

ELECTRIC TRACTION LECTURE

NOTES SLIBFORYOU

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What is the basic concept of electric traction? The system which use electrical power for traction system i.e. for railways, trams, trolleys, etc. is called electrical traction. The track electrification refers to the type of source supply system that is used while powering the electric locomotive systems.

What is the major drawback of electric traction? High capital cost. Problem of supply failure. Additional equipment is required for achieving electric braking and control.

What are the two classes of electric traction systems? Electric-traction systems can be broadly divided into those using alternating current and those using direct current. With direct current, the most popular line voltages for overhead wire supply systems have been 1,500 and 3,000. Third-rail systems are predominantly in the 600–750-volt range.

What is the most vital factor against electric traction? 1. The most vital factor against electric traction is the initial high cost of laying out overhead electric supply system. Unless the traffic to be handled is heavy, electric traction becomes uneconomical.

What is the voltage of electric traction? Railway electrification systems using alternating current (AC) at 25 kilovolts (kV) are used worldwide, especially for high-speed rail.

What is the basic principle of traction? There are many definitions of traction, but put simply, traction is the application of a pulling force for medical purposes, to treat

muscle or skeletal disorders – for example, to reduce a fracture, stabilise and maintain bone alignment, relieve pain, or prevent spinal injury.

Which type of power supply is used in electric traction? It can use either DC (direct current) or AC (alternating current), the former being, for many years, simpler for railway traction purposes, the latter being better over long distances and cheaper to install but, until recently, more complicated to control at train level.

What is the main advantage of electric traction over other methods? Advantages of electric traction systems: The maintenance and running costs are comparatively low. The speed control of the electric motor is easy. Regenerative braking is possible so that the energy can be fed back to the supply system during the braking period.

What is the supply system for electric traction? Electric traction systems use a series of electrical power for moving any locomotive, tram, trolley or industrial train. The process of electrifying tracks come down to the supply system that powers the locomotive. Locomotives and industrial machines on rails can be supplied by an AC or DC composite power supply.

Which type of motor is generally used in electric traction? The dc series motor is most suitable for traction services because it has the following properties: DC series motor develops high torque at low speeds, and low torque at high speeds, this is the essential requirement of a traction unit.

How do electric traction motors work? A traction motor is the core component to realize the conversion between electric energy and mechanical energy. It operates as a motor during train traction to convert electric energy into mechanical energy and acts as a generator during braking to convert mechanical energy into electrical energy.

What are the basic uses of traction system in daily life? Electric traction systems refer to the technology used to propel and control vehicles that operate on electric power. These systems are integral to various forms of transportation, including trains, trams, trolleybuses, and electric vehicles (EVs).

Which current collection used in electric traction? The pantograph is employed in railways for the collection of current where the operating speed is as high as 100 or 130 kmph and the currents to be collected are as large as 2,000 or 3,000 amperes.

What is ideal electric traction? The requirements of ideal traction systems: The speed control of the traction motors should be easy. Vehicles should be able to run on any route, without interruption. Equipment required for traction systems should be minimum with high efficiency. It must be free from smoke, ash, dust, etc.

What are the 3 most important factors affecting traction? In fact, the road surface texture, the tyre tread design and condition, the water depth as well as tread rubber properties, are all vital quantities in the control of skid resistance.

What is the objective of electric traction? Advantages of electric traction systems: It is cleanest of all other types of systems of traction; Due to this only it is ideally suitable for the underground and tube railways. No need of storage of coal and water that in turn reduces the maintenance cost as well as the saving of high-grade coal.

What are the requirements for electric traction? The requirements of ideal traction systems: Ideal traction system should have capability of developing high tractive effort in order to have rapid acceleration. The speed control of the traction motors should be easy. Vehicles should be able to run on any route, without interruption.

What is the working principle of traction motor? Traction motors are powered by electricity and generate the power to rotate the wheels of the train. The turning force produced by traction motors is transmitted to the wheels via the driving gear unit and axle. Traction motors are typically mounted in the trucks where the wheels are housed.

How does an electric traction motor work in a car? The traction motor of EVs is responsible for converting electrical energy to mechanical energy in such a way that the vehicle is propelled to overcome aerodynamic drag, rolling resistance drag, and kinetic resistance.

Tirthankar Roy: India's Role in the World Economy from Antiquity

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Q: What was India's economic position in the ancient world? A: Tirthankar Roy asserts that India was a major economic hub, exporting valuable goods such as spices, textiles, and precious stones. Its vast trading networks extended across Asia, Africa, and Europe.

