

hi welcome to the ACCA f5 I'm Hafeez and I'm going to take you through to the ACCA paper f5 let's start in this session we are going to talk about absorption costing and activity-based costing absorption costing and activity-based costing are to cost accumulation methods cost accumulation means whether we are working for a production organization manufacturing or we are working for a service based organization we manufacture goods and we produce services so when a product or a service is produced we need to know the value of the product or a service meaning how much money have we spent to produce this product or how much money we have incurred to generate the service first method or cost accounting method is absorption costing any product is made up of three main components when I say three main components I'm sure you've got my idea already I'm talking about a manufacturing physical product for example a computer a TV a chair a car etc any product is made up of three basic components direct materials direct labor and production overheads I'm sure you have understood this idea in your previous paper of management accounting which was paper f2 so here is a little reminder that as per absorption costing in order to calculate full or total cost of production of one unit we need to find out how much material has been used in one unit how much labor cost has been applied to one unit and how much of production overheads were charged to one unit of it is not difficult to calculate the cost of direct materials and direct labor direct materials all you need to know is couple of things number one you need to know the usage of direct materials meaning kilos meters liters etc and secondly the price of those meters liters and kilos so quantity multiplied by price you will get the cost of direct materials in one unit direct labour is also very straightforward to work out all you need to know is that time how long did we take to produce this product and what was the rate per hour we are paying to the workforce so the time multiplied by the hourly rate we get the cost of direct labor so in ACC exams it is very very straightforward when it comes to the production overheads then we use two methods okay one of the two first method you have studied in paper f2 as I was talking about which was absorption costing as per absorption costing production overheads are charged to the products to the manufactured goods on the basis of overhead absorption rate okay which is the formula you can see here overhead absorption rate is based upon this formula which is budgeted overhead cost for a period divided by budgeted level of activity for a period now when we say budgeted overhead cost it simply means overheads are of various types generally overheads are bills or period costs okay for example rent rates utilities repair and maintenance depreciation supervision cost factory rates or rent etc these are all some heating lighting electricity these are all overheads so right at the beginning of the year we work out the estimate of the overheads for the whole year whole period and then at the same time we work out budgeted level of activity for a whole period so in your previous paper after you've seen it otherwise you can see a number of type of activities can be used to charge overheads or to calculate overhead absorption rate most popular are direct labor hours or machine hours okay we can use either number of labor hours as the budgeted level of activity or we can use machine hours as the budgeted level of activity or we can use number of units as well if you like so budgeted overhead is divided by budgeted number of units okay now you might have noticed from this formula of the absorption costing overhead absorption rate budgeted overhead is divided by budgeted level of activity this is a traditional system of costing why traditional because you have applied this in your real life as well many of you might have applied this in

real life this is a system of sharing when we say sharing it's like this if two or three friends are living in a shared property so the bills of that property divided by two or three people and we can work out the bills per person or rent of the property divided by two or three people living in that property we can share that rent as well this is exactly what I'm talking about relating to this overhead absorption rate okay do friends share a taxi or a cab from A to B so whatever the fare works out divided by two people and that simply overhead absorption rate okay so this is the most traditional technique accountants have applied in absorption costing which is let's share the overheads over the volume of activity and as I said depending upon the choice of the accountants the volume of activity can be number of machine hours number of labor hours or number of units or sometimes when the labor or machine our detail is not known to us okay what we can do is we can use the percentage of sales revenue as well that if product has got higher sales revenue that should carry higher value of overheads and if a product has a lower sales revenue we can charge lower value of overheads to the product as well so again choice but remember remember in one exam question we only apply one level of activity not all of them at the same time okay based upon this overhead absorption rate we can calculate very easily how much of overheads should be charged to one unit of A one unit of B one unit of C okay so here is a quick reminder about absorption costing absorption costing is a system of full costing of a product and full costing includes direct materials number one direct labor number two and production overheads production overheads can be calculated by using overhead absorption rate and then cost of a product is calculated with the help of this cost per unit we can work out selling price as well okay cost plus profit equals two selling price and we can price our products so generally the companies which have got very little number of product lines one two three single product lines or maybe two or three companies feel comfortable to apply absorption costing they're quite okay