CA FINAL
Test Code – JK-SCM-21
(Date: 30-08-2020)

(Marks - 100)

Answers to questions are to be given only in English
Question No. 1 is compulsory
Candidates are required to answer any four questions from the remaining five questions.
Working notes should form part of the answer.

Q.1 Assume that the date is December 20X3.

BLA is a design consultancy that provides advice to clients regarding property maintenance and improvements. Three types of consultant are employed by BLA. These are:

1 Architectural consultants who provide advice with regard to exterior building improvements

2 Interior design consultants who provide advice regarding interior design, and

3 Landscape consultants who provide advice regarding landscaping of properties and garden design improvements.

BLA does not undertake building work on behalf of its clients and will only recommend contractors that undertake the three types of work when requested to do so by its clients. The following information is relevant:

(i) Each consultation, other than those detailed in notes (iv) and (v), is charged at a rate of ₹150 per consultation.

(ii) The consultants are each paid a fixed annual salary of ₹45,000. In addition they shared equally among the consultants employed by BLA on 31 October in the year to receive a bonus of 40% of the fee income generated in excess of budget. The bonus is which the bonus relates.

(iii) Other operating expenses (excluding the salaries of the consultants) were budgeted at ₹ 25,50,000 for the year to 31 October 20X3. The actual amount incurred in respect of the year to 31 October 20X3 was ₹ 28,05,000, which excludes subcontractors per note (vii) below.

(iv) In an attempt to gain new business, consultants may undertake consultations 'no-fee' basis. Such consultations are regarded as Business Development Activity by the management of BLA

(v) Consultants will sometimes undertake remedial consultations with clients who experience problems at the time when work commences on each client's site, Remedial consultations are also provided on a non-chargeable, i.e. 'no fee' basis.

(vi) In November 20X2, BLA purchased 'state of the art' business software for use by its consultants in simulating design improvements. The software was used throughout, the year by consultants who specialise in landscape and garden design. It is now planned to introduce the use of the software by the other categories of consultant within BLA.

(vii) BLA has a policy of maintaining staff at a level of 45 consultants on an ongoing basis, irrespective of fluctuations in the level of demand. Also, BLA has retained links with retired consultants and will occasionally subcontract work to them at a cost of ₹150 per consultation, if current full-time consultants within a particular category are fully, utilised. During the year ended 31 October 20X3 subcontractors only undertook non-chargeable client consultations.

BLA

Sundry Statistics for year ended 31 October 20X3	**Budget**	**Actual**
Number of consultants by category:		
Exterior design	18	15
Interior design	18	18
Landscape and garden design	9	12
Total client enquiries:		
New business	67,500	84,000
Repeat business	32,400	28,000
Number of chargeable client consultations:		
New business	24,300	22,400
Repeat Business	16,200	19,600
Mix of chargeable client consolations:		
Exterior design	16,200	13,830
Interior design	16,200	17,226
Landscape and garden design	8,100	10,944
	Budget	**Actual**
Number of non-chargeable client consultations undertaken by BLA consultants		
Number of business development consultations	1,035	1,200
Number of remedial consolation	45	405

Number of non-chargeable client consolations undertaken by subcontractors		120
Other statistics:		
Number of complaints	324	630

Required:

(a) Briefly describe Fitzgerald and Moon's building block model of performance management.

(4 Marks)

(b) Evaluate the performance of BLA using the building black model using the six dimensions of the building block model.

(10 Marks)

(c) Briefly discuss THREE factors that should be considered in the determination of expected standards in a performance measurement system.

(6 Marks)

Q.2 WC is a company that installs kitchens and bathrooms for customers who are renovating their houses. The installations are either pre-designed 'off-the-shelf' packages or highly customized designs for specific jobs.

The company operates with three divisions: Kitchens, Bathrooms and Central Services. The costs of the Central Services division, which are thought to be predominantly fixed, include those incurred by the design, administration and finance departments. The Central Services costs are charges to the other divisions based on the budgeted Central Services costs and the budgeted number of jobs to be undertaken by the other two divisions.

The budgeting and reporting system of WC is not very sophisticated and does not provide much detail for the Directors of the company. The budgeted details for last year were:

Number of jobs	**Kitchens**	**Bathrooms**
	4,000	2,000
	₹	₹
Average price per job	10,000	7,000
Average direct costs per job	5,500	3,000
Central services recharge per job	2,500	2,500
Average profit per job	**2,000**	**1,500**

The actual results were as follows:

Number of jobs	Kitchens	Bathrooms
	2,600	2,500
	₹	₹
Average price per job	13,000	6,100
Average direct costs per job	8,000	2,700
Central services recharge per job	2,500	2,500
Average profit per job	**2,500**	**900**

The actual costs for the Central Services division were ₹ 17.5 million.