Q: How did India's geography contribute to its economic prosperity? A: India's access to the Arabian Sea and the Bay of Bengal provided it with strategic ports. The subcontinent's fertile river valleys and abundant natural resources further fostered its economic growth.

Q: What factors facilitated India's extensive trade? A: Roy highlights advancements in shipbuilding, navigation, and banking technology. The development of a sophisticated monetary system and a network of merchant guilds also played a crucial role in facilitating trade.

Q: How did India's cultural influences shape its economic interactions? A: India's religious and philosophical traditions emphasized the importance of non-violence, trade, and cooperation. These principles fostered a favorable environment for economic exchange and helped establish India as a trusted trading partner.

Q: What are the implications of India's historical economic significance for the present day? A: Roy argues that India's past economic prowess serves as a testament to its potential for future economic growth. The country's historical legacy of trade and innovation can be harnessed to drive its integration into the global economy and contribute to its sustainable development.

What is the cart on a ramp experiment? The experiment uses a ramp and a low-friction cart. If you give the cart a gentle push up the ramp, the cart will roll upward, slow and stop, and then roll back down, speeding up. A graph of its velocity vs. time would show these changes.

What was the velocity of the cart at the top of its motion? Original question: When the cart is at the top of the incline, the velocity is zero.

How do you use a vernier video in physics?

Why do we find it difficult to push a cart up a ramp then to push it down the ramp? It takes more force to move it up the ramp because there's a horizontal gravitational force component to be 'overcome'. Unlike when it's moving down — only friction, inertial force and traction need to be 'overcome'.

How do you find the acceleration of a cart rolling down a ramp? Acceleration on a ramp equals the ratio of the height to the length of the ramp, multiplied by gravitational acceleration. Acceleration on a ramp equals the sine of the ramp angle multiplied by gravitational acceleration.

What happens to the acceleration of the cart as it travels down the ramp? According to both experiments and analysis, we can confidently conclude that when a cart is traveling down a ramp, it gradually speeds up and experiences a uniform acceleration.

When a cart is moving with constant velocity the force on the cart must be? 1 Expert Answer And since we know the velocity is constant, that means acceleration is 0. If acceleration is 0, the net horizontal force on the cart is also 0.

How is the acceleration of the cart related to the amount of force acting on it? The acceleration of an object depends directly upon the net force acting upon the object, and inversely upon the mass of the object. As the force acting upon an object is increased, the acceleration of the object is increased. As the mass of an object is increased, the acceleration of the object is decreased.

How do you solve a vernier? Look at the 0 mark on the vernier scale lining with the main scale. That gives the main scale reading. Next, look for the point on the vernier scale, which is aligned with the main scale, which gives the vernier scale reading. It is important to note that the readings will most of the time be in decimals.

How does vernier calculate velocity? In Vernier Video Analysis, velocity is calculated using a numerical derivative.

What is vernier in physics? The vernier scale measures accurate dimensions. It has two scales; a normal large scale (main scale) and a scale inside it is used to calculate measurements without any error. The vernier scale gives accurate measurement because it is based on the concept of vernier acuity.

Why does mass not affect the speed of the cart as it exits the ramp? Weight affects speed down the ramp (the pull of gravity), but it's the mass (and friction) that affects speed after a car leaves the ramp. Heavier cars have more momentum, so they travel further, given the same amount of friction.

Which requires more force, push or pull? In case of pushing, the component of pushing force increases the normal force and hence the friction on the body increases. So, more force is required to push the object.

Which kind of force is required to push a cart? The girl is using her muscles to push the shopping cart. Hence, she is applying muscular force on the cart.

Does a cart rolling down a ramp have constant acceleration? The friction between the cart and the ramp and friction along the axles affected the motion of the cart down the ramp. The cart was shown to accelerate down the ramp with a constant acceleration.

What is the physics behind a ball rolling down a ramp? The force of gravity points straight down, but a ball rolling down a ramp doesn't go straight down, it follows the ramp. Therefore, only the component of the gravitational force which points along the direction of the ball's motion can accelerate the ball.

How do you find the final velocity of an object rolling down a ramp?

What is the formula for acceleration down a ramp? let θ be the angle of the ramp. $\sin \theta = 9.8\text{m/s}^2 / \text{hypotenuse}$. $\text{hypotenuse} = 9.8\text{m/s}^2 / \sin \theta$. The acceleration of the ball rolling down the ramp is $9.8\text{m/s}^2 \sin \theta$.

