Management Accounting
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Lecture 50
Application of Marginal Costing - III

Welcome students, so now one more application of the marginal costing and this application is with regard to make or buy decision. Sometimes what happens that when a firm manufactures they offer his product, they buy different inputs sometime from the market, and some of the input they manufacture themselves and then by assembling all those bought as well as the manufactured input we give the shape to the final finished product.

For example the car manufacturing companies, they do not manufacture everything themselves, part of the products, part of the component of the cars, they manufacture in house, for example gearbox is there, they manufacture themselves because the this the main hub of the technology in that vehicle and that is the, you can call it as say USP of that company. Which they not share with anybody and they manufacture it themselves but for examples the other part like you call it as window pans or may be the rubber parts or may be some say steel even, the tyre tubes, everything they cannot manufacture because it is a different product, independently it is a different product and company is using those products so rather than manufacturing these inputs, additional inputs, they prefer to buy it from the market.

Or in some cases, say it can happen in electronics products manufacturing company is also that when the companies are manufacturing see TV‘s maybe Samsung, Sony, LG. They are not manufacturing everything they manufacture sometime the picture tube or maybe some other important features or processors in the TV‘s but other inputs they buy, say for example circuits are their cabinets are there even sometimes picture tubes are there they buy it ready made from the market, because sometime they make analysis that if you manufacture it in house and then used in the finished product and if you buy it from the market from somebody who has got extra expertise and they are manufacturing only one product in the market.

So it is sometime better to buy it ready made from them in the market rather than manufacturing it and then using it for our finished product. Because if you talked about say for example a company is manufacturing of picture tubes right there are only manufacturing one product one input one component picture tubes and those picture tubes, if they are manufactured by the Samsung itself or bought it from a person or from a company who are manufacturing only picture tubes so and the Samsung in manufacturing all inputs including the picture tube there is one more company who is manufacturing only picture tubes whose expertise will be more in the market the company who is manufacturing a single product picture tubes because they are expert in that product not the Samsung.

Samsung can also manufacture the picture tube, but if it is bought from the other supplier in the market because of the two reasons, number one their expertise and second thing is that their expertise number one second thing is the volume of the production they are making because they may be the suppliers to many other company they may be the supplier to many other companies.

So when the volume of that supplier increases cost per unit comes down which may not be feasible for the Samsung itself so sometimes we are caught in a situation where we have to take the decision like make or buy decision and here the marginal costing also helps in taking those decisions. So how we can use a marginal costing in taking such type of decisions this information is given here and with the help of this problem we will earn this decision making process.

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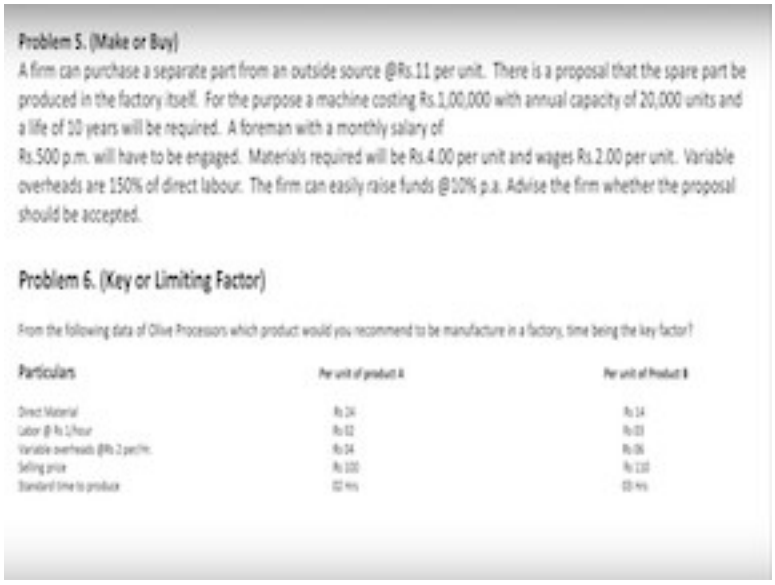

Now what's the problem is? A firm can purchase separate spare part, a firm can purchase separate part from an outside source at rupees 11 per unit. There is a proposal that, the spare part to be produced in the factory itself. there is a proposal that the spare part to be produced in the factory itself for the purpose of a machine costing rupees for this purpose the machine costing rupees 100000 with an annual capacity of 20000 unit and a life of 10 years will be required, right.