to apply absorption costing absorption costing method can work quite well for small organizations small organizations which have very limited operations and the organizations which do not have production complexity most of the jobs are done by the human hands or maybe a little equipment or tools are used okay production is straightforward it's been used for years and years and years and still in application for more than 85 percent of the companies in the world okay absorption costing is the most used method of cost accounting okay now let's have a look at this second which is the activity-based costing okay activity-based costing or a BC activity first of all before I talk about what activity-based costing is let's have a look at why did we need activity-based costing okay before actually I'll go into much details and then question solving and number crunching and practice okay a little bit of idea please remember any product is made up of three components so here is the absorption costing and activity-based costing so any product is made up of three components whether it is absorption or ABC first component is materials or direct materials second is labor or direct labor if you like to call it and thirdly production overheads now here is before I start ABC under absorption costing an ABC activity-based costing both materials and labor are calculated likewise in a simple identical way there is no difference in calculation between absorption and ABC when it comes to the cost of materials and labor in both absorption and ABC materials quantity times price labor time multiplied by the rate okay when it comes to the production overheads then both techniques work in a simple different way okay then both techniques work in a different way for example when it is absorption costing then overheads are charged

using one overhead absorption rate we use only one overhead absorption rate the formula which I have shown you budgeted overheads divided by budgeted labor hours or budgeted overhead is divided by budgeted number of units or budgeted overhead is divided by budgeted machine hours or labor hours whatever is given in the question one overhead absorption rate is used to charge overheads to each product but when it comes to the ABC activity-based costing then we don't use a one overhead absorption rate then production overheads are charged to the products by different method okay and this different method we are going to talk about which is based upon various activities as the method name is activity-based costing then we use a costing system which is based upon activities the costing system based upon activities so let's have a look at the details of the activity-based costing right so very recently about 20–25 years ago the accountants or the managers of the companies they noticed that some time absorption costing misleads the results misleading results is simply this that in a number of cases when we use one overhead absorption rate for example labor hours a number of people argue what when you use the formula over budgeted overhead is divided by budgeted in labor hours what's the logic behind it and a number of times we are confused because we can't find any logic why not simply because if you look at the formula if I take you back to the formula okay budgeted overheads divided by budgeted level of activity overhead is a sum of various indirect costs like rent rate electricity power heating lighting insurance maintenance cafeteria and canteen safety and security at what is the relationship between overheads and the labor hours I mean to say do we pay the rent overhead based upon number of hours do we spend money on cafeteria cost on the basis of number of hours do we spend money on CCTV cameras or factory security on the basis of number of hours do we spend the money on heating and lighting on the basis of number of hours and the answer is or insurances on the basis of number of hours and the answer is no actually we pay insurance for a period we pay rent for a period we pay for a number of other bills for a period one month two months one year etc so a number of people believe that there is no direct relationship between the overheads and the working hours and sometimes when we apply this gas work gas means that we are guessing there is a relationship between overheads and the number of labor hours or machine hours when we apply this gas work a number of times our cost is inappropriate or misleading so when the organizations were simple small and less competitive less less competition in the society then we used to get away with it we could have applied absorption costing as well because overheads were small product lines were little so the method was working somehow but over the last 25 years or so we noticed that as we are entering the new world okay many many companies or competitors are in the market companies are producing many many products there is a huge production complexity and absorption costing in some organizations wasn't giving us the right value of cost so then we started looking into the activity-based costing so activity-based costing was started when we felt that there was higher level of production complexity in the manufacturing process meaning some of the production jobs are done by the human hours labor hours some of the jobs are gone by the machine hours some of the jobs are done by the robotics technology and some jobs are even outsourced as well so when we set up overhead absorption rate question arises which hours shall we use in this formula should we use labor hours Oh No there are machine hours as well oh so shall we use machine hours I know there are some robots lying in there as well so they will get upset if we don't use

