

**Final New Syllabus  
Paper - 5  
Strategic Cost Management  
& Performance Evaluation**

**JAN 2021**

Roll No. ....

Total No. of Questions – 6

Total No. of Printed Pages – 16

Time Allowed – 3 Hours

Maximum Marks – 100

## MDA

Answers to questions are to be given only in English except in the case of candidates who have opted for Hindi Medium. If a candidate has not opted for Hindi Medium, his/her answers in Hindi will not be valued.

Question No. 1 is Compulsory.

Answer any **four** questions from the remaining **five** questions.

Working notes should form part of the respective answers.

Wherever necessary, candidates may make appropriate assumptions and clearly state them.

### Marks

1. RS Tools Ltd is a leading force in manufacture and supply of modern agriculture equipment like Power Tillers, Kisan Krafts, Agriculture Reaper and other Lawn Care equipment. The company grew substantially over the course of decades and presently ranked 20<sup>th</sup> by size in the global arena and has become a household name in every agriculture family in the country.

As commonly happens when an enterprise goes in leaps and bounds in a way like this, RS Tools Ltd is experiencing an increasing degree of supply chain complexities and for many years it did nothing to address the difficulties of its decentralized and fragmented network. The top management decided recently to enter into small irrigation components segment with the brand name 'SIRI', the demand for which is extremely

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seasonal and majority of sales are forecasted to occur between April to July every year. The company currently is replenishing dealer's inventory every month, using direct shipment from its central warehouse which is not order driven and is not in sync with the industry average. This kind of dispatching the orders is proving too costly and too slow and not in consonance with the demand pattern. The top management of RS Tools Ltd has started getting doubts about the company's ability to supply its existing 300 plus dealer network, to meet the consistent market demand of its regular agriculture equipment along with the seasonal demand of its new branded products 'SIRI'. They recognized that this state of affairs cannot be allowed to continue in the long run and decided to adopt a long term program of strategic optimization.

The company has launched an initiative to achieve a targeted 15% reduction in supply chain cost within next 3 years and constituted an expert group to oversee this task. Mr. Karthik, the management consultant, is unanimously appointed at the board meeting to head the expert group formed to revamp the supply chain management. The management is squarely convinced with three of his bold and frank remarks to the board that :

- (a) "Most Companies begin with the best intentions to achieve successful and sustainable supply chain cost management, but somehow lose momentum, only to see costs increase in short term due to the implementation costs of SCM".
- (b) "If you tell me your company hasn't been able to sustain any progress in supply chain cost reduction in short run, I wouldn't be surprised at all".

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- (c) “No producer has the ability to give the customers what they want, when they want and at the price they want unless the value chains also have been encouraged”.

When the expert team headed by Mr. Karthik began investigation they found three areas of feasible leverage to reduce supply chain costs which are listed below –

- (i) Consolidating shipments and use of third party logistic providers as the existing decentralized environment of sourcing and inbound logistics are being managed by teams in different places with insufficient transparency in supply chain.
- (ii) Leveraging on maintaining optimum inventory by bringing the order cycle time down to an industry average of 15 days.
- (iii) The existing supply chain has evolved rather than grown by design and hence had become unnecessarily complex and the enterprise as a whole is not taking the advantage of synergies and economies of scale.

Mr. Karthik undertook a supply chain network redesigning program

- to reorganize the supply chain,
- to reduce cost to serve and
- to lay the groundwork for future capability in the supply chain.

He is determined to revitalize the Supplier Relationship management as well as the numbers of suppliers are very large in number and the company is burdened with quality, delivery and payment issues from the suppliers. He has decided to suggest the use of E-procurement process as a part of upstream supply chain as a remedy to this hiccup.