Required:

(a) Calculate the budgeted and actual profits for both the kitchen and Bathroom division and for the whole company for the year.

(4 Marks)

(b) Calculate the sales price variances and the sales mix profit and sales quantity profit variances.

(6 Marks)

(c) Prepare a statement that reconciles the budgeted the and actual profits and shows appropriate variances in as much detail as possible.

(5 Marks)

(d) Using the statement that you prepared in part (c) above, discuss the performance of the company for the year.

(5 Marks)

Q.3 Absolute Singapore Pte Ltd. (ASPL) manufactures electronic components for washing machines in an assembly line. Recent market survey reports indicate erosion of its clientele. Feedback taken from customers suggest that the company's products were not of good quality. ASPL is concerned because its competitors have been able to achieve zero defect performance in terms of nil sale returns on account of quality and nil subsequent warranty cost. Therefore, the competitors enjoy huge customer loyalty. To satisfy its customers, the company ASPL wants to improve its product quality. Consequently, it has decided to undertake Six Sigma study of its operations. Below is the additional information given about ASPL's operations: Yearly sales of electronic components are 25,000 units at ₹20,000 each. Of these, 1% sales are returned due to quality issues. These are scrapped and a replacement is made by the company. In addition, each product is under warranty for one year after sale. If a claim is accepted under warranty, service and replacement of parts is done free of cost. Current yearly

warranty claims (these are separate from sales returns), which is also representative of the average yearly warranty claims, amount to ₹ 30, 00, 000 per annum.

Quality control check and inspection is carried out directly at the assembly line. There is no quality check done at any other point in the entire work flow. Total time spent on inspection is 2,000 hours in a year which costs the company ₹ 10, 00, 000 per annum. Inspection leads to 10% rejection i.e. 2,525 units. These units require only one cycle of rework, after which they are ready for sale. Rate of rework in units rejected on inspection at the assembly line is 5 units in 1 hour. Cost of rework is ₹6,250 per hour.

The variable cost of electronic component is ₹ 12,500.

The Six Sigma team as part of its study found that rework on products was mainly due to the following reasons:

(1) Assembly line workers, including new hires, learnt on the job as to how to assemble the input material to produce the final electronic component. This lead to many errors due to lack of proper standardized training. Therefore, on account of these errors, the entire electronic component has to assembled again.

(2) Sub-standard quality of raw material is detected on inspection only at the assembly line. By this time, the defective material is already fitted into the final electronic component. Therefore, entire component has to be reworked upon to replace the defective raw material input.

(3) Machines are outdated and are not entirely suitable for the current production methodology.

Proposed solutions to tackle these issues are as follows:

(1) Provide training to assembly line workers to train them on the production methodology. This training is expected to standardize work flow, thereby reducing errors. Such training programs will be held regularly to update the workers on new methodologies. These programs can also serve as employee feedback sessions about the actual working conditions at the assembly line. This two-way communication can improve and streamline the production process. Brainstorming can help detect or give heads up about potential problems in the production process. Total training hours in a year are expected to be 5,000 hours, costing ₹1,000 each hour.

(2) Currently poor quality of raw material input is detected only on inspection at the assembly line. This results in wastage of resources in terms of material, time and capacity. In addition to the existing inspection at the assembly line,

a new functional area for quality planning and improvement is proposed to be set up. At the time of procurement, the department will determine the appropriate quality of raw material input, ensure that suppliers supply material as per these requirements as well as suggest alternatives that can help improve product quality. By ensuring quality of raw materials at the beginning of the production process, wastage of resources is reduced, if not can be eliminated. Cost of setting up such a facility will be ₹1, 50, 00, 000. In addition to this facility, inspection will continue at the assembly line. This ensures complete quality check during the entire production cycle. At the same time, due to the introduction of this new functionality for quality control, the pressure on resources for inspection at the assembly line would reduce.

(3) Current machines should be replaced entirely with new machines. Old machines can be sold for negligible amount as scrap. New machines would cost ₹ 3, 60, 00, 000 having a life of three years.