the robotic hours okay what about the outsourcing so a number of times it was misleading due to increased production complexity second reason was that increase proportion of overhead cost okay as I said remember my word guesswork so when we guess that there is some sort of relationship between overhead cost and the labor or machine hours we are considering assuming that because all the heads are small okay so even if the guess is wrong my calculation is not that much wrong as per a study done by one of the professional Institute's a couple of years ago they identified some of the statistics over the last 50 years that about 50 years ago production was very simple production was very small and the proportion of overhead cost in one unit was approximately five to six percent so if we were spending \$100 on a product only five or six dollars were coming from the overheads but recently in the last few years I'm talking about 2000 onwards the proportion of overhead cost in a product has gone messily higher so if nowadays an average company is spending \$100 on a product approximately 35% plus \$35 or more come from the overheads so in the past many years ago if my calculation or my guess was slightly wrong I was not wrong that much because overheads were very small but nowadays if my guess is wrong my cost will be utterly wrong and my price may not be appropriate and I may lose the market so I have got to be slightly more accurate in my costing okay and that was the reason activity-based costing was starting to develop okay now let's have a look at how this system works ABC analysis okay best way to remember activity-based costing is if you read the ABC the other way around it is a costing system which is based upon activities it is a costing system based upon activities activity-based costing is not a system of totality totality means under the absorption costing we assume that all production takes place under one roof that's why we use one overhead absorption rate whether labor hours or machine hours but we use labor hours or machine hours of the whole company okay right not one by one activity but under the activity-based costing we do not calculate the overheads for the organization we cost the overheads of each activity as a separate organization so under the activity-based costing each activity is like a small organization in its own right so it is activity-based costing so overheads of each activity will be calculated separately and then later on we can merge them up together for a product okay right in activity-based costing here are some of the calculation steps which generally examiner's are interested about whether it's section a or section B we are interested to find out cost drivers for each cost pool cost pool is the overhead cost of each product okay so please remember I'm sure you are familiar with the terminologies but in case cost pool simply represents overhead of each activity okay so we need to calculate the cost drivers for each activity we will explain in a minute okay and secondly we can be asked to calculate cost per unit using activity-based approach okay depending upon section a or section B because in Section a examiner's cannot ask everything in one question of two marks so generally they may ask you calculate the cost driver rate or they may give us so many info so much of information and they may ask us to link this up to a product calculate the cost per unit using ABC when plenty of information is already sorted out okay but a full system of activity-based costing which generally comes up in Section B which are longer questions ten to fifteen marks and then we are asked to discuss a number of steps or to calculate a number of steps so here is a full system of activity-based costing within the organization activity-based costing starts with breaking down the production process into various activities okay we break down the whole production process into small small small activities

or small functions or if you fancy call them mini departments okay now there are a number of activities which we can imagine okay so very quickly I can write down here for you okay just a few activities as an example so organization can be divided into a number of activities for example a resource acquisition okay for example purchasing department comes under the resource acquisition in order to produce any physical product we need raw materials and in order to buy raw materials we have a separate purchasing department okay so for example purchasing or in manufacturing you can imagine cutting okay chopping different elements of a product wood plastic metal steel etc cutting Department or it can be finishing or it can be assembly okay or it could be we're housing okay packaging quality control so we can divide the production process into a number of many departments many functions or activities and activity-based costing is a costing system of each activity individually okay overhead of each activity will be calculated itself nothing to do with other activities okay so one activity is considered as a small organization in its own right okay I just listed a few activities for a large organization okay multi-billion dollar worth of organization there can be 50 activities 40 activities hundreds of activities okay just a few in exam you may only be given two or maximum three activities not much because of the time constraints okay now let's proceed further so first of all we break down the production process into various activities the product passes through number two we determine cost driver for each activity we determine cost driver for each activity now cost a driver is simply a reason or a factor or a base which generates the overhead cost so it is any factor within the activity which can trigger the overhead cost meaning which can increase the overhead cost of that activity and that factor can decrease the overhead cost of that activity okay here is a couple of examples and we will move on for example if you look at a number of activity purchasing the first one okay you would appreciate if we have a purchasing department okay where there is a purchasing manager there are purchasing assistants and so many people working in the purchasing department they have only maybe many many functions but main responsibility is to materials so when we talking about purchasing department okay purchasing department is responsible to purchase raw materials when they purchase raw materials there are a number of administrative jobs they have to do for example now