planning and designing civil engineering infrastructure to meet the needs of Trakhees businesses
- Issuing permits for all construction activities within the free zone
- Inspecting construction sites to ensure compliance with building codes and regulations
- Managing and maintaining civil engineering infrastructure to ensure safety and functionality

**Q: How does the department contribute to the development of the free zone?**

**A:** The department plays a crucial role in the development of the Trakhees Free Zone by providing a reliable and efficient infrastructure. By ensuring that civil engineering projects meet high standards, the department helps to create a safe and conducive environment for businesses to operate and thrive. The infrastructure also supports the growth of the free zone by facilitating the movement of goods, people, and services.

**Q: How does the department work with other departments in Trakhees?**

**A:** The Civil Engineering Department works closely with other departments in Trakhees to ensure a coordinated approach to the development and management of the free zone. For example, the department collaborates with the Environmental Department to ensure that construction projects minimize environmental impact. Additionally, it works with the Planning and Development Department to align civil engineering projects with the overall master plan for the free zone.

**Q: What are the challenges and opportunities faced by the department?**

**A:** The department faces challenges such as the need to meet the ever-changing needs of Trakhees businesses and the strict regulatory environment in Dubai. However, it also sees opportunities to improve efficiency and innovation in civil engineering practices. The department is continually exploring new technologies and processes to streamline its operations and deliver exceptional services to its stakeholders.

## **Training Foreign Language Teachers: A Reflective Approach (Cambridge Teacher Training and Development)**

### **Introduction**

Foreign language education is becoming increasingly important in today's globalized world. To meet the growing demand for skilled foreign language teachers, teacher training programs must adopt innovative approaches that emphasize reflection and continuous professional development.

### **Question 1: Why is a reflective approach essential in foreign language teacher training?**

**Answer:** Reflection allows teachers to critically examine their teaching practices, identify areas for improvement, and develop strategies to enhance their instruction. It empowers them to make informed decisions and become lifelong learners.

### **Question 2: How does the Cambridge Teacher Training and Development program incorporate a reflective approach?**

**Answer:** The program provides opportunities for teachers to engage in self-assessment, peer feedback, and structured reflection exercises. Through these activities, they develop a deeper understanding of their strengths and weaknesses, and create action plans for professional growth.

### **Question 3: What are the benefits of a reflective approach in foreign language teaching?**

**Answer:** A reflective approach fosters critical thinking skills, promotes innovation, and enhances teaching effectiveness. It enables teachers to tailor their instruction to meet the diverse needs of their students, and empowers them to adapt to changing methodologies and technologies.

### **Question 4: How can teachers incorporate a reflective approach into their own practice?**

**Answer:** Teachers can dedicate time for self-reflection after each lesson or unit, using prompts such as "What went well?" and "What could be improved?" They can



also seek feedback from colleagues and students, and engage in professional development opportunities that emphasize reflection.

**Question 5: How does the Cambridge Teacher Training and Development program support teachers' ongoing reflection?**

**Answer:** The program offers ongoing mentoring and support to teachers as they embark on their reflective journey. Through regular check-ins and workshops, teachers can receive guidance, share best practices, and continue to develop their reflective skills.

**What are the important questions of strategic management?**

**How to answer strategic management questions?**

**What are the 5 stages of strategic management?**

**What are the 3 questions a strategic plan helps to answer?**

**What are the 4 strategic questions?**

**What are the three major challenges to strategic management?** Common challenges of strategic planning There are four main challenges when it comes to strategic planning: lack of ownership, poor communication, lack of alignment, and slow adoption. It's important to understand what's at the core of these planning challenges before we dive into solutions.

**What is the key question examined by strategic management?** Issues such as those currently faced by Apple are the focus of strategic management because they help answer the key question examined by strategic management—"Why do some firms outperform other firms?" More specifically, strategic management examines how actions and events involving top executives (such as Steve Jobs) ...

**What are the basic strategy questions?**

**What are the three A's of strategic thinking?** This requires the three strategic disciplines (3 A's): acumen for developing valuable insights, allocation for using resources wisely, and action for executing strategic plans. The best route to business success is "differentiation" and not price-cutting.

**What are the 5 C's of strategic management?** The 5 C's make up a situational analysis marketing model used to help the business make decisions for their marketing strategies. To do so, marketers implement a 5 C's analysis to analyze specific areas of marketing. The 5 C's of marketing include company, customer, collaborators, competitors, and climate.

**What are the 3 major phases of strategic management?** The strategic-management process consists of three stages: strategy formulation, strategy implementation, and strategy evaluation.