How to calculate the speed of a ball rolling down a ramp? We can set potential energy equation equal to the kinetic energy equation to find the speed of the ball is affected by the ramp: $mgh = \frac{1}{2}mv^2$ where m is mass of the ball, g is the acceleration of gravity, h is the height of the ramp, and v is the speed of the ball.

What force causes the acceleration of an object down a ramp? Gravitational Force: The force of gravity on the object. It is the mass times the acceleration of gravity at 9.8 m/s^2 , with the acceleration being negative because it is downwards.

How does the acceleration of a cart depend on the net force if the total mass is constant? Newton's second law of motion states that acceleration is directly proportional to net force when mass is constant... and that acceleration is inversely proportional to mass when net force is constant...

Will your answer change if the cart is accelerating? Yes. The answer changes if the cart is accelerating. As shown above, after the ball is fired the only external force on the ball is the weight acting vertically. There are no forces acting in the horizontal direction.

What law of acceleration pushes a cart? If we think about pushing a shopping cart, you have to apply more force in order to move the cart as you fill it up. That's because the mass increases as you add each item, making it harder to accelerate down the aisle. As an equation, Force = mass x acceleration ($F = ma$).

What is best to say about a runner who is running at a constant velocity? Answer and Explanation: Because the runner is running at a constant velocity, the velocity is not changing, this means the rate of change of velocity would be 0. So the answer is c) Their acceleration is zero.

What happens to the acceleration when force acting on a cart doubles? Newton's second law describes the relationship among an object's mass, an object's acceleration, and the net force on an object. The acceleration is equal to the net force divided by the mass. If the net force acting on an object doubles, its acceleration is doubled.

How does the acceleration of the cart depend on the force pulling it? According to Newton second law ($F=ma$) , acceleration is directly proportional to force, then if force is doubled ,acceleration will double also.

How do you explain what a cart is? A cart is a vehicle with wheels that's pulled by an animal, a person, or by another vehicle. You could attach a cart to your dog and teach him to pull it around. The typical cart is hooked up to a draft horse or another farm animal.

What is the car down the ramp experiment? Place the car on a ramp and allow it to roll down the ramp. Ask students to compare the time the car took to roll down the

ramp to the time it took for the car to fall. Students should observe that the car took longer to roll down the ramp than to fall.

What is cart function? The fundamental function of an online shopping cart is the ability to add products. Customers might search for your product via a search engine and land on a product page. Or they may search or browse products on your website.

What is the cart technique? In the CART technique, a balloon is advanced over the retrograde guidewire and inflated to create a localised subintimal dissection within the CTO segment. The antegrade guidewire is then advanced from the proximal true lumen into this subintimal space and subsequently into the distal true lumen.

What is a cart answer? A cart or dray (Australia and New Zealand) is a vehicle designed for transport, using two wheels and normally pulled by draught animals such as horses, donkeys, mules and oxen, or even smaller animals such as goats or large dogs.

What type of cart gets you the highest? Delta 8 and 10 are known to be less psychoactive than delta 9. If you're looking for the strongest high, you might want to try delta 9 carts.

What is cart and how does it work? A Classification And Regression Tree (CART), is a predictive model, which explains how an outcome variable's values can be predicted based on other values. A CART output is a decision tree where each fork is a split in a predictor variable and each end node contains a prediction for the outcome variable.

How do ramps work physics? An inclined plane, also known as a ramp, is a flat supporting surface tilted at an angle, with one end higher than the other. The inclined plane is one of the six simple machines, and it is used as an aid for raising or lowering a load. Objects placed on an inclined plane accelerate due to an unbalanced force.

Why does a car go faster when the ramp is steeper? The change in speed on slopes is due to gravity. When going downhill, objects will accelerate (go faster), and when going uphill they will decelerate (slow down). On a flat surface, assuming that

there is little friction, they will then maintain a constant speed.

How does height affect speed on a ramp? A ramp is a surface with an incline. All vehicles with wheels roll easily down ramps due to gravity. The height of a ramp affects how far a vehicle with wheels will go and how fast the vehicle will travel. For example, the higher the ramp, the faster and further a vehicle will go.

What is the function of the dynamic cart in physics lab? The Dynamics Cart and Track System provides students with the tools they need to explore kinematics, dynamics, momentum, and energy. This versatile system can also be easily adapted to study optics, color, and diffraction. The Dynamics Cart and Track System is the core of every physics lab.