We are currently purchasing it from the market and what price we are paying per unit? 11 rupees per unit, right. and if you want to manufacture it ourselves in house then what we have to do is, we have to incurred some fixed cost, fixed cost is in terms of number one, it is a machine which we have to first buy a fixed capacity machine a fixed capacity we have to add we have to buy a machine and that machine is costing us 100000 rupees and that machine can manufacture 20000 units.

So we have to buy this machine first of all, second head of the fixed cost would be a foreman and with the monthly salary of rupees 500 per month will have to be engaged a foreman with the monthly salary of rupees 500 it means annual expense is of 6000 rupees it has to be engaged.

Then apart from these two expenses that is the cost of the machine and the foreman material required will be rupees 4 per unit and wages rupees 2 per unit material required will be 4 per unit and the wages rupees 2 per unit variable overheads are 150

percent of the direct labour, means in that case 3 rupees per unit the firm can easily raise funds at the rate of 10 percent per annum from the market.

So, advise the firm whether the proposal should be accepted or not should we start manufacturing this product ourselves or should we continue buying it from the market at 11 rupees per unit now we have to decide and take a decision with regard to this situation where we have to decide about or between the two option weather to make the product how to buy the product, right.

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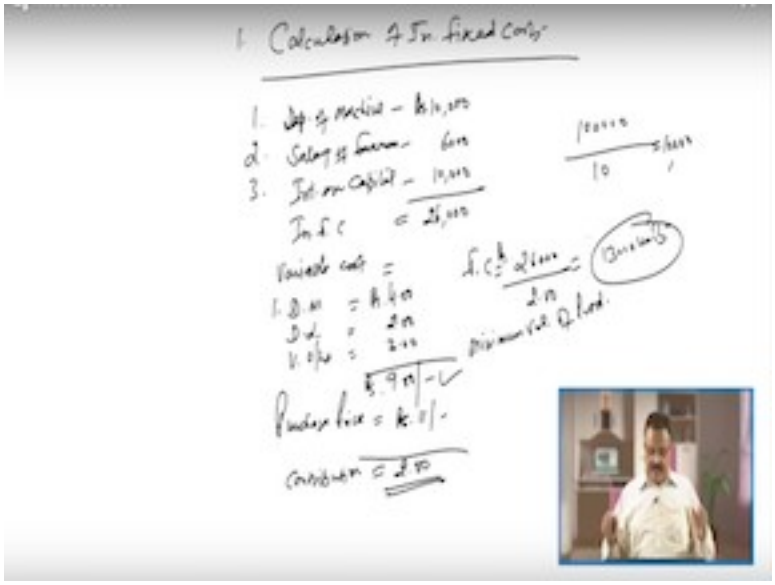

How we can take this decision let's do this analysis and then try to understand that how marginal costing as a technique can be useful in say taking the decision in the make or buy, so here now what is going to happen. I am saying that the information given is that is not the possibility or this is not the case a fixed cost is already incurred, no we have to incurred the fixed cost here and for that purpose additional expenses are required to be, so both the cost will have to be incurred because you are going to add up this capacity a fresh, you are going to incur the fixed cost also you are going to incur the variable cost also.

So the total cost we have to take into account and then we have to take the decision with regard to the capacity of the requirement of those component also those spare part also, and then we say whether we should go for manufacturing it ourselves or we should continue buying it from the market so we are going to add up two cost here, right.

One cost is fixed cost so now we will calculate the calculation of increased fixed cost, first thing is calculation of, if you do this we are going to have this part, so we are going to do this calculation of increased fixed cost. Increased fixed cost because we are going to add up the capacity here, first of all first head of the fixed cost is what? First head of the fixed cost is going to be the machine so machine is going to be there with us for how much? 100000 rupees and what is the life of the machine? That is the 10 years.

So it means you have to calculate the depreciation of the machine is for 100000 rupees that is going to be with us for 10 years, so it means what is the amount of depreciation which will be the fixed cost part of the fixed cost for first year rupees 10,000. Because you are not going to say recover this cost of machine 100000 rupees in the first year itself.

You are going to use this machine for the next 10 years it is going to stay with us for the next 10 years so only one tenth of the cost will be added here to calculate the total fix cost so you can say first head of the cost is the depreciation of machine, depreciation of machine and that depreciation of machine is you can say that is the 10000 rupees so it is rupees 10,000.