**What is SWOT analysis in strategic management?** What Is a SWOT Analysis? SWOT stands for Strengths, Weaknesses, Opportunities, and Threats, and so a SWOT analysis is a technique for assessing these four aspects of your business. SWOT Analysis is a tool that can help you to analyze what your company does best now, and to devise a successful strategy for the future.

**What are the key questions in strategic management?**

**What is the three big questions strategy?** The Three Big Questions strategy challenges readers to annotate in the margins by marking passages that answer the questions: "What surprised me?", "What did the author think I already knew?", and "What challenged, changed, or confirmed what I already knew?".

**What's the first question a strategist should always ask?** Would anyone do the opposite of what you're doing?

**What are good strategic planning questions?**

**What are the 4 pillars of strategic thinking?** The 4 pillars for strategy are: Vision, Analysis, Target & Plan. A strategy needs to built on the foundation of an overarching vision that it is meant to achieve.

**What are the four keys in strategic management?** Several components are involved in developing a comprehensive corporate strategy. The four most widely accepted key components of corporate strategy are visioning, objective setting, resource allocation, and prioritization.

**What are the 3 C's in strategic management?** The 3 Cs of Brand Development: Customer, Company, and Competitors. There is only a handful of useful texts on strategy. Any MBA student will be familiar with these: Competitive Advantage and Competitive Strategy by Michael Porter.

**What are the 3 D's of strategic management?** At the core of this definition are three central elements: diagnose, decide, and deliver. These are the three elements that are central to the strategic management process—what we refer to as the 3Ds.

**What are the 3 basic model of strategic management?**

**What are the 3 strategic questions?**

**What are key issues in strategic management?** The issues of strategic management include setting goals, allocating resources, adapting to external changes, and evaluating performance. The issues of strategic management include identifying current strategy, generating reasonable incremental change, and setting objectives for the organization.

**How do you identify key strategic issues?** Conducting a comprehensive SWOT analysis is a powerful approach to identify and prioritize key strategic issues. By evaluating Strengths, Weaknesses, Opportunities, and Threats, organizations can gain insights into internal and external factors influencing their objectives.

**What are the 5 main questions?** (Who, what, why, how, where, when, with what) The question form was taken up again in the 12th century by Thierry of Chartres and John of Salisbury.

**What are the 7 keys questions?** A key question is a form of words addressed to a person in order to elicit information or evoke a response; interrogative sentence. It is a formula to get the whole truth about a problem. Who, What, Why, When, Where, How, How Much? - Consultant's Mind.

**What are the 7 fundamental questions?**

**What are the 5 importance of strategic management?** Strategic management is crucial for organizations as it provides direction, helps adapt to changes, optimizes

resource allocation, improves performance, and ensures long-term sustainability.

**What are the 3 most important aspects of strategic management?** Successful strategic management involves three steps: Planning, Execution and Monitoring Developments & Progress. With strategic management, actions speak louder than words. Even effective strategic planning that yields the appropriate decisions can come up short on delivering performance improvements.

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**What are the two main approaches to strategic management?** There are two main approaches to strategic management: prescriptive and descriptive. A prescriptive approach to strategic management focuses on how strategies should be developed, while a descriptive approach focuses on how strategies should be put into practice.

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**What is the primary focus of strategic management?** Expert-Verified Answer The primary focus of strategic management is- strategy implementation. Methodology Implementation alludes to the execution of the plans and systems, in order to achieve the drawn-out objectives of the association.

**What is the main purpose of strategic management?** Strategic management provides overall direction by developing plans and policies to achieve objectives and allocating resources to implement the plans. Ultimately, strategic management exists for organisations to gain a competitive edge over their competitors.

**What are the three big strategic questions?**

**What is the basic question strategic management tries to answer?** He stated that each organization must answer three critical strategic questions: What is our business?: (Mission) What is our business is concerned with identifying the company's mission? "Who is the customer?" is the first and most important question to address while defining the business's mission.

**What are the basic strategy questions?**

**What are the 7 C's of strategic management?** There are seven core elements that if considered will contribute to the organization's project decision-making process. The seven elements (7 C's) are: customers, competitors, capabilities, cost, channels, communication, and coordination.

**What are the 4 phases of strategic management?** The four stages of strategic management process are formulation, implementation, evaluation and control. Elements of strategic management process – establishing the hierarchy of strategic intent, formulation of strategies, implementation of strategies and performing strategic evaluation and control.

**What is the first step in the strategic management process?** Identify your goals The first step in the strategic management process is to evaluate where you're going, and why. Ideally, you already have some goal materials in place, including: Your vision statement. Your mission statement.

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