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You being an associate consultant in his office have been asked by Mr. Karthik, to help him by preparing a briefing to be given to the board based on the above facts with particular reference to the following :

- (a) List the critical issues being faced by RS Tools Ltd under the present setup based on the facts of the above case. **3**
- (b) In the light of the initial remarks made by Mr. Karthik at the time of he being designated to head the expert group, explain the supply chain management and analyze the validity of the views expressed by Mr. Karthik. **4**
- (c) List the major benefits that RS Tools Ltd would reap by energizing the Supply Chain Management. **3**
- (d) Evaluate how Supplier Relationship Management is going to help RS Tools Ltd. **4**
- (e) Describe E procurement and its process in the context of upstream supply chain management and discuss its constituents. **3**
- (f) Advise whether the outsourcing as suggested by Mr. Karthik would help RS Tools Ltd in settling logistic constraints. **3**
2. (a) ABC Ltd an Investment company undertakes share market research for its clients. To design a tailor made investment strategy for clients the designated team of staff takes 4 months. The team comprises involvement of 3 divisions. **12**

Types of staff used	Proportion of variable costs incurred for respective months				Total Variable Cost
	April	May	June	July	
Data Collection	20%	30%		50%	100%
Research		40%	40%	20%	100%
Advisory	30%	10%	40%	20%	100%

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The variable costs of ABC Ltd are distributed among the 3 categories of staff in the following ratios :

Department	Share in total variable costs incurred
Data Collection	30%
Research	50%
Advisory	20%
Total Variable Cost	100%

The contribution from each department would be at the following percentages :

Department	Required Contribution as a percentage on variable costs
Data Collection	100%
Research	80%
Advisory	150%

For calculation of monthly revenue generated the value of work executed is divided on the following lines :

April	30%
May	20%
June	30%
July	20%

The work executed by ABC Ltd in the month of April is ₹ 3,00,000, May ₹ 2,00,000, June ₹ 3,00,000 and in July ₹ 2,00,000.

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P.T.O.

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Calculate the additional order to be received if the targeted contribution that the company wants to earn is ₹ 1,50,000 for the period April to July.

(You may assume that no fixed costs are relevant in arriving any calculations and the profit percentage of July is to be considered for calculating the additional order required in July.)

- (b) The newly appointed Finance Director Mr. Praveen, in the month of September wants to make the billing pattern simple and proposed to change the price quoting methodology of the organization. The details of his proposal are listed below :-

The target cost for each research work is fixed in consultation with the client and the ABC Ltd. receives a bonus for completing the work below target cost.

For a particular research conducted for Mr. Mohan, ABC Ltd has agreed upon a target cost of ₹ 20,00,000 and a target fee of ₹ 1,40,000. If the ABC Ltd completes the research at a lower cost than ₹ 20,00,000 then it will receive an additional profit upto a maximum profit of ₹ 1,80,000. If ABC Ltd completes the work for more than the target cost then it will receive less profit but atleast ₹ 40,000. If the work is performed below the target cost, the client keeps 80% of the savings and leaves 20% of the surplus to ABC Ltd as an extra profit upto a maximum of ₹ 1,80,000. If the cost of research work exceeds the target cost, the client would bear 80% of the excess costs over and above the target cost and ABC Ltd would bear 20%, which is subtracted from the target profit as long as the profit is not less than ₹ 40,000.

If the actual work performed amounted to ₹ 19,00,000.

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Calculate the following :

**1×4**

**=4**

- (i) Cost saving for the project,
- (ii) ABC Ltd.'s share in surplus,
- (iii) ABC Ltd.'s total profit,
- (iv) Total cost to Mr. Mohan for market research work.

Now assume the ABC Ltd. spent ₹ 24,00,000 for performing the work to ascertain.

**1×4**

**=4**

- (v) Cost overrun
- (vi) Mohan's burden
- (vii) ABC's burden
- (viii) Total Cost to Mr. Mohan for market research work.

3. Alpha and Beta are two divisions of the Active Multinational Ltd. (AML). The Division Alpha manufactures auto components which it sells to other divisions and external customers.

The Division Beta has designed a new product, Product BZ, and has asked Division Alpha to supply the auto component, Component AX, that is needed in the new product. Each unit of Product BZ will require one Component AX. This Component will not be sold by Division Alpha to external customers. Division Alpha has quoted a transfer price to Division Beta of ₹ 40 for each unit of Component AX.

It is the policy of the company to reward managers based on their individual division's return on capital employed.

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Division Alpha produces the Component AX in batches of 1000 units. The maximum capacity is 8000 Components per month. Variable costs amount to ₹ 12 per component. Fixed costs per month are ₹ 60000.00 which is specifically incurred to produce Component AX.

Product BZ will be produced in batches of 1000 units in Division Beta. The maximum customer demand is 8000 units of Product BZ. Variable costs will be ₹ 8 per unit plus the cost of component AX. Fixed costs of ₹ 90000.00 are to be incurred specifically to produce Product BZ.