first of all they need to find out the right supplier searching around once they find the suppliers they need to vet these suppliers they need to shortlist the suppliers they need to contact the suppliers whether they are provided of the right material or not then they start negotiating with the suppliers once they choose one supplier then they place the purchase order how purchase order is placed I don't know I'm not the purchasing expert probably over the phone or by sending a purchase order by post or by dropping an email to the supplier that I need these type of materials these price that's the dates and that's the delivery point okay and other terms and conditions and then purchasing department receives the delivery shipment and then loading of loading and the material goes into the warehouse etc okay after inspecting the material if it's right or something then it goes into the warehouse now these are so many administrative jobs purchasing department has to do question arises is this if there are a couple of strategies in front of the purchasing department okay what can be an appropriate cost driver for the purchasing department so my idea is for example purchasing department needs to buy 1,000 kilos okay I'm just assuming that purchasing department is looking to buy 1,000 kilos one strategy is they can buy all 1,000 kilos in one purchase order one po1

purchase order they can buy all 1,000 kilos in one go meaning contact the supplier once exchange communication once receive the delivery or shipment once do the inspection once and transfer them to the warehouse once ok or a second strategy can be instead of buying all 1,000 kilos in one purchase orders a number of people do not buy in bulk they may buy 1000 kilos in 10 purchase orders of 100 kilos 100 kilos 100 kilos again I'm not asking about I'm not talking about whether buying in bulk one purchase order is good and buying in can purchase orders is bad I'm not judging okay which one is better for the company my idea is to develop a cost driver for the purchasing overheads okay if we will buy 1000 kilos in 10 purchase orders do we not need to contact the supplier 10 times do we not to exchange the communication or information 10 times do we not need to raise invoices 10 times or get the invoices 10 times and do we not to get the material delivery 10 times inspection 10 times and transferring to the warehouse 10 times my question is this what do you think buying in one purchase order involves a lot of hassle or buying in 10 purchase orders increases the administrative job what do you think I'm waiting for your answers alright okay yes you are shouting back at me I'll come on it is a lot more easier to purchase all materials in one go and if we will place 10 purchase orders we will have to go through the same exercise 10 times okay telephone cost 10 times shipment cost 10 times inspection 10 times etc so administrative hassle or administrative job increases more if we place more purchase orders so here can I not define purchase orders as an appropriate cost driver this is how management and the accountants they sit down together and they develop the cost drivers that which factor is actually changing the cost overhead cost so if we can control the cost driver somehow we can control the cost meaning if we change the number of purchase orders the overhead cost will change okay more the purchase orders more the overhead cost less the purchase orders less the overhead cost okay I can give you a number of examples but I think now you've got my point so when you will be reading the books things will start getting better okay so let's move on here are some examples given okay for some cost pools or activities for material handling number of orders can be used okay material ordering material handling quantity of material can be used production scheduling number of production runs or sometimes instead of runs we may be given number of batches okay again depending upon whether examiner wants to call it number of production runs or number of production batches or some time examiner can give us another synonym of the same run or batches which can be setups depending upon the information provided course dispatching dispatching can be based upon number of deliveries more number of dispatches more number of deliveries etc okay once we know and one good thing is that you are clearly given in each question okay what are the cost driver so you don't need to imagine an exam question about these cost drivers this was just additional information if you need to discuss or explain things so at least you know what I'm talking about okay but for calculation point of view you don't need to worry about if you will be given the production process broken down into activities activities will be given to you cost drivers will be given to you in the exams okay what you need to do is now here from step number three okay here is calculate the cost driver rate for each activity okay now cost driver rate is number of formula we developed for activity-based costing it is very very similar to overhead absorption rate the only difference is one overhead absorption rate is calculated for one organization whereas number of course driver rates can be calculated based upon number of activities so if we have five activities within organization

