GUIDED NOTES: MODULE 3 KELPER’S KINGDON FVS PHYSICS A

INSTRUCTIONS: These are some of the essential driving questions on each of the lessons you will be learning in this module. On finishing each lesson, you should summarize the concepts learnt using these guiding questions for that lesson. If you cannot write the answers in your own words, perhaps you should revisit the lesson again. By the end of the module, you would have a completed document that you can review, make changes and use in preparation of your DBA and module exam,

BIG IDEA OF THIS LESSON: AN UNBALANCED FORCE IS REQUIRED TO CHANGE THE STATE OF MOTION OF AN OBJECT. ANY CHANGE IN MOTION(ACCELERATION) REQUIRES A FORCE !

|  |  |  |
| --- | --- | --- |
| Lesson | Essential Questions | Your notes |
| 3.01 | What does Newton’s I law of motion say? |  |
|  | What is inertia ? Give examples. |  |
|  | Think of examples in everyday life to which you can apply N..I law |  |
| 3.02 | Explain Newton’s II law of motion |  |
|  | Choose a real life example and see how you can apply to N.II law of motion |  |
|  | Discuss relationship between force and accln  Mass and accln (shapes of graphs) |  |
|  | Explain common forces like gravity, normal force, friction, air resistance |  |
| 3.03 | Explain N.III law |  |
|  | Apply N. III law to real life examples |  |
|  | If a book pushing down on a table is action, what is the reaction? |  |
| 3.04 | Discuss the four fundamental forces |  |
|  | Compare and contrast gravitational force and electrostatic force |  |
| 3.05 | How will you calculate the weight or force of gravity on a body? |  |
|  | How will you calculate the normal force ? |  |
|  | What is static friction? limiting friction?  Dynamic Friction? |  |
|  | Draw FBD (label all forces ) for a car that is at rest moving at a constant speed speeding up braking to a stop |  |
|  | What is static equilibrium? Give an example |  |
|  | What is dynamic equilibrium? Give an example |  |
| 3.06 | How is mass different from weight ? |  |
|  | What is the mass of an object if the weight on earth is 320N? |  |
|  | What is the weight of an object, if the mass was 30 kg? |  |
| 3.07 | What is Kepler’s law of ellipses? |  |
|  | What is Kepler’s law of equal areas? |  |
|  | What is Kepler’s law of Harmonies? |  |
|  | What is uniform circular motion? |  |
|  | How will you calculate speed in uniform circular motion? |  |
|  | Why is a “centripetal force” required to maintain an object in uniform circular motion? |  |
|  | What is an example of friction acting as the centripetal force ? |  |
|  | What is an example of weight acting as the centripetal force ? |  |
|  | Is an object in uniform circular motion in equilibrium or not? Explain. |  |
| 3.08 | What is momentum? How will you calculate it ? |  |
|  | What is impulse ? What are two ways of calculating impulse |  |
|  | What does the law of conservation of momentum state ? Explain with an example. |  |
|  | What are elastic and inelastic collisions? |  |
|  | Momentum is always conserved, but kinetic energy may or may not be conserved. Explain this statement with an example. |  |
|  | Why does an egg falling on thick grass does not break while an egg falling on a concrete surface breaks? Explain using the impulse equation. |  |

KEY VOCABULARY WORDS

INERTIA, NET FORCE, STATIC AND DYNAMIC EQUILIBRIUM, ACCELERATION, ACTION AND REACTION, STATIC FRICTION, DYNAMIC OR KINETIC FRICTION, COEFFICIENT OF STATIC FRICTION, NORMAL FORCE, WEIGHT, MASS, UNIFORM CIRCULAR MOTION, CENTRIPETAL FORCE, MOMENTUM, IMPULSE, ELASTIC AND INELASTIC COLLISION, KINETIC ENERGY, CONSERVATION OF MOMENTUM

LIST OF EQUATIONS/FORMULAS YOU SHOULD KNOW ! ( WRITEYOUR OWN LIST HERE !)