The head of Division Beta has given the following forecast :

<b>Demand</b>	<b>Selling price per unit (₹)</b>
2000 units	120
4000 units	100
5000 units	90
6000 units	82
7000 units	70
8000 units	65

Required :

- (a) Calculate, based on a transfer price of ₹ 40 per Component AX, the monthly profit that would be earned as a result of selling Product BZ by (Here the situation is governed by the actions of the manager of Division Beta) : **5**
- (i) Division Beta
  - (ii) Division Alpha
  - (iii) Company as a whole

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- (b) Find out the profit maximizing output from the sale of Product BZ for the Active Multinational Ltd. **6**
- (c) Calculate, using the marginal cost of Component AX as the transfer price, the monthly profit that would be earned as a result of selling Product BZ by **3**
- (i) Division Alpha
- (ii) Division Beta
- (iii) Company as a whole
- (d) The Operation Head of the company requires internal transfer between the divisions at marginal cost from the overall company's perspectives. **6**
- If marginal cost is used as the transfer price the manager of the Division Alpha will not be motivated as there will be no incentive to the division to transfer components internally.

What transfer pricing policy would you suggest to help the company to overcome the conflict between optimum decision making and performance evaluation ?

**MDA**

**P.T.O.**

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4. (a) Sri Manufacturers Ltd. manufactures a single product. Standard cost per unit is as follows :

Particulars		₹
Materials	12 kgs × ₹ 5 per kg	60
Labour	10 hrs × ₹ 7 per hour	70
Variable Overheads	10 hrs × ₹ 3 per hour	30
Fixed Overheads	10 hrs × ₹ 3 per hour	30
Profit		60
<b>Selling Price</b>		<b>250</b>

Overheads are allocated on the basis of direct labour hours. In the month of March 2020 there was no difference between the budgeted and actual selling price and there was no opening and closing stock during the period.

The other details for the month of March 2020 are as under :

	Budgeted	Actual
Product and sales	2500 units	2000 units
Direct Materials	30,000 kgs @ 5 per kg	30,000 kgs @ 5 per kg
Direct Labour	25,000 hrs @ ₹ 7 per hour	22,500 hrs @ ₹ 7 per hour
Variable Overheads	₹ 75,000	₹ 67,500
Fixed Overheads	₹ 75,000	₹ 75,000

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Required :

Reconcile the budgeted and actual profit with the help of variances according to each of the following methods :

- |  |          |
|--|----------|
| (i) The conventional method  | <b>3</b> |
| (ii) The relevant cost method assuming that  |          |
| (a) Materials are scarce and are restricted to supply of 30,000 kgs for the period.  | <b>3</b> |
| (b) Labour hours are limited and available hours are only 25,000 hour for the period.  | <b>4</b> |
| (b) The Business Digest, a fortnight business magazine, in its recent release has published an article titled "Why you can safely ignore Six Sigma". This was highly critical of Six Sigma. The pointed criticism leveled under five sequentially numbered paras which are listed herein below : | <b>5</b> |
| (i) The results often don't have any noticeable impact on company financial statements. Thus Six Sigma success doesn't assure you the higher stock values. This is true for 90 percent of companies that implement Six Sigma.  |          |
| (ii) Only early adopters can benefit from the implementation of Six Sigma.   |          |
| (iii) Six Sigma focuses on defects which are subjective to determine for service business.   |          |
| (iv) Six Sigma can't assure that your product will have market.  |          |
| (v) Substantial infrastructure investment is required.   |          |

How would you respond to these statements ?

**MDA**

**P.T.O.**

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- (c) Bharat Heavy Machinery Ltd produces engines for the cars. Variable cost per engine is ₹ 4,200. Market research has indicated that at a selling price of ₹ 7,400, no order will be received, but the demand for the engines will be increased by two units for every ₹ 400 reduction in the unit selling price below 7,400.

You are required to determine the unit selling price per engine that will maximize the profit of the company.

**OR**

Discuss the connection between Total Quality Management and Total Productive Maintenance.

