S. S. Jain
Subodh Management Institute
MBA II Semester
M-207
Operation Management II
Sample Questions

Part A: Short answer question (up to 25 words)

Part B: Analytical/ problem Solving questions

Part C: Descriptive/ Analytical/ Problem Solving/ Case questions.

PART A
Very Short – Answer Questions

Unit I: Work Study

1. What do you understand by 'Work Study'?
2. Define method study.
3. What is Time Study?
4. Give details about the concept of Work Sampling.
5. Write any four reasons for need for Work Study.
6. Explain the scope of Time Study.
7. What is 'standard time'?
8. Why time study is important for any organization?
9. What role does work measurement play for any business?
10. What is Predetermined Motion Time system?
11. What is motion study?
12. Distinguish between method study and time study.
13. Enumerate the basic elemental motions.
14. What is meant by Therblings?
15. What are allowances?

Unit II: Quality Management

16. What do you understand by cost of quality?
17. List a few characteristics of quality.
18. Differentiate between service quality and product quality dimensions.
19. What is meant by customer perception of quality?
20. Explain the contribution of Kaoru Ishikawa in Quality Management.
21. What do you understand by 'Six Sigma'?
22. List some important Quality awards.
23. What is 'inspection'?
24. What is meant by quality assurance?
25. Why there is need for Quality Management?
26. Name the important factors of Quality Control?
27. What aspects does a Quality management system deal with?

Unit III: Process Quality Improvement

28. What is the rationale behind Statistical Quality Control?
29. What is process capability?
30. What is meant by statistical process control?

31. Write a brief note on benefits of Quality Function Deployment.
32. What is meant by Robust Design?
33. What is Taguchi Method?
34. What is meant by Acceptance Sampling?
35. What is the purpose of control chart?
36. If all observations are within control limits, does that guarantee that the process is random? Explain.

Unit IV: Production Control

37. What is meant by 'Production Control'?
38. Why Production Control is important?
39. What are functions of Production Control?
40. What are levels of Production Control?
41. What is Shop Floor Control?
42. What is meant by Routing?
43. What is meant by Scheduling?
44. What is Dispatching?
45. What is meant by 'Order release'?
46. What is theory of constraints?
47. Explain the term makespan.

Unit V: JIT and Lean Operations

48. What is a Lean system?
49. List out the characteristics of lean systems.
50. Explain the significance of strategy formulation.
51. What is meant by 'Just in Time' approach?
52. Under what conditions lean systems are used?
53. What is the Kanban aspect of JIT?
54. What are benefits of a lean system?
55. What is Value stream mapping?

Unit VI: Introduction to Maintenance Management

56. Explain the importance of maintenance in production systems.
57. What are barriers to maintenance management?
58. What is meant by breakdown maintenance?
59. Why preventive maintenance is useful?
60. What is predictive maintenance?
61. What is the difference between preventive maintenance and corrective maintenance?
62. Write a note on tasks of maintenance manager.
63. State the limitation of breakdown maintenance.

Unit VII: Supply Chain Management

64. What is supply chain management?
65. What is logistics?
66. List out some of the trends in supply chain management.
67. What is meant by ERP?
68. What is bull whip effect?
69. What is meant by inventory management?
70. What do you understand by 3-PL?
71. Describe some of the complexities related to global supply chain.
72. Outline the benefits and risks related to outsourcing.
73. Name the key aspects of supply chain management.
74. What is supply chain visibility?
75. Differentiate between centralized and decentralized purchasing.
76. What is meant by vendor-managed inventory and inventory velocity?
77. Name three different ways that technology has improved the ability to manage supply chains.

Unit VIII: Project Management

78. Name the six key decisions in project management.
79. What are the advantages of using PERT?
80. What are key advantages of using project management software?
81. List the main limitations of PERT.
82. What is meant by resource smoothing and leveling?
83. How Gantt charts are used in scheduling?
84. The optimistic time, most likely time and pessimistic time estimate for an activity are 6, 7 and 8 days respectively. What will be expected completion time of the activity?