we will calculate five cost driver rates if we have twenty activities of a production process we will be calculating twenty cost driver rates okay so for each activity we will calculate a separate cost driver rate so formula of the cost driver rate can be like this it's very similar to overhead absorption rate okay only difference is many many overhead absorption rates we need to develop relating to each activity so here is cost the driver rate formula okay for each activity overhead cost now please remember overhead cost of each activity is always given for a period of one month one quarter or generally one year okay so overhead cost of each activity for the period in question divided by total number of drivers selected for a period meaning to say I'm just assuming if for example I was talking about the purchasing department so the cost driver rate for a purchasing department will be overhead cost of the purchasing activity divided by total number of purchase orders for the period okay so for each activity we need to select one driver for purchasing it can be number of purchase orders for material handling it could be quantity of materials for ordering it can be number of orders etc okay so overhead cost of purchasing activity divided by total number of drivers which are per purchase orders for this activity one thing some time examiner's confuse in the exams which is not too difficult which is that they don't give us the drivers for a period they may give us purchase orders for each product separately okay or they may give us purchase orders for each batch separately you must make sure one thing before you set up this formula if the purchase orders are given for each product if the drivers are given for each product please convert calculate the total number of purchase orders or total number of inspections or total number of runs or total number of the driver for a period okay and then afterwards you can calculate this rate make sure that has to be total number of the driver for a period because the overhead cost is given for the period once we have calculated this now we can link this rate up with every product okay all the basis of consumption or usage meaning if any product has more purchase orders it will carry more share of the overhead if any product has less number of drivers it will carry less share of the overhead so link the cost driver rates of each activity to each product on consumption or usage basis so more driver consumption in a product more overhead cost in a product okay so this was the basic idea of the activity-based costing now let's do little practice okay before we do the practice again as I was explaining before cost per unit will always be based upon three elements direct materials direct labor based upon the same method okay there is no difference between absorption and activity-based when it comes to the overhead cost then yes we can be choosing activity-based or absorption costing but we will see it in a question okay here we go right you can see a very typical section B type question on absorption and activity-based costing okay right hence how limited has a single production process for which the following overhead costs have been estimated for the period ending 31st of December 2014 so following overhead costs following are the overhead costs which have been estimated for the period okay not for individual product but for the whole period the givenness material receives an inspection power cost and material handling cost afterwards three products XY and z are produced by workers who perform a number of operations on the material blanks using hand-held electrically powered drills the workers are paid four dollars per hour so this is something an important information why because I think when I will calculate the cost of labour I may need this hourly rate they get paid four dollars per hour okay the following budgeted information has been obtained for the period ending 31st of December so some more details about the products okay

there are three products XY and Z and they given us the details production quantity in units how many units we are going to produce batches of material how many batches of materials we will get for XY and Z and then they given us data per product unit okay meaning now onwards any information below in this table relates to one unit of X one unit of Y and 1 unit of Z okay meaning how much direct material direct material square meters in one XYZ direct material cost in one XYZ in dollars and then direct labor in minutes and number of power drill operations in one XY and said at present the company absorbs all overhead cost by the way before I move on I think with the help of this information I can easily calculate cost of direct materials and direct labor whether it's absorption or ABC it will remain the same labor information is given material information is given as soon as I will start calculating you will see ok that I will use the same values for absorption and ABC when it comes to materials and labor cost okay right at present the company absorbs all overhead costs into the products using labor hours absorption costing so this is the current system of costing an activity-based costing investigation has revealed that the cost drivers for the overhead cost are as follows so now we are given for each overhead activity their own selected cost drivers okay meaning for material receipt and inspection we will use the driver as number of batches for process power we will use number of power drill operations and for material handling we will use quantity of materials handled so for absorption costing only one overhead absorption rate but for activity-based costing three cost driver rates because there are three activities okay so please keep on watching it now here are the requirements okay so it is a Section B question longer question okay which is I suppose this should be around 15 marks minimum okay requirement calculate the product cost per unit one unit cost for each XYZ detailing the unit cost of each cost element number one using the existing method for the absorption of overhead cost and number two an approach which recognizes the cost drivers revealed in the ABC investigation okay so requirement one is absorption requirement two is ABC let's set up the answer plans and then we will pick up the information from this example hence our limited and then we will be dealing it one by one so here we go and requirement one is absorption costing cost per unit and because there are three products so I think it would be much more convenient if I can set up three columns one for each product okay XY and Z so for example this is for X that's for Y and that's for say and numbers are in dollars so I can just list down dollar signs once so that I don't need to repeat this in the exams now there are three cost elements one is direct materials second is direct labor [Music] and third is production overheads