VPM's
DR VN BRIMS, Thane
Programme: MMS (2016-18)
First Semester Examination December 2016

Subject	Operations Management		
Roll No.		Marks	60 Marks
Total No. of Questions	7	Duration	3 Hours
Total No. of printed pages	2	Date	17.12.2016

Note: Q1 is compulsory and solve any FOUR from the remaining SIX questions.

Q1) 20 Marks (Compulsory)

In 1990-91, capacity utilization of the first plant at Ambuja Nagar was 140%. However, GACL's (Gujarat Ambuja Cements Ltd) engineers continued their drive to improve capacity utilization further and installed a 24-hour monitoring system and introduced weekly checks to check faults before a breakdown occurred for certain key components. As a result of these measures, capacity utilization went up to 143% that year. GACL decided to run its plants non-stop for 40 days against the industry average of five. This was again inspired by the visit to the Japanese cement plant, which ran for 100 days continuously. As a result of all these initiatives, GACL achieved more than 100% capacity utilization during 1999.

GACL's focus on quality control practices was manifested in its decision to introduce the practice of reporting quality related data 48 times a day instead of just once. And to ensure that bags contained the right quantity of cement, GACL used Zero Error Electronic Rotary machines which checked the quantity of cement in randomly picked bags. In the case of 50 kg bags, GACL permitted a maximum variation of 200 gm. The company also invested around Rs 60 million in pollution control equipment to limit dust and debris in emissions and dust suppression and extraction systems at brushing and grinding units.

Coal is an important source of energy for the cement industry. However, while most of the coal production in India is located in the central and eastern parts, the cement industry is concentrated in western and southern parts. Thus, the cost of transporting coal to the cement plants was very high. Moreover, the quality of coal was also very poor. Cement companies had to decide whether to use imported coal or substitutes like lignite, natural gas and oil.

GACL decided to import cheaper, higher quality coal from South Africa. The company also began importing better quality furnace oil for its diesel generator (DG) sets for its power requirements. This led to a considerable reduction in the operating costs of their power plants. GACL consumed only 96 kwh of power per tonne of cement against the industry average of 110-115 kwh per tonne. The company's coal consumption was also the lowest in the industry. GACL consumed 170 kg per tonne of cement while the industry average was 250 kg per tonne.

   a) Explain the concept of efficiency and capacity. Explain different types of capacity? (10 M)
   b) Justify the decision of GACL decided to import cheaper, higher quality coal from South Africa (5 M)
   c) Discuss the quality control practices adopted by GACL (5 M)

Attempt Any FOUR from the Remaining SIX Questions

Q2) *Any two from (a) or (b) or (c) ——————— (5x2) = 10 Marks*

a) Explain the importance of Operations Management.
b) What is inventory? Explain the cyclic and seasonal inventories.
c) Explain value adding activities (VA) and Non Value added activities.

Q3) *Any two from (a) or (b) or (c)* ——————— (5x2) = 10 Marks

a) Write a note on "Kaizen"
b) What is quality? Explain dimensions of quality.
c) Write a note on competitive advantage.

Q4) *Any two from (a) or (b) or (c)* ——————— (5x2) = 10 Marks

a) Potential locations A,B & C have the cost structures shown below for producing a product expected to sell at Rs.100/- per unit. Find the most economical location for an expected volume of 2000 units per year.

Location	Fixed cost/year Rs/year	
A	25000	50
B	50000	25
C	80000	15

b) Write a note on work study.
c) Write a note on Product layout and process layout

Q5) *Any two from (a) or (b) or (c)* ——————— (5x2) = 10 Marks

a) Explain the characteristics of process.
b) Explain Mass, Batch, Job types of production systems.
c) Explain the tools for SQC. (Statistical Quality Control)

Q6) *Any two from (a) or (b) or (c)* ——————— (5x2) = 10 Marks

a) Explain FSN, XYZ, VED analysis.
b) Explain the concepts of Pokayoke and Cost of confirmation
c) A distributor maintains certain stock of finished goods in store. The details for which are given below:
Weekly demand for the product : 200
Unit cost of Raw Material: INR 300
Ordering cost INR 460
Carrying cost percentage: 20% per annum. Calculate EOQ.

Q7) *Any two from (a) or (b) or (c)* ——————— (5x2) = 10 Marks

a) What is ERP? Explain the importance of ERP in today's business world
b) Explain FAST analysis.
c) Define Value? Explain Value engineering vs value analysis.