5. (a) (i) Based on the following data calculate 'Overall Equipment Effectiveness' :

Particulars	Data
Shift length	9 hours
Short breaks	3 of 10 minutes each
Meal break	45 min
Equipment down time	30 min
No. of parts produced per hour ( Standard)	30 per min
Total units produced per shift	12,240
Rejected units out of the above	240

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(ii) (A) Based on the answer derived from the above can you demonstrate that the machine is working at world class performance as suggested by 'Nakajima' ideal values for the 'OEE'. **2**

(B) "OEE is an aggregate measure. Its components will compensate for each other or, on the contrary, will aggravate a failing situation and attract further attention to it". Explain. **3**

(b) Mr. Benn, oversees the diverse operations of Bennsys, a large multinational company by using a much decentralized management structure. According to its 2019 annual report, Bennsys had 1,25,000 employees and earned over \$100 billion in revenue. Mr. Benn managed this empire from his headquarters in London, that consists of 20 employees and occupies only 10,000 square feet, although the company's vice-chairman, Simon, who works out of London, occupies another 600 square feet. The total payroll, including benefits, of both locations was only just above \$2 million in 2019. Mr. Benn was invited as the chief guest in a business summit organized at New Delhi during March, 2020. Asked about how an organization of that magnitude could be managed with such a small resources as to space and manpower. Mr. Benn's own description about his and Mr. Simon's management style is, "we delegate almost to the point of abdication (renouncing everything)." An exaggeration perhaps, but clearly a decentralized style and he and his deputy are the stable believers of FOUR recognized levels of decentralization. **10**

In the context of responsibility accountings discuss the levels of decentralization which Mr. Benn was referring to and do you concede to the view that Mr. Benn is exaggerating the success of his Divisional organization structure.

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**P.T.O.**

6. (a) Modern Packaging Corporation specialised in the manufacture of one litre plastic bottles. The firm has four moulding machines, each capable of producing 100 bottles per hour. The firm estimates that the variable cost of producing a plastic bottle is ₹ 20. The bottles are sold ₹ 50 each.

Management has been approached by a local toy company that would like the firm to produce a moulded plastic toy for them. The toy company is willing to pay ₹ 300 per unit for the toy. The variable cost to manufacture the toy will be ₹ 240. In addition, Modern Packaging Corporation would have to incur a cost of ₹ 20,00,000 to contract the needed mould exclusively for this order. Because of more intricate shape of the toy, a moulding machine can produce only 40 units per hour. The customer wants 1,00,000 units. Assume that total capacity of all the four machines combined is 10,000 machine hours available during the period in which the toy company wants the delivery of toys. The firm's fixed cost, excluding the cost to construct the toy mould, during the same period will be ₹ 2,00,00,000.

Required :

- (i) If the management predicts that the demand for its bottles will require the use of 7500 machine hours or less during the period, should the special order be accepted ? Give reasons. 3
- (ii) If the management predicts that the demand for its bottles will be higher than its ability to produce bottles, should the order be accepted ? Why ? 2

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- (iii) If the management has located a firm that has just entered the moulded plastic business. This firm has considerable excess capacity and more efficient moulding machines and is willing to subcontract the toy job, or any portion of it for ₹ 280 per unit. It will contract its own toy mould.

**5**

Determine Modern Packaging Corporation minimum expected excess machine hour capacity needed to justify producing any portion of the order itself rather than subcontracting it entirely.

- (b) (i) "Correct balance must be established when budgeted performance is evaluated otherwise it may lead to a feeling that performance appraisal was unjust".

**3**

In furtherance of the above object, three distinct styles, namely Budget Constrained Style, Profit Conscious Style and Non-Accounting Style have been observed for using budget and actual cost information in performance evaluation of a manufacturing division. Explain each of these styles.

- (ii) In K Automotive Ltd., an automobile manufacturer, there is a sudden breakdown of one important machine which would delay the shipment of an important order and required to spend more than the repair budget allocation. Analyze the likely behavioural aspects of respective departmental heads in this situation under.

**2**

(A) Budget constrained Style

(B) Profit conscious style.

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**P.T.O.**

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- (iii) Summarize the effects of the given three styles of management in the below matrix in Table B by putting a suitably coined word given in Table A for each of the specified activity. 5

**Table A**

High	Medium	Low	Extensive	Little	Good	Poor
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**Table B**

Activity	Style of Evaluation		
	Budget Constrained	Profit Conscious	Non Accounting
Involvement with Costs			
Job related tension			
Manipulation of Accounting Information			
Relation with superiors			
Relation with Colleagues			

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