What is cart in science? Classification and regression tree (CART) analysis recursively partitions observations in a matched data set, consisting of a categorical (for classification trees) or continuous (for regression trees) dependent (response) variable and one or more independent (explanatory) variables, into progressively smaller groups (...

What is the objective function of cart? In CART algorithm, the objective is to minimize the cost function (Gini Index) at each node. The selection of the input variables/features that decides the specific split for each node is selected in a greedy way to minimize the cost function.

What is a cart in slang? Is cart slang for vape? Yes, “cart” is a common slang term used to refer to a marijuana oil vape cartridge. Pre-filled carts contain cannabis concentrates and connect to a battery operated vape pen. When the cartridge gets screwed into the vape pen, the oil inside is heated into vapor for inhalation.

What is the cart trick? The shopping cart trick is a strategy to get approved for a store credit card without a hard credit inquiry. Since hard credit inquiries often lower your credit score by a few points, some people try to avoid hard credit pulls whenever possible.

What is a reverse cart? The reverse CART is the most commonly employed retrograde technique which involves inflation of a balloon over the antegrade guidewire followed by retrograde guidewire crossing into proximal true lumen utilizing

the space created by the antegrade balloon inflation.

What is the difference between Consew and Juki 1541? The CONSEW 1541S-CC is essentially the same machine as the JUKI DNU-1541S. The big difference is that it has an adjustment knob on the top, which allows you to set the foot lift height on the fly, thus eliminating the need to adjust it with a wrench.

Where is Consew manufactured? The Consew 206RB-5 is by far the more popular model as more people recognize the Consew name brand. The main difference between the two machines is that the Seiko is made in Japan and the Consew is made in China.

What is the stitching range for the Consew 206RB 5?

Is JUKI better than Jack? While Jack offers high-end machines as well, Juki machines are considered the gold standard in the industry. High-end prices for Jack machines tend to reach £1,765 on Direct Sewing for the Jack K4-UT-01GBX356. On the other hand, high-end Juki machines, such as the Juki TSC-441 top out at £9,222.

Are brother and JUKI the same? Brother machines are not as sturdy as Juki ones, but they have a strong reputation for dependability and quality construction. Their machines are tested extensively to ensure they consistently produce high-quality stitches and conform to industry requirements.

Is Juki made in Japan? Headquartered in Japan, the company currently has manufacturing facilities in Japan, China, and Vietnam, and markets its products on six continents, in about 170 countries. Until 1988, the company was known as Tokyo Juki Industrial Company, Ltd.

Where is Juki 1541 made? The Juki 1541S is made in Japan and it is the original 1541S.

Which industrial sewing machine is the best?

Is a CONSEW 226 walking foot?

Does CONSEW 226 have reverse?

What is the maximum thread size for Consew 206rb? The machine can handle from #69, up to #207 bonded nylon or polyester thread.

Is JUKI better than Janome? Juki emerges as a clear winner again here. It offers some of the best sergers at a great price and has a larger variety than Janome. As a matter of fact, the top two sergers on our list of the best sergers are taken by Juki machines.

Is JUKI a good brand? Juki is well-known for producing high-quality sewing machines that are suitable for commercial use. The strong motors of Juki machines allow for rapid stitching without sacrificing quality or precision. Juki machines are reliable regardless of the thickness or number of layers you're sewing.

What is the difference between Jin and JUKI? The products with the brand "JIN" affixed on are models to open up new markets. The brand "JIN" is an abbreviation for JUKI International. The products incorporate and focus on functions which enable customers to easily operate the products, and the design concept enables us to offer affordable prices to customers.

Can a Juki sew leather?

Is Janome better than Brother? Both have excellent options at every price point. However, if you are looking for options on a budget we recommend Brother sewing machines. Then if you are able to invest in a higher-end sewing machine you should look into acquiring a Janome.

Are Juki sewing machines made by Janome? Janome: Janome is a Japanese company with a long and rich history. For many years their machines were branded New Home in the U.S. market. You will also find Janome built machines branded under the Necchi, Elna, and Juki nameplates. Janome also makes specific models for Baby Lock, and Bernette.

What is the English of JUKI? (transitive) to cause to itch.

Is Mitutoyo made in Japan? As the company grew across the globe, Dr. Numata was appointed chairperson of Mitutoyo in 1968. Mitutoyo now has 11 production facilities in Japan and six facilities in other countries. There are Mitutoyo branches in

25 countries around the world.

Who is the parent company of JUKI? Juki Corporation, the parent company of Juki America, Inc., has been a world leader in sewing machine technology for over 75 years.