Implementation of the above three solutions can have the following impact:

- Rework of products can be entirely eliminated.
- Sale returns will reduce from 1% to 0% due to better quality of products.
- Yearly warranty claims will reduce from ₹30, 00, 000 to nil per annum.
- With the introduction of the new facility, time required for inspection at the assembly line would reduce from 2,000 hours to 1,200 hours. Cost of inspection to do quality check at the assembly line would reduce from ₹10, 00,000 per annum to ₹600,000 per annum.
- Due to better quality, ASPL can build better reputation with the customers which can further yield additional sales of 5,000 units per year.

Required

You are the management accountant at ASPL. As part of the Six Sigma project implementation team, you are requested to EVALUATE proposals suggested by the Six Sigma team. The team has used the DMAIC technique to assess quality improvements.

(20 Marks)

Q.4 (a) Company A manufactures four products in two different locations. It operator under strict Just-In-Time principles and does not hold any inventory of either finished goods or raw materials.

Company A has a long-standing agreement to supply its main customer with 100 units of each of its products Product 1, Product 2, Product 3 and Product 4. No. negotiation is possible and the contract must be fulfilled.

Details of the company's additional, non-contract related production on site 1 area as follows:

	Product 1	**Product 2**	**Product 3**	**Product 4**
Selling Price	₹60	₹70	₹80	₹90
Direct labour, at ₹8 per hour	₹16	₹8	₹12	₹16
Direct Material A, at ₹3 per litre	₹4.50	₹3.00	₹0	₹3.00
Direct Material A, at ₹5 per kg	₹5.00	₹-	₹15	₹10
Variable overhead, labour related (*)	₹1.25	₹0. 63	₹0.94	₹1.25
Variable overhead, machine related (*)	₹1.25	₹2.00	₹0.75	₹1.00
Total Variable cost	₹28.00	₹13. 63	₹28. 69	₹31.25
Machine hours per unit	5	8	3	4
Maximum demand per week	900 units	950 units	950 units	900 units

(*) An analysis of the variable overhead shows that some of it is caused by the number of labour hours and the remainder is caused by the number of machine hours.

All the above products use the same resources (material A and B). Currently, the company also purchases a component, Component Alpha, from an external supplier in the Ulhasnagar for ₹50. A single unit of this component used in producing Product 5, the company's only other product, on Site 2. Product 5 yields a positive contribution and does not use any materials used by the other products.

Company A could manufacture Component Alpha on Site 1, but to do so would require 2 hours of direct labour, half an hour of machine time as well as 1.5 kilograms of Material B.

The purchasing director has recently advised you that the availability of Direct Material A and B is to be restricted to 5,000 litres and 6,000 kilograms every week. This restriction is unlikely to change in the near future, but no restrictions are expected on any other material.

Required:

(a) Calculate whether Company A should continue to purchase Component Alpha or whether it should manufacture it internally.

(4 Marks)

(b) Prepare a statement to show the optimum weekly usage of Site 1's available resources.

(6 Marks)

(c) Assuming no other changes, calculate the purchase price of Component Alpha at which your advice in (a) would changes.

(2 Marks)

(b) A Swiss watch making company wishes to determine the minimum price it should charge a customer for a special order of watches. The customer has requested a quotation for 10 watches (1 batch), but might subsequently place an order for a further 10. Material costs are ₹30 per watch. It is estimated that the first batch of watches will take 100 hours to manufacture and an 80% learning curve is expected to apply. Labour plus variable overhead costs amount to ₹30per hour. Setup costs are ₹1,000 regardless of the number of watches made.

Required:

(a) What is the minimum price the company should quote for the initial order if there is no guarantee of further orders?

(b) If the company was then to receive the follow-on order, what would the minimum price of this order be?

(c) What would be the minimum price if both orders were places together?

(d) Having completed the initial orders for a total of 20 watches (price at the minimum levels recommended in (a) and (b)), the company thinks that there would be a ready market for this type of watch if it brought the unit selling price down to ₹45. At this price, what would be the profit on the first 140 'mass-production watches (i.e. after the first 20 watches) assuming that marketing costs totaled ₹250?

(8 Marks)

Q.5 (a) A company has two profit centres, Centres A and Centres B, Centre A supplies Centre B with a part-finished product. Centre B completes the production and sells the finished units in the market at ₹35 per unit. There is no external market for Centre A's part-finished product.