Second head of expenses is what? Second head of expense is that it is clearly given in the problem that if you want to go for or adding up this capacity we have to hire a foreman and here the salary of foreman, salary of foreman and that salary of the foreman is going to be how much? 500 rupees per month.

So how much is for the one year? That is rupees 6000 rupees. And third head of expense is going to be what? Third head of expense is going to be the financial expense, financial expanses is that we are 100000 rupees we are going to borrow this money from the market and we have to pay this interest at the rate of 10 percent until and unless we repay this amount back to the source.

So, it means you have to add up the financial cost also which will be a fixed cost because whether you use a machine are you not use the machine you have to pay this cost, so it is a say interest cost it is an interest on capital, it is interest on capital how much interest on capital is going to be there? 10000 rupees. Interest on capital is 10000 rupees.

So what is the increased fixed cost you can to call it as it is the increased fixed cost is how much? 10 plus 6 plus 10 is 26000 rupees. Rupees 26000 this is the total cost fixed cost of the machine.

Now after that we have to incur the variable cost also and if you have to incur the variable cost also we have to incur some variable expenses also and if you talk about the variable expenses so material cost will be 4 rupees per unit wages will be causing us a cost of 2 rupees per unit and variable overheads will be causing us 3 rupees per unit because it is 150 percent of the direct labour and the firm can easily raise this capital so we have already say affected for this interest on capital amount.

So it means in this case what we are going to do here? Now to calculate the contribution per unit so you can call it as the additional marginal cost let us talk about the marginal cost or the variable cost.

Variable cost is going to be how much? It is going to be number one direct material cost is how much it is say 4 rupees per unit, then is the direct labour cost is going to be how much? This is going to be 2 rupees per unit, this is going to be 2 rupees per unit and now we talk about the variable overhead, variable overheads and variable overheads are how much? 3 rupees per unit, how much it is given? It is saying that variable overheads are 150 percent of the direct labour, right.

So now you can calculate what is your variable cost? It is 6 plus 3 it is 9 rupees, rupees 9 is going to be the variable cost and what is a selling price? Which we are buying at from the market the selling price is sorry buying price you can say for which we are buying the product from the market is purchase price you can say, purchase price is how much rupees? 11 per unit.

So if you are buying it from the market we are buying at 11 rupees per unit if we are to manufacture ourselves we are to manufacture at 9 rupees, so what is the contribution available here, contribution which can be because of the savings or rupees 2 per unit while comparing the buying price and the manufacturing price that is rupees 2 per unit.

So if we start manufacturing the product we will have the additional contribution of 2 rupees per unit because our cost of production will be 9 rupees the price which we are paying in the market is 11 rupees so we are going to save 2 rupees as a contribution in this case and here, now should we go we go for manufacturing this product ourselves or not? Apart from this 9 rupees of the variable cost the fixed cost which we have here is 26000 rupees. 26000 rupees and now you have to divide this by contribution how much say savings we are going to have so this is going to be the say 13000 something the value is going to be something called as 13000 units, 13000 units,.

So, what does mean by this 13000 units this is the minimum volume of production, minimum volume of production required to take the decision, if you want to manufacture sorry this is not the rupees this is the units so it is the 13000 units we are required to manufacture and to use those in the market if you want to take this decision, because we have to add up the fixed cost of 26000 rupees and we are going to get the saving of 2 rupees per unit, so it means dividing this additional cost of (13000) 26000 rupees by the contribution available that is 2 rupees per unit the 13000 units can be manufactured or will be required to be manufactured, right.

13000 units will be required to be manufactured so in this case the plant capacity is the machines capacity is 20000 units, so how would you take a decision here in this case? We have found out this value and this value is saying that the minimum requirement for accepting the proposal is the manufacturing and using the 13000 units manufacturing and using the 13000 units.

So, if we can manufacture and use 13000 units means the final decision will be that in can be manufactured and use 13000 minimum units in a year requirement of the form of this component of this spare part is 13000 per unit, then only the proposal should be accepted otherwise you should continue buying the product from the market because fixed cost has to be met first.

If there is no need to incurred the additional fixed cost, then there is no problem at all, then we could have easily gone for it because manufacturing is much better and easier and feasible and as compared to you buying it from the market and we are going to have the savings also of 2 rupees but, since we have to incur install the fixed capacity also and that requirement of that cost is 26000, so it means you have to minimum requirement of manufacturing and selling 13000 unit in the market if you do that then it is fine, otherwise if do not do that then, there is no possibility of taking this decision and starting the manufacturing of the product, right.