okay production overheads now here is for the activity-based costing requirement – so this is the answer plan for the activity-based costing ABC cost per unit okay again ABC is making the same thing XY and Z so there are three products x y and z again numbers are in dollars okay and again there are three elements materials labor and overheads okay right first of all let's deal with materials labor and then overheads okay here is the information about materials so if I just remove all other details and focus on what is the first cost which is materials I'm given here the data per product unit here is the direct material cost information there are two informations given direct material square meters and secondly direct material cost now please tell me for one unit of X what is the cost of materials in one X I wait for 10 seconds what is the cost of direct materials for one unit of X oh okay what about some of the people all right okay now I've got I heard a couple of answers from you some people are saying the cost of materials in one X is five dollars and

some people are saying the cost of materials in one X is 20 dollars let's analyze both the answers those people who are calculating twenty dollars they are assuming something assuming is this they are multiplying 4 by 5 to get 20 what they are assuming is this they are assuming that Examiners data is not complete and they are adding some of the information themselves okay this is what they are adding direct material cost in dollars was it like this if I was given information like this then four times five was perfectly justified I was not given direct material cost in dollars per square meter if I was given per square meter than five per square meter times by four meters 20 but I was not given my brain assumes something so one thing please in exams especially for ACCA f5 okay try not to apply assumptions okay without assumptions you can pass it quite comfortably without even any assumptions you can pass it quite comfortably okay so try to try not to apply it assumptions imagine details are correct okay I was already given direct material cost in one X in dollars that one X costs five dollars in materials one y three dollars in materials and 1z six dollars in materials of five three and six okay understood here is the direct labor now I can highlight information about directly but one information was here workers are paid four dollars per hour and direct labor time was given in minutes so you've got to be careful here we are not given the time of XY and Z in hours we are given time of XYZ in minutes 24 40 and 60 so it's not much difficult rate is four dollars per hour we just need for X it will be x by $\frac{24}{60}$ because there are 60 minutes in an hour for y it will be $\frac{40}{60}$ and for Z it will be $\frac{60}{60}$ okay so here is my calculator four times $\frac{24}{60}$ labor cost in 1x is 164 times $\frac{40}{60}$ which is 267 approximately and 4 times $\frac{60}{60}$ is for labor cost is calculated ok now we are looking at the production overheads and remember under absorption costing we apply overhead absorption rate 1 overhead absorption rate and in the question it was saying based upon labor hours ok so first of all here is the formula for the production overhead absorption rate over HAP's option rate equals to total budgeted overhead cost for 2014 year given in period is 2014 divided by total budgeted because boy budget because overhead absorption rate is established at the beginning of the year when the budgets are there only we don't have actual results so budgeted information is used so total budgeted overhead cost for the 2014 and total budgeted labor hours just need to double check labor or machine hours yes using labor hours for 2014 okay now let's pick the numbers one by one first of all then top or numerator budgeted overhead cost overhead cost is given here okay in the very first paragraph we just need to add them together 15600 nineteen and a half thousand and thirteen six fifty in total forty eight thousand seven fifty okay in total forty eight thousand seven hundred and fifty dollars okay remember in absorption costing we believe in total results for the organization not individual activities okay second is the labor hours we are not given labor hours for the period 2014 we are only given time for one x one y one Z and here we go if we are given time of 1 X 1 y 1 Z we can easily determine total time for XY and Z all products for 2014 and labor hours will be done so here we go 24 40 and 60 labor hours will be 24 40 and 60 for each product multiplied by two thousand fifteen hundred and eight hundred and we will get total hours budgeted hours labor hours for the 2014 ok so 24 by the way because the time is given in minutes so please don't remember don't forget to divide it by 60 because it's not in hours it's in minutes and we need in hours okay so that's Y divided by 60 so 24 into 2,000 divided by 60 that comes to 800 forty times by fifteen hundred divided by 60 which is 1000 and then 60 into 800 divided by sixty sometimes I become stupid like I mean I become stupid like this I know

60 times eight hundred over sixty will give me eight hundred anyway and in total two thousand six hundred so use calculators whenever you really need to use otherwise some simple calculations you can do it manually but just in case make sure don't make a mistake okay now here is the both informations sorted out so Oh a R will be like this forty-eight thousand seven hundred and fifty total overheads got it from the question okay divided by two thousand six hundred hours and here is the overhead absorption rate per hour for one hour so forty eight 750 divided by two thousand six hundred it gives me eighteen point seven five per hour 18.75 for one labor-hour and now i can link this rate because this is not for one unit of X Y Z this is eighteen point seven seven five per hour meaning when one x one y or one Z remains in processing for one full hour overhead cost is eighteen point seven five but if any product remains in processing for less than one hour overhead cost will be less than eighteen point