Is JUKI made in America? Juki machines are manufactured exclusively in Japan and have a reputation for high quality and reliability. JUKI is the pioneer of the modular assembly line which it introduced to the market in 1993. JUKI recently introduced the high-speed, low cost FX-3 chip-shooter rated at 60,000 CPH (IPC9850).

What sewing machine is made in Sweden? Today, Husqvarna Viking® is a worldwide organization that still designs high-quality sewing machines in Sweden and markets our products to passionate sewers all across the globe.

Can JUKI 1541 sew leather?

What is the best brand of sewing machine? What are the best sewing machine brands? While Brindle notes that he's partial to Singer, Viking, and Pfaff, our Lab testing shows that Brother, Juki, and Janome are also good brands.

Which company is best for sewing machines?

What is the fastest sewing machine? Janome's 1600P-QC is the fastest sewing machine on the market. With a sewing speed of 1,600 stitches in 60 seconds, this heavy-duty machine is perfect for machine quilting. Complete all your sewing projects quickly and with ease. The extra-wide work area offers 8-7/8" by 5-1/2" of usable workspace.

Is Consew 220 a walking foot machine? High Speed, Direct Drive, Walking Foot, Lockstitch Machine. (see catalog sheet.) Currently Available in 220VAC Version ONLY.

How to thread a consew walking foot?

Is a walking foot sewing machine better? The seams can easily come out wavy with a regular foot. Walking foot attachments will prevent the fabric from stretching

as it moves through the sewing machine. If you're sewing together different fabrics, like leather and other tough materials, the walking foot will ensure they move through at the same rate.

What is the JUKI 1541 used for? JUKI DNU-1541. With its reliable feed and consistent seam quality, JUKI's DNU-1541 Series responds outstandingly to the sewing of heavy materials.

Is Janome and JUKI the same company? Janome: Janome is a Japanese company with a long and rich history. For many years their machines were branded New Home in the U.S. market. You will also find Janome built machines branded under the Necchi, Elna, and Juki nameplates. Janome also makes specific models for Baby Lock, and Bernette.

Can JUKI 1541 sew leather?

Which JUKI is best for thick fabric? The Juki DDL-8700 is a top choice when it comes to heavy duty sewing machines. With its powerful motor and sturdy construction, it can easily handle thick fabrics like denim and leather. This machine is known for its speed and accuracy, making it a favorite among professional sewists.

What is 1541 steel used for? Available at economical rates, the offered SAE 1541 Carbon Steel Round Bar are widely used in metallurgical, mechanical, electrical construction field, ships, military uses and automobile rear of products.

Is a CONSEW 226 walking foot?

What are the best industrial sewing machine?

Is Juki made in China? It is one of the leading industrial machine manufacturers. JUKI used to rank as the largest industrial sewing machine manufacturer in the world. Headquartered in Japan, the company currently has manufacturing facilities in Japan, China, and Vietnam, and markets its products on six continents, in about 170 countries.

Is Janome better than Bernina? When it comes to deciding which is better, Janome vs Bernina, it really comes down to how you want to use your machine, what features you're looking for and how much you plan on spending. Both brands

are well-known for producing quality sewing machines, so you can't go wrong when you choose a Janome or Bernina machine.

Is Janome better than Brother? Both have excellent options at every price point. However, if you are looking for options on a budget we recommend Brother sewing machines. Then if you are able to invest in a higher-end sewing machine you should look into acquiring a Janome.

Will a Consew sewing machine sew leather? About Consew Our machines are well designed for sewing leather, canvas, shoes, saddles, mattresses, tents, tarps, and sails, as well as jeans and other garments.

Can a Juki do zigzag stitch?

Do Juki sewing machines need oil?

Which is better, brother or Juki? Brother is great at offering generalist sewing machines, but if you're looking for specific sewing machine options like a serger, a lockstitch sewing machine or even a cover stitch and chain stitch machine for that matter, Juki is a much better bet hands down.

Why buy a Juki sewing machine? Long-lasting Durability: JUKI machines are built to withstand the demands of regular use. With sturdy construction and high-quality components, you can count on your JUKI machine to be a long-lasting companion in your sewing journey.

Is Juki high or low shank? First there are some machines that are high shank machines, but the needle position is different than regular machines. These are the straight stitch only machines like the Janome 1600P and its clones: Brother 1500, Husqvarna Mega Quilter, Juki 2010, etc. These are considered a high special by Westalee.

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