So, this way you can take the decision with regard to the buying or say making the product make or buy buying or making the product, right. Now we talk about the other problem one more problem we will discuss here, will try to understand try to do it and this problem is with regard to taking the decision with regard to key or limiting factor decision with regard to the key or limiting factor.

So in this case we are given that two kind of information, we are given the per unit cost of the product A and the per unit cost of the product B and the problem is from the following data only processes which product would you recommend to be manufactured in a factory time being the key factor. From the following data following processes which product would you recommend to be manufactured in a factory time being the key factor.

So, if there are the two products we are manufacturing product A and product B, so what is the meaning of limiting factor? I have already told you but let us recall it limiting factor is key or limiting factor is some sort of input, input can be in terms of material, input can be in terms of the labour, input can be in terms of the power, input can be in terms of the water. So for example if any input is very very essential very very important if it is, we have to think in terms of that if it is not available in the volume or in the required number.

For example, if you want the 20,000 units of the material for the manufacturing product A and B and only we have the 15000 units available with us, so it means we have to decide it how to make use best possible use of this raw material which is available to us less by 5000 unit less by 5000 unit, so only 15000 unit are available

here so means we have to decide it at if you for example use 7500 unit per product so it may be possible that product A is more profitable as compared to product B.

So if you are equally manufacturing both the products and number of units in that case we are compromising with the contribution the profitability available, so whether to be possible to manufacture first the total 10000 units of product A and using the material for manufacturing the 10,000 units of the material for product A and the remaining 5,000 units of the material can be used for the product B.

Is it possible or it is going to happen or not, because if there is no limiting factor then you can manufacture both the products A and B but, since there is a limiting tractor now what is the limiting factor here? The limiting factor given to us is the, from the following data of all the processor which product would you recommend to be manufactured in a factory time being the key factor time being the limiting factor.

We do not have the time sufficient time available, for example we have only 24 hours and we are out of that working in 18 hours a day so it means in those 18 hours how much means that time should be given to product A and how much that time should be given to the product B? We have to decide so that limited amount of availability of the time is the key factor of the limiting factor here.

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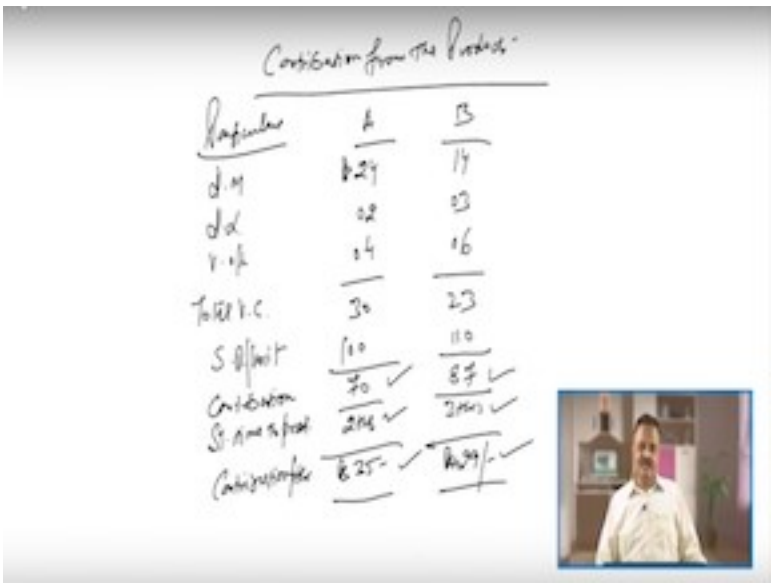

So, if you take the decision here in this case let us talk about in terms of the say how would you take the decision? You will take the decision in the form of calculating the contribution. Contribution, contribution from the products.

So, it means here we have the A and here we have B and here we have the particulars, here we have the particulars, right. What are the particulars here given to us? If you look at the particulars we have the direct material cost and direct material cost is how much 24 and 14 direct material is 24 rupees 24 and it is rupees 14, this is the direct material cost, next head of the expenses, what? Direct labour, direct labour and this direct labour cost is how much? Direct labour cost per hour which is given to us that is the 2 rupees and 3 rupees per hour and the variable overheads are given 2 rupees per hour, so it means what is the cost here, labour cost is labour at the rate of rupees 1 per hour 2 rupees labour in 3 rupees labour is required.