seven five and if any product remains in processing for more than one hour overhead cost will be more than eighteen point seven five so here is final linking up the production overheads okay which is eighteen point seven five times twenty four forty and sixty divided by sixty just like labor okay right so here we go 1875 into 24 over 60 which is 7.5 second one is 1875 into 40 over 60 which is twelve fifty and finally because Z is processed for one full hour so overhead costs will be full eighteen point seven five and that gives us full or total cost per unit for each product XY and set let's add them together for each product five plus one sixty plus 750 1410 okay III remember these answers but I'm just doing it the way you will be doing it in exams so that's why I'm using calculator right in front of you just like a human effort in actual exam sometimes I make mistakes maybe purposely sometimes okay but this is how we do it okay I'm not just copying and pasting I'm a dancers okay so please do it the way we are doing it just like in actual exams so three plus two sixty seven plus twelve fifty eighteen point one seven and finally 2875 that's full cost of one x one y one Z using absorption costing okay now let's do the activity-based costing here is the ABC cost per unit full cost per unit again please remember as far as materials and labor are concerned that will just be copy and paste or five three and six no problem with that labor cost copy and paste one sixty two sixty seven and four and when it comes to the overheads instead of one overhead absorption rate we will calculate overhead for each activities separately and remember there were three activities given to us material receipt and inspection material handling and third sorry secondly power and thirdly material handling okay now what we do is first of all we develop cost driver rates okay now very quickly let's have a look at the cost drivers we are told right at the end of the question that there are three cost drivers one for each activity number of batches for the material receipts number of power drill operations for the process power and material handling for the quantity of material in square meters is it okay now let's do it one by one first of all material receipt and inspection material receipt inspection cost is fifteen thousand six hundred okay divided by number of batches of materials so material receipt and inspection cost divided by number of batches of material that will give us the cost driver rate and here are the number of batches of materials ten five and 16 okay so cost driver rate if I show use on a separate page that will help you to understand okay in a better way so here our cost driver rates okay first of all material receipt and inspection okay cost is fifteen six hundred divided by number of batches examiner told us number of that is to be used okay so which are ten five and sixteen okay or if you fancy add them up which is thirty one and that works out the material receipt an inspection cost per batch so

fifteen 600 divided by thirty one we get approximately you can see on the screen five oh three point two three 500 3.23 per batch this is the first cost driver rate okay five hundred and three dollars twenty three cents then one batch is received and inspected okay but we are not just interested to know cost of material receipt per batch we are interested to know how much of this goes into one x1 y1 z1 it cost of this material receipt and inspection in one x1 y1 that which is very simple all we need to do is this that we need 10 batches for X in a year and there are two thousand units of X produced out of 10 batches okay so all we need to do is take this rate here okay five hundred and three point two three and for the product X multiplied by ten divided by two thousand units and we will get the received and inspection cost of 1x okay so five oh three point two three times by ten five oh three point two three times by ten divided by two thousand which gives me point zero three or I can double check this one okay five hundred and three twenty three times by ten divided by two thousand which is 2.5 – okay sorry that was a little mistake two point five to approximately receipt an instruction overhead in 1x now exactly the same way for the product Y okay how many batches are used for Y 5 so x five batches divided by 50 hundred units okay so idea is use the total drivers as a denominator first and then multiply back by the same number of driver for each product consumption basis okay so let me repeat it in order to calculate the cost driver rate total overhead cost of one activity divided by total of the driver selected for that activity that is cost driver rate then link that rate to each product how multiply that back by the same denominator for each product well kept meaning to say the same individual denominators represent consumption of a receipt and inspection cost for one x1y1 said okay so use them in total as a denominator and then use them in the next step as a multiplier for each product one by one okay so second one is five oh three point two three times by five divided by 1500 which comes to one point six eight approximately and thirdly 503 twenty three into number of batches are sixteen into sixteen divided by eight hundred which is ten point oh six that's the material receipt and inspection overhead in one x1 y1 z DG notice something before I look into power and material handling remember how I was defining and developing the cost drivers cost drivers are the bases or factors which become the reason to generate overhead which trigger the overhead which control the overhead cost meaning more the driver number more the overhead cost less the driver number less the overhead cost so if management wants to control or reduce the receipt and inspection cost they must need to reduce the number of batches by putting more units in one batch and if they will get less number of batches they will have less value of overhead in each product okay second is process power process power cost is 19 and a half thousand that and that should be based upon number of power drill operations and here are power drill operations okay the only thing is these are power drill operations per unit because this data all this data below is per unit so six drill operations for 1 X 3 drill operations for one Y and to drill operations for one Z and if we multiply them by two thousand fifteen hundred and 800 respectively we will get total number of drill operations so let's do the same thing again first of all cost driver rate process power okay which is nineteen and a half thousand dollars divided by total number of powered rail operations and for each product we are given only individual power drill operation 6 3 + 2 XY and Z one by one there are 2,000 units of X so 12,000 operations in a year times by 15 1500 units for Y so four and a half thousand units re operations for y and x by eight hundred units we will get 1600 operations for Z and if we add them