PART B
Short – Answer Questions

Unit I: Work Study

1. Differentiate between method study and time study.
2. Discuss the concept and techniques of work measurement. What are main limitations of time study?
3. What is work sampling? How does it differ from time study?
4. A worker-machine operation was found to involve 3.3 minutes of machine time per cycle in the course of 40 cycles of stopwatch study. The worker's time averaged 1.9 minutes per cycle and the worker was given a rating of 120% (machine rating is 100%). Midway through the study, the worker took a 10 minute rest break. Assuming an allowance factor of 12% of work time, determine the standard time for job.
5. How many observations should a time study analyst plan for in an operation that has a standard deviation of 1.5 minutes per piece if the goal is to estimate the mean time per piece to within 0.4 minute with a confidence of 95.5 percent?
6. Describe the types of macro-motion charts used for recording information in Method Study briefly.
7. What is motion study? Describe the various techniques of motion study.
8. Explain the concept and procedure for work sampling. How work sampling is different from time study?

Unit II: Quality Management

9. Explain the role of quality management in changing business conditions.
10. Elaborate on the contributions of Deming to quality management.
11. What is Quality Certification? Explain the concept of ISO 9000, 14000 and 27000.
12. 'Quality Control is a system that is used to maintain a desired level of quality in a product or service.' Discuss any five tools helpful in Quality control.
13. Discuss the concept and principles of Total Quality Management.
14. Give a detailed account of quality management in manufacturing.
15. Discuss the tools of quality management and control.
16. Explain the contribution of any three quality gurus.

Unit III: Process Quality Improvement

17. What is Statistical Process Control? Discuss the significance of statistical process control?
18. What are control chart for attributes? Elucidate
19. What is the concept of 'Quality of Design' and 'Quality of Conformance'? Discuss the characteristics of quality.

20. Explain the control process under statistical quality control.
21. Discuss the concept of Operating characteristics curve with diagram.
22. What is Quality Function Deployment? Explain various phases of QFD.
23. The postmaster of a small western town receives a certain number of complaints each day about mail delivery. Determine three-sigma control limits using the following data. Is the process in control?

	Day													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Number of Complaints	4	10	14	8	9	6	5	12	13	7	6	4	2	10

Unit IV: Production Control

24. Discuss the concept and techniques of Shop Floor Control.
25. What is Scheduling? Explain the scheduling in High volume system.
26. Differentiate between finite and infinite loading. Also discuss the application of Gantt charts in loading.
27. Discuss important priority rules for sequencing.
28. Briefly describe each of these priority rules: (a) FCFS (b) SPT (c) EDD (d) S/O
29. What are Gantt charts? How are they used in scheduling? What are the advantages of using Gantt charts?
30. How has technology affected scheduling? Comment.
31. A group of six jobs is to be processed through a two-machine flow shop. The first operation involves cleaning and the second involves painting. Determine the sequence that will minimize the total completion time for this group of jobs. Processing times are as follows:

	Processing Time (Hours)	
Job	**Work Center 1**	**Work Center 2**
A	5	5
B	4	3
C	8	9
D	2	7
E	6	8
F	12	15

Unit V: JIT and Lean Operations

32. Bring out the differences between traditional production system and lean system. What are some of the main obstacles that must be overcome in converting from a traditional system to lean?
33. What are building blocks of lean system? Explain.
34. Discuss the eight types of waste in lean philosophy.

35. Write a descriptive note on Lean systems in the Indian context.
36. Describe the application of Toyota approach.
37. Discuss the ways through which lean benefits can be achieved in services.

Unit VI: Introduction to Maintenance Management

38. Assume you are the head of the maintenance department in a manufacturing organization. You are assigned a responsibility of implementing a maintenance improvement program. What components would you include in the maintenance improvement program?
39. Explain the various types of maintenance management.
40. Discuss the important aspects of total productive maintenance.
41. "A maintenance system can be viewed as a simple input–output model". Explain the systematic approach to maintenance management in the view of this statement.
42. "Reliability Centered Maintenance (RCM) is a methodology as well as a philosophy". Explain the concept of RCM along with its benefits and misconceptions.
43. Discuss the objectives and benefits of maintenance management.

Unit VII: Supply Chain Management

44. What is bullwhip effect and why does it occur? How can it be overcome?
45. What are the strategic, tactical and operations responsibilities in supply chain management? Discuss some recent trends in supply chain management?
46. What impact e-business has on supply chain management?
47. Describe ethical issues in supply chains and the key steps companies can take to avoid ethical problems.
48. Discuss procurement in terms of purchasing interfaces and the purchasing cycle.
49. Explain the logistics aspects of supply chain management including RFID.
50. Discuss centralization and decentralization in purchasing. What are the advantages and disadvantages of each?

Unit VIII: Project Management

51. Describe the project life cycle.
52. Discuss the behavioral aspects of projects in terms of project