Budgeted data for the year:

	Division A	**Division B**
Number of units transferred/sold	10,000	10,000
Material cost per unit	₹8	₹2
Other variable costs per unit	₹2	₹3
Annual fixed costs	₹60,000	₹30,000

Required:

Calculate the budgeted annual profit for each division and for the company as a whole if the transfer price for the components supplied by division A to division B is:

(a) Full cost plus 10%

(3 Marks)

(b) Marginal cost plus 10%

(3 Marks)

(c) Evaluate both transfer prices from the perspective of each individual division and from the perspective of the company as a whole.

(4 Marks)

(b) (1) Greenfield Ltd manufactures three products, W, X and Y. Each product uses the same materials and the same type of direct labour but in different quantities. The company currently uses a full cost plus basis to determine the selling price of its products. This is based on full cost, using an overhead absorption rate per direct labour hour.

The direct costs of the three products are shown below:

	Product W	**Product X**	**Product Y**
Budgeted annual production, in units	15,000	24,000	20,000
Direct material (₹ per unit)	₹ 35	₹ 45	₹ 30
Direct labour (₹ 10 per hour)	₹ 40	₹ 30	₹ 50

In addition to the above direct costs, Greenfields incurs annual indirect production costs of ₹ 1,044,000

What is the full cost per unit of each product, using Greenfields's current method of absorption costing?

A ₹18 for W, ₹75 for X and ₹22.50 for Y

B ₹75 for W, ₹75 for X and ₹100.50 for Y

C ₹93 for W, ₹88.50 for X and ₹ 102.50 for Y

D ₹93 for W, ₹90.50 for X and ₹102.50 for Y

(2 Marks)

(2) An analysis for the company's indirect production costs shows the following:

	₹	Cost drivers
Material ordering costs	2,20,000	Number of supplier orders
General facility costs	8,24,000	Number of labour hours

The following additional data relate to each product:

	Product W	Product X	Product Y
Suppliers orders per line of products	120	180	100

What is the full cost per unit of each product, using ABC?

A ₹14.21 for W, ₹10.66 for X and ₹17.76 for Y

B ₹93.61 for W, ₹99.16 for X and ₹100.50 for Y

C ₹93.61 for W, ₹89.79 X and ₹100.51 for Y

D ₹107.21 for W, ₹99.16 for X and ₹120.25 for Y

(2 Marks)

(3) The company currently uses a full cost plus basis to determine the selling price of its products.

Which of the following statements regarding that the current full cost plus pricing approach strategy are correction?

(1) The use of absorption costing means that the price is dependent at least in part on the method used to absorb the costs into each cost unit.

(2) The use of absorption costing suggests that this is the cost of the individual item whereas, in fact, it includes costs that would continue to be incurred if the item were not produced.

(3) A manager may reject a sale because the customer is only prepared to pay a price which is less than the absorption cost.

(4) Full cost-plus pricing required that the profit mark-up applied by a company is fixed.

A Statements (2) and (4)
B Statements (1), (2) and (3)
C Statements (1), (3) and (4)
D Statements (1), (2), (3) and (4)

(2 Marks)

(4) The managing directors is concerned that the company may be losing sales because of its approach to setting prices. He thinks that a marginal cost-plus costing approach may be more appropriate, particularly since the workforce is guaranteed a minimum weekly wage and has a three month notice period.

Which of the following statements regarding a marginal cost-plus pricing approach strategy are correct?

(1) The use of marginal costing identifies the variable cost of the item produced and thus provides a clear indication of the maximum price that should be charged so as to avoid a negative contribution.

(2) A marginal cost-plus approach may mean that managers are persuaded to sell items at too low a price, so that the contribution earned is insufficient to cover the fixed costs of the business.

(3) It is very difficult to increase the price for a subsequent sale of the same item to the same customer, so the company, may find it difficult to break out of the low price arena once they have entered it.

(4) Marginal cost-plus pricing is easier where there is a readily identifiable variable cost.

A Statements (1) and (2)
B Statements (3) and (4)
C Statements (1), (3) and (4)
D Statements (2), (3) and (4)

(2 Marks)

(5) Which of the following statements regarding the use of ABC in pricing decisions are correct?

(1) The management of Greenfields can use the information provided by the activity-based costing approach to identify Potential cost savings by changing the method of operation within the company.

(2) It may be appropriate to consider investing in new machines to automate production processes and increase the number of labour hours.

(3) The effect of activity-based costing is often to identify costs as being more controllable because their cause has now been identified.

(4) While some facility costs will remain and are truly fixed as they are not driven by any particular future activity, many of the other costs will now become variable depending on the number of times an activity is performed.