together twelve thousand plus four and a half thousand plus sixteen hundred its eighteen thousand one hundred process power nineteen and a half thousand divided by eighteen thousand one hundred operations we will get power cost per operation so here we go nineteen and a half thousand divided by that which is one point zero eight approximately per operation that when one drill operation is performed power cost is one point zero eight now let's link this rate to one X ones that Y and one Z okay so here we go process power one point zero eight x remember the individual power operation six three and two so for the product X it will be x by six for the y times by 3 and 4 z times by two so six times by one point zero eight four six forty eight I think okay I suppose then three times by that which is 324 and 216 and did you get the same logic here as well same logic of cost drivers inherent in the activity-based costing that more number of drivers means more cost lower the number of drivers means lower the cost and if management is interested to control the cost they need to investigate how can they control the drill operations of each product last one is material handling same principle material handling cost is 13,000 650 so first of all the driver rate or overhead absorption rate for the material handling and it is based upon quantity of material in square meters handled and quantity of materials is given here for meters six meters and three meters but that's again per unit for meters in 1 X 6 meters in one Y and three meters in one Z whereas 13650 is given for the whole 2014 okay so here is the cost driver rate for material handling cost in exam completely your choice you can show cost driver rates separately or you can just show in the main answer plan as well if you have plenty of space okay because you'll normally write in pens okay so you have you can accommodate this information within the answer plan as well but here I need to explain and I'm writing slightly bigger as well so you can see it that's why I'm showing it separately one by one material handling cost is 13,000 650 divided by number of materials handled for the year so for X Y & Z we are given the materials for six and three these are square meters for square meters for 1 X 6 square meters for one Y and three square meters for one Z and there are two thousand units of X in a year 1500 units of Y in a year and 800 units for Z in a year and that will give me total number of materials to be handled in here 2014 8,000 square meters 9000 square meters at 2400 in total 19400 square meters that's the total of the cost drivers so here we go 13,000 650 divided by 19 400 that comes 2.70 approx 70 cents approximately per square meter okay per square meter and here is linking this answer to the product x y&z so zero point seven times by remember how many square meters in 1 X 4 6 & 3 respectively okay so four times 72 84 times by 70 cents six times by 70 cents for 20 and three times 70 cents is 210 and did you see the same principle more the materials handled more the overhead cost less the materials handled and less the overhead cost and that's building up a concept among us that it is a more appropriate or more fairer method of costing okay not everything is by labor hours or machine hours but based upon individual consumption of the cost drivers once this is done all overheads have been evaluated now we just need to add materials with the labor and then individual overheads and we will get total cost per unit or full cost per unit which we can quickly do it here 5 plus 160 plus 250 2 plus 6 48 plus 2.8 that gives us 18 point 4 0 second one is 3 plus 2 67 plus 168 324 and for 2014 79 and thirdly 4 plus 6 10 then plus 1006 then to 16 and then to 10 24 32 right that gives us the activity-based cost per unit full cost per unit okay now you can compare the numbers will be slightly different of course because it's a different method of costing as per absorption costing we had fourteen ten eighteen

seventeen eight twenty eight seventy five and using the ABC numbers are slightly different okay and that gives management another thinking point based upon this cost as per ABC how they can improve the product profitability or product competitiveness somewhere where the cost is greater they need to reduce the cost by controlling the drivers and wherever the cost is low they need to decrease the selling price to bring more profit margin or improve the sales demand okay so make sure you can revise this session okay you can watch it again in a game and every step you can watch me again so that you know you can be more confident about this absorption and ABC okay so thank you very much of your time and patience in listening to me I will see you with some more work very soon okay so please make sure you remind yourself with all the steps we have covered today what again okay and I'll be waiting for your feedback as well okay any problems give us a shout just make sure read the study material okay steady text and notes watch this video make sure try to do the practice try to do this example on your own pace so that you can feel whether you have learned every step in absorption and ABC or you need to do more work okay all the very best take care good bye