So it is labour for 2 rupees and labour for 3 rupees required and then we have to go for say having the next head of this cost and head of the cost variable cost is the overhead cost which is 4 and 6 right, so add variable overhead cost and variable overhead cost is how much? Double just 4 and it is 6 because it is 2 rupees per unit of the per rupee of labour it is 2 rupees per rupee of the labour which is variable overhead.

So, it is given to us and now we are given here the total marginal cost total variable cost is given to us, so what is the total variable cost? Total variable cost is given to us how much it is the say 24 plus 2, 26 plus 4, it is 30 rupees. And, how much is this? It is 17 plus 6, 23 rupees.

Now, what is the selling price? Selling price per unit is given to us, selling price per unit is given to us and that selling price per unit is 100 rupees and 110 rupees, 100 rupees and 110 rupees, right.

So now you can calculate the contribution, what is the contribution here? Contribution here, we are getting is 70 rupees per unit in this case we are getting the contribution of how much? This is going to be say a something like 87 rupees, yes this is the contribution of the 87 rupees, so it means this is 87 rupees is yeah, contribution per unit is 87 rupees and now time being the limit limiting factor. Standard time to produce, standard time to produce is how much? It is given to us 2 hours and 3 hours, 2 hours and it is 3 hours, this time is given to us.

So what you have to do here is you have calculated the per unit cost contribution available you have got the standard time here. So now you talk it has work it out as contribution, contribution per hour, contribution per hour, how much contribution per hour is there? Rupees 35 Rupees, the contribution per hour is 35 in case of the product A.

This is rupees 35 and how much it is? The contribution available here is 29 per hour, so this contribution is available here 35 and 29, so this is a contribution per hour rupees 35 rupees 29, so now we have got all information to take the decision with regard to manufacturing of the product A and B, if the time is the limiting factor

We have calculated the variable cost which is 30 and 23 you already have got the selling price which is 10 and 110 we have got the contribution which is 70 and 87, and then we have got the standard time to produce that is 2 hour then 3 hour, right. 2 hour then 3 hour, so contribution per hour available with us is 35 rupees per unit and 29 rupees per unit.

Now what, how you can take the decision, the product which is giving us the higher contribution, more amount of the contribution has to be manufactured first and the

time being a limiting factor, time being the less in the amount or short in the amount has to be best utilize for the product A.

If there is any time for the time left then it can be used for the product B otherwise there is no need to manufacture the product B or you should use the remaining time only what is the time is left after manufacturing the product A, if some time is left and the plant can work, people can work and the production can be there, then certainly we should go for the product B, because their the contribution is less by buy 6 rupees for unit, contribution is less 6 by per unit, so it means time being the limiting factor first it should be used for the product A and then the remaining time should be use for the product B.

So this is how we can take the decision with regard to the key or the limiting factor and then to deciding that, what should be done and how to take a decision with regard to the limiting factors. So till now we discussed different problem and try to learn taking the decision in different situation and if you talk about here all these things so different things we did.

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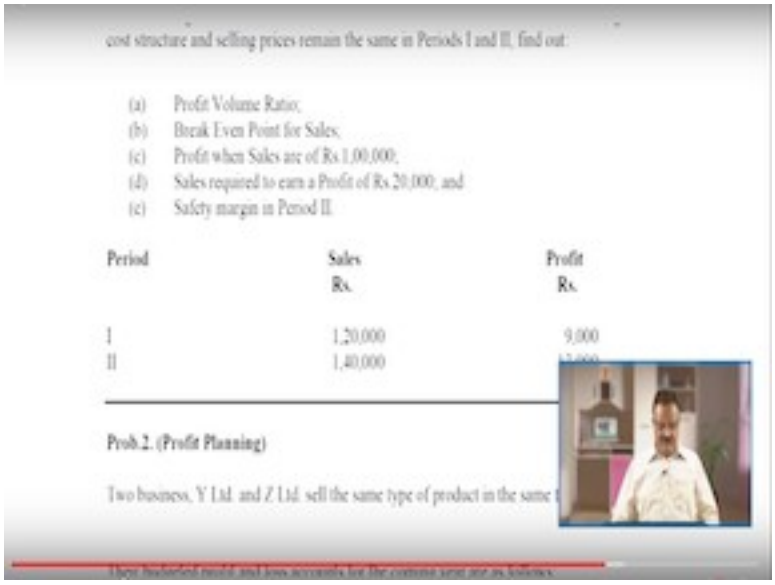