A Statements (1) and (2)

B Statements (2), (3) and (4)

C Statements (1), (3) and (4)

D Statements (1), (2), (3) and (4)

(2 Marks)

Q.6 (a) Mr. Smith has been asked to quote a price for a special contract. He has already prepared his tender but has asked you to review it for him.

He has pointed out to you that he wants to quite the minimum price as he believes this will lead to more lucrative work in the future.

Mr Smith's tender

		₹
Material:	A 2,000 kgs@ ₹ 10 per kg	20,000
	B 1,000 kgs @ ₹15 per kg	15,000
	C 500 kgs @ ₹ 40 per kg	20,000
Labour:	D 50 litres @ ₹ 12 per litre	600
	Skilled 1,000 hrs @ ₹25 per hr	25,000
	Semi-skilled 2,000 hrs @ ₹ 15 per hr	30,000
	Unskilled, 500 hrs @ 10 per hr	5,000
Fixed overheads 3,500 hrs @ ₹ 12 per hr		42,000
Cost of preparing the tender:		
Mr. smith's time		1,000
Other expenses		500
Minimum profit (5% of total costs)		7,955
Minimum tender price		**1,67,055**

Other Information:

Material A

- 1,000 kgs of this material is in stock at a cost of ₹5 per kg.
- Mr. Smith has no alternative use for his material and intends selling it for ₹2 per kg.
- However, if he sold any he would have to pay a fixed sum of ₹300 to cover delivery costs.
- The current purchase price is ₹10 per kg.

Material B

- There is plenty of Material B in stock and it cost ₹18 per kg.
- The current purchase price is ₹15 per kg.
- The material is constantly used by Mr. Smith in his business.

Material C

- The total amount in stock of 500 kgs was bought for ₹ 10,000 some time ago for another one-off contract that never happened.
- Mr. Smith is considering selling it for ₹ 6,000 in total or using it as a substitute for another material, constantly used in normal production.
- If used in this latter manner it would save ₹ 8,000 of the other material.
- Current purchase price is ₹ 40 per kg.

Material D

- There are 100 litres of this material in stock.
- It is dangerous and if not used in this contract will have to be disposed of at a cost to Mr. Smith of ₹50 per litre.
- The current purchase price is ₹12 per litre.

Skilled labour

- Mr. Smith Only hires skilled labour when he needs it.
- ₹25 per hour is the current hourly rate.

Semi-skilled labour

- Mr. Smith has a workforce of 50 semi-skilled labourers who are currently not fully utilised.
- They are on annual contract and the number of spare hours currently available for this project are 1,500. Any hours in excess of this will have to be paid for at time-and-a-half.
- The normal hourly rate is ₹15 per hour.

Unskilled labour

- These are currently fully employed by Mr. Smith on jobs where they produce a contribution of ₹20 per unskilled labour hour.
- Their current rate is ₹10 per hour, although extra could be hired at ₹20 an hour if necessary.

Fixed overheads

- This is considered by Mr. Smith to be an accurate estimate of the hourly rate based on his existing production.

Costs of preparing the tender

- Mr. Smith has spent 10 hours working on this project at ₹100 per hour, which he believes is his charge-out rate.
- Other expenses include the cost of travel and research spent by Mr. Smith on the project.

Profit

- This is Mr. Smith's minimum profit margin which he believes is necessary to cover 'general day-to-day expenses of running a business':

Required:

Calculate and explain for Mr. Smith what you believe the minimum tender price should be. **(12 Marks)**

(b) A company produces and sells one product and its forecast for the next financial year is as follows:

	₹'000	**₹'000**
Sales 100,000 units @ ₹8		800
Variable costs:		
Material	300	
Labour	200	500
Contribution (₹3 per unit)		300
Fixed Costs		150
Net Profit		150

In an attempt to increase net profit, two proposals have been put forward:

(a) To launch an advertising campaign costing ₹14,000. This will increase the sales to 1,50,000 units, although the price will have to be recorded to ₹7.

(b) To produce some components at present purchased from suppliers. This will reduce material costs by 20% but will increase fixed costs by ₹72,000.

Required:

Decide whether these proposals should be pursued. **(4 Marks)**

(c) **(1)** Which pricing strategies are aimed at the start of the product life cycle?

(2) Which pricing strategies seek to attract sales by offering a product at a relatively low price?

(3) Which pricing strategies lure the customer in with a relatively low-priced product in order to lock the customer in to subsequent additional purchases of similar items that are relatively highly priced?

(4) Which pricing strategy is appropriate to items that are bought primarily on price?

(4 Marks)