



Republic of the Philippines
Department of Education
CARAGA REGION

**TABLE OF SPECIFICATION FOR THE DIAGNOSTIC TEST IN GENERAL PHYSICS 1
SY 2022-2023**

| MOST ESSENTIAL LEARNING COMPETENCIES | No. of days based on LC Codes | % | No. of Items | Lower-order Thinking Skills | | Moderate-order Thinking Skills | | Higher-order Thinking Skills | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|----|--------------|-----------------------------|-----|--------------------------------|-----|------------------------------|-----|
| | | | | Rem | Und | App | Ana | Eval | Cre |
| | | | | Item Placement | | | | | |
| Solve measurement problems involving conversion of units, expression of measurements in scientific notation (STEM_GP12EU-Ia-1) | 5 | 4% | 6 | | | 2* | 3* | | |
| Differentiate accuracy from precision (STEM_GP12EU-Ia-2) | | 2% | | | 4** | | | | |
| Differentiate random errors from systematic errors (STEM_GP12EU-Ia-3) | | 2% | | | | | | 5** | |
| Estimate errors from multiple measurements of a physical quantity using variance (STEM_GP12EU-Ia-5) | | 2% | | 1*** | | | | | |
| Convert a verbal description of a physical situation involving uniform acceleration in one dimension into a mathematical description (STEM_GP12Kin-Ib-12) | | 2% | | | | | | | 6* |
| Describe motion using the concept of relative velocities in 1D and 2D (STEM_GP12KIN-Ic-20) | 5 | 6% | 6 | 7** | 8** | | 9** | | |
| Deduce the consequences of the independence of vertical and horizontal components of projectile motion (STEM_GP12KIN-Ic-22) | | 2% | | | | | | 10*** | |
| Calculate range, time of flight, and maximum heights of projectiles (STEM_GP12KIN-Ic-23) | | 2% | | | | 11* | | | |



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| Draw free-body diagrams (STEM_GP12N-Id- 32) | | 2% | | | | | | | 12*** |
| Apply Newton's 2nd law and kinematics to obtain quantitative and qualitative conclusions about the velocity and acceleration of one or more bodies, and the contact and noncontact forces acting on one or more bodies. (STEM_GP12N-Ie-36) | 5 | 2% | 5 | 13*** | | | | | |
| Solve problems using Newton's Laws of motion in contexts such as, but not limited to, ropes and pulleys, the design of mobile sculptures, transport of loads on conveyor belts, force needed to move stalled vehicles, determination of safe driving speeds on banked curved roads. (STEM_GP12N-Ie38) | | 2% | | | 14* | | | | |
| Determine the work done by a force acting on a system (STEM_GP12WE-If-41) | | 2% | | | | | | | 16** |
| Define work as a scalar or dot product of force and displacement. (STEM_GP12WE-If-42) | | 2% | | | | 15** | | | |
| Interpret the work done by a force in onedimension as an area under a Force vs Position Curve. (STEM_GP12WE-If-42) | | 2% | | | | | 17*** | | |
| Use potential energy diagrams to infer force; stable, unstable, and neutral equilibria; and turning points (STEM_GP12WE-Ig-53) | 5 | 8% | 6 | 18** | 19** | | 20** | 21** | |
| Solve problems involving work, energy, and power in contexts such as, but not limited to, bungee jumping, design of roller coasters, number of people required to build structures such as the Great Pyramids and the rice terraces; power and energy requirements of human activities such as sleeping vs. sitting vs. standing, running vs. walking (STEM_GP12WE-Ih-i-55) | | 2% | | | | 22* | | | |
| Relate the motion of center of mass of a system to the momentum and net external force acting on the system (STEM_GP12MMIC-Ih-57) | | 2% | | | | | | | 23*** |

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| Determine whether a system is in static equilibrium or not (STEM_GP12RED-IIa-5) | 5 | 2% | 6 | 24** | | | | | |
| Calculate the moment of inertia about a given axis of single object and multiple-object systems (STEM_GP12RED-IIa-1) | | 4% | | | | | 25* | | |
| Calculate magnitude and direction of torque using the definition of torque as a cross product (STEM_GP12RED-IIa-3) | | 2% | | | | | | 26* | |
| Apply the rotational kinematic relations for systems with constant angular accelerations (STEM_GP12RED-IIa-6) | | 2% | | | | | 27*** | | |
| Determine angular momentum of different systems (STEM_GP12RED-IIa-9) | | 4% | | | 28**,2 9** | | | | |
| Describe qualitatively and quantitatively the superposition of waves (STEM_GP12MWS-IIe-35) | 5 | 6% | 6 | 30** | 31** | | 32** | | |
| Apply the condition for standing waves on a string (STEM_GP12MWS-IIe-36) | | 6% | | | | 33*** | | 34***,3 5*** | |
| Relate density, specific gravity, mass, and volume to each other (STEM_GP12FM-IIf-40) | 5 | 2% | 5 | 36** | | 37** | | | |
| Apply Bernoulli's principle and continuity equation, whenever appropriate, to infer relations involving pressure, elevation, speed, and flux (STEM_GP12FM-IIf-46) | | 6% | | | | 38*** | | 39,40** * | |
| Explain the connection between the Zeroth Law of Thermodynamics, temperature, thermal equilibrium, and temperature scales (STEM_GP12TH-IIg-49) | 5 | 4% | 6 | | | | 41** | 42** | |
| Define coefficient of thermal expansion and coefficient of volume expansion (STEM_GP12TH-IIg) | | 2% | | 43** | | | | | |
| Calculate volume or length changes of solids due to changes in temperature (STEM_GP12TH-IIg-52) | | 4% | | | 44* | 45* | | | |
| Enumerate the properties of an ideal gas (STEM_GP12GLT-IIh- 57) | | 2% | | 46** | | | | | |

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| Solve problems involving ideal gas equations in contexts such as, but not limited to, the design of metal containers for compressed gases (STEM_GP12GLT-IIh- 58) | 5 | 2 | 4 | | | | | 47* | |
| Interpret PV diagrams of a thermodynamic process (STEM_GP12GLT -IIh - 60) | | 2 | | | | | 48*** | | |
| Compute the work done by a gas using $dW=PdV$ (STEM_GP12GLT -IIh - 61) | | 2 | | | | 49* | | | |
| State the relationship between changes in internal energy, work done, and thermal energy supplied through the First Law of Thermodynamics (STEM_GP12GLT-IIh- 62) | | 2 | | | 50*** | | | | |
| Total | 45 | 100% | 50 | 9 | 9 | 9 | 9 | 10 | 4 |

Legend: *Problem Solving; **Information Literacy; ***Critical Thinking

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