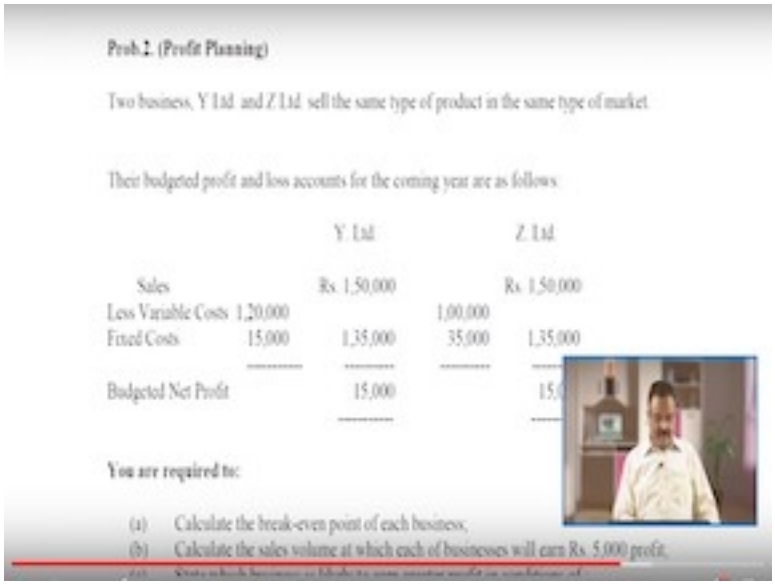

The first problem was in general where we try to learn how to calculate the P/V ratio, how to calculate the break-even point, how to calculate the profit for a given amount of sales? then the sales and the profit required to earn the profit of 20,000 rupees and then the safety margin, so what are the these different concept of the profit volume, break-even point, profit on a certain amount of profit when the sales are this much or the sales on a required amount of the profit and safety margin so all the information given to us.

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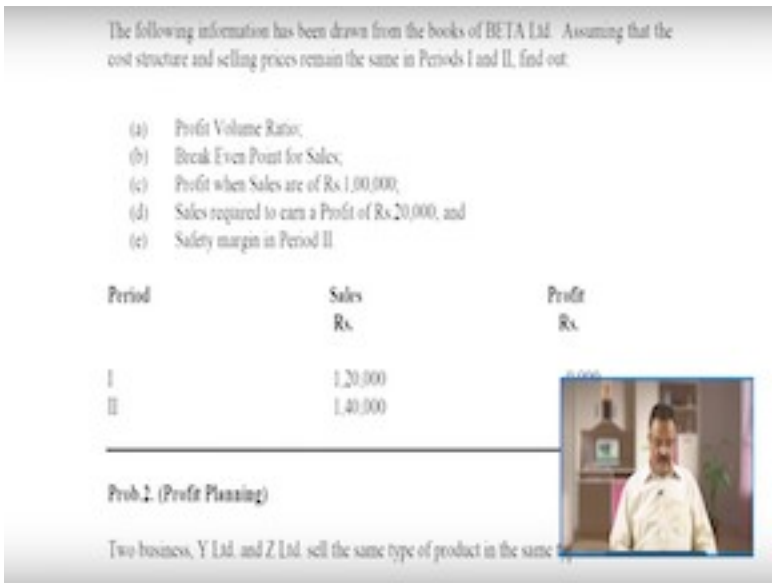

