UNITED ARAB EMIRATES
MINISTRY OF EDUCATION

الإمارات العربية المتحدة
وزارة التربية والتعليم

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| End of Term 1 Exam Coverage | هيكل اختبار نهاية الفصل الدراسي الأول |
| **Grade 12 General - Physics** | **الصف الثاني عشر - عام - الفيزياء** |
| Academic Year 2026-2027 | العام الدراسي 2027-2026 |
| Inspire | انسباير |

| عدد الأسئلة<br>Number of questions | درجة السؤال<br>Marks per question | الدرجة القصوى<br>Maximum grade |
|---|---|---|
| **15 MCQ**<br>**4 FRQ** | **2-4 for (Q1-Q16)**<br>**10 for (Q17-Q20)** | **100** |

| مدة الاختبار<br>Exam duration | طريقة التطبيق<br>Mode of implementation | الآلة الحاسبة<br>Calculator |
|---|---|---|
| **150 دقيقة**<br>**150 minutes** | **إلكتروني وورقي**<br>**Electronic & Paper** | **يُسمح باستخدام الآلة الحاسبة العلمية**<br>**The use of a scientific calculator is allowed** |

⚠ Questions might appear in a different order in the actual exam.

| Question type | Q | Learning outcome or KPI | Reference | Page |
|---|---|---|---|---|
| أسئلة اختيار من متعدد<br>Multiple Choice Questions | Q1 | - Define electric field as a property of space around a charged object that exerts forces on other charges objects.<br>- Demonstrate an understanding that although electric fields are invisible, they can interact with matter. | Textbook | 18 |
| | Q2 | - Define electric field strength as the electric force exerted per unit charge and measured in N/C.<br>- Identify the direction of an electric field as the direction of the force on a positive test charge placed in the field. | Textbook | 19 |

| Question type | Q | Learning outcome or KPI | Reference | Page |
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| أسئلة اختيار من متعدد<br>Multiple Choice Questions | Q3 | - Define electric field strength as the electric force exerted per unit charge and measured in N/C.<br>- Apply the relationship between electric field strength, electric force and charge to solve numerical problems. | Textbook | 19 |
| | Q4 | - Sketch the electric field lines to model the electric field around single point charges (positive or negative) and for a pair of electric charges. | Figure 20 | 23 |
| | Q5 | - Define Electric potential difference as the ratio of the work needed to move a charge to the magnitude of that charge. | Textbook | 26 |
| | Q6 | - Describe the electrostatic potential energy lost or gained in moving a charge. between two points in a known electric field. | Figure 24 | 27 |
| | Q7 | - Relate the potential difference between two points in a uniform electric field to the product of electric field intensity and the distance between the points parallel to the direction of the field. | Textbook | 28 |
| | | | PRACTICE Problems 43 | 28 |
| | Q8 | - Describe Millikan's oil-drop experiment and explain how it confirms that charge exists in discrete amounts, which are integral multiples of the elementary charge. | Textbook | 30 |
| | | | Figure 27 | 30 |
| | Q9 | - Describe the charge distribution on a solid conducting sphere, a hollow conducting sphere and an irregular conducting surface. | Textbook | 32 |
| | | | Figure 28 | 32 |
| | Q10 | - Apply the equation for capacitance to solve numerical problems.<br>- Find the capacitance of a capacitor from a charge versus potential difference graph. | Textbook | 33 |
| | | | Figure 30 | 33 |
| | Q11 | - Identify the direction of conventional current as the direction of motion of positive charges or opposite to the flow of electrons. | Textbook | 41 |
| | | | Figure 1 | 41 |
| | Q12 | - Describe the energy transformations taking place in circuits with different components. | Figure 2 | 42 |
| | Q13 | - Identify the commonly used circuit symbols. | Figure 6 | 46 |

| Question type | Q | Learning outcome or KPI | Reference | Page |
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| أسئلة اختيار من متعدد Multiple Choice Questions | Q14 | - Differentiate between series and parallel connections.<br>- Draw schematic circuit diagrams with different components along with<br>ammeters and voltmeters correctly connected to measure current and voltage. | Figure 13 | 51 |
| | Q15 | - Relate the electric power or rate of energy transfer to current and potential<br>difference (P=IΔV)<br>- Apply the relationship between power, current and potential difference to<br>solve numerical problem.<br>- State Ohm's law and apply it to simple circuits (ΔV=RI).<br>- Define a kilowatt-hour as a unit for measuring electrical energy and is equal to 1000 watts delivered continuously for 3600 s (or 1h). | Textbook | 53 |
| | Q16 | - Define superconductors and demonstrate their importance. | Textbook | 53 |
| أسئلة مقالية Free Response Questions | Q17 | - Define the electric field vector at a point in space as the quotient of the electrostatic force vector acting on a positive test charge at this point divided by the test charge<br>- Develop a mathematical equation to evaluate the electric field strength at a point due to a point charge.<br>- Sketch the electric field lines to model the electric field around single point charges (positive or negative) and for a pair of electric charges. | Example Problem 2 | 20 |
| | | | Example Problem 3 | 21 |
| | Q18 | - Develop a tool, sketches, descriptive text or presentation to show the morphology of electric field lines of a single or multiple charge system with positive and/or negative charges.<br>- Develop a mathematical equation to describe, quantitatively, the potential difference between two points inside a uniform electric field.<br>- Apply the relationship between work, electric potential and charge to solve numerical problems.<br>- Calculate the electric potential difference in a uniform electric field. | Example Problem 4 | 29 |
| | Q19 | - Make estimates of household electrical energy consumption in units of kW.hr, estimate the cost and suggest ways of going green by reducing consumption of electricity.<br>- Relate the electric power or rate of energy transfer to current and potential difference (P=IΔV).<br>- Apply the relationship between power, current and potential difference to solve numerical problems. | Example Problem 1 | 44 |
| | Q20 | - Explain the factors (like length, cross-sectional area, temperature and material of the conductor) that affect the resistance of a conductor.<br>- State Ohm's law and apply it to simple circuits (ΔV=RI). | Table 1 | 47 |
| | | | Example Problem 2 | 50 |