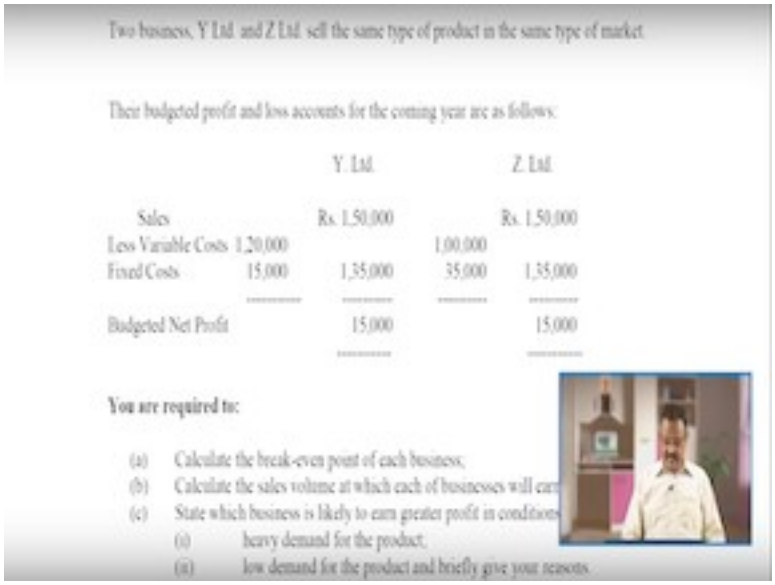

And we have done and how we have learnt how to go for calculating these different concepts next thing is the we learned about the profit planning, that is if you want to increase the profitable of the product then we have to find out that in the different situation, in the situation of the low demand, in the market in the situation of the high demand in the market, how we should take the decision and which product should be manufactured and how that should be means the production of that product should be ensured.

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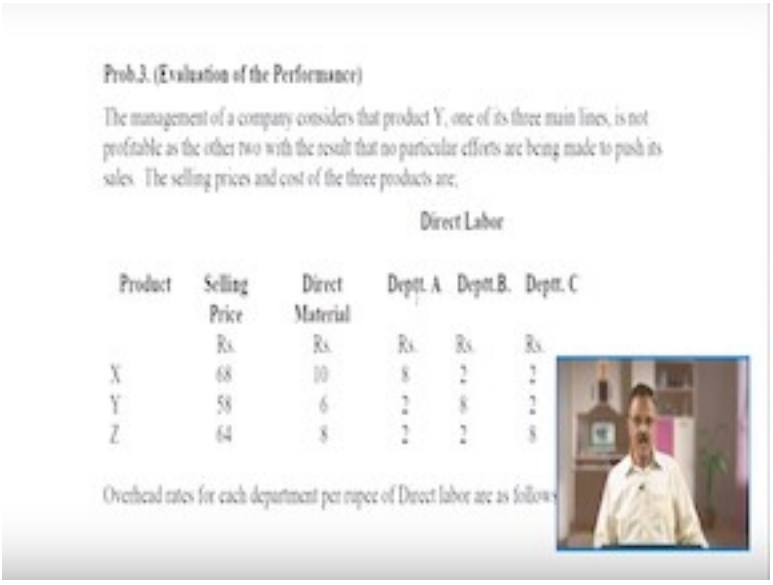

Then we did one more problem that is with regard to the evaluation of the performance of the different products and the product we saw have the highest P/V rate they should be manufactured or they should be strength or they should be we should continue to manufacture them.

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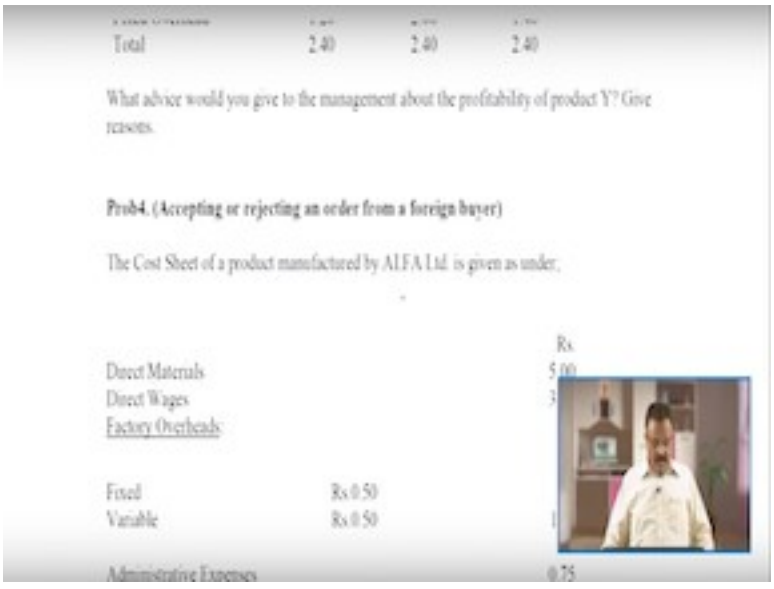

And then is the we did one more problem that is accepting or rejecting the order from a foreign buyer, that once in a while we receive the order from some buyers who are not our regular customer, who are not our from the local market also that if we can manufacture and serve those customer in the market whether we should do that or not and if it we should do to how we should proceed further.

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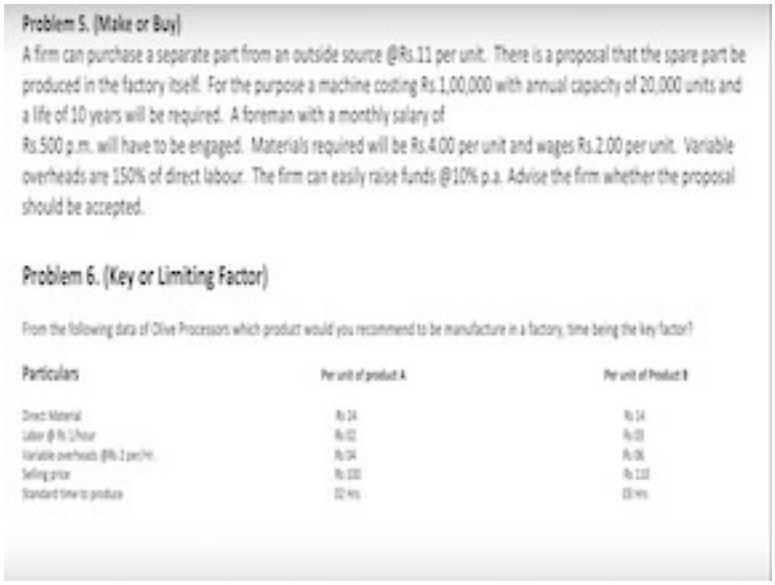

Make or buy decision in case of make or buy decisions we have to, means we learned that if you want to use some product some component for the manufacturing the finished product and we have to decide between the options of whether that component should be manufactured in house or should be bought from the market as a ready-made then we have to take the decision and how that decision can be taken so this is one more decision and the one more decision here we learn to take with the help of this technique of the marginal costing is the key or limiting factor.

Key or the limiting factor, that if some input is less in amount or it is the key factor without which the production is not possible, but that is not available in the sufficient amount if it is not available so whether you should call it as a key factor because it is most important you call it as limiting factor, because without this input the production you cannot just think of and any of these limiting factor could be, material could be the limiting factor, that time could be the limiting factor or any other input could be the limiting factor.

So if some factor is a limiting factor you cannot take a proper decision in that case you can and use the concept of marginal costing and then you have to use calculate the contribution per unit and then to take the decision right.

So these 5-6 situations we try to see and try to learn about how the decision can be taken in the different situations? And finally you can understand that marginal costing is a very very important tool you bifurcate the total cost into the variable cost and the fixed cost and then and first we try to cover up the variable cost.

We arrived at the contribution and then we try to make up the fixed cost and then we try to find out whether the profitability is available from that process from that production or from that business or not, and it may be a temporary phenomena, but if it is a temporary phenomenon but there is a contribution available or at least your variable cost is equal to the selling price then we should continue to stay in the market in the hope that in the time to come situation will improve, things will turn in the favour of the firm and the fixed cost which we are not currently able to recover from the market will be able to recover in the time to come because the price will be revised it will be updated and then we will be able to earn some profit also then we can use aur make use of this concept of the marginal costing, right.

Now after this concept of the marginal costing means we discussed it till now the concept of absorption costing by preparing the cost sheet, then we discuss the concept of the budgets, the master budget, flexible budget how they can be useful in the management decision making, then we will learn about the standard costing that how the standard costing can help in the say facilitating the management decision making, then we learned about the marginal costing that, in what kind of situation in the market the concept of the marginal costing can be used that we learnt about and after this marginal costing I will be now discussing the next technique with you, that is the ABC, activity based costing.

Activity based costing that we will be discussing next time and activity based costing is the real alternative of the absorption of the total costing system where we take into account both the components of the cost, variable cost and the fixed cost and then we try to find out that how to minimize the total cost of production, how to increase the profitability and how to keep the cost under control.

There are the problems like overcosting of the product, undercosting of the product and many times I told you that if the cost of the product is defective the process of calculating the cost of the product is defective, then how can you think of pricing that product. So it means absorption costing creates a problem of overcosting or undercosting of the products and the standard costing or the marginal costing are not the true alternative to the absorption costing because ultimately you have to recover the variable cost also, you have to recover the fixed cost also.

So how to recover the that, if there are limitations of the absorption costing then certainly we have the true and the real alternative in the ABC, in the activity based costing and how we can make use of the ABC or activity based costing and how we can replace the absorption costing with the ABC that all I will discuss with you in the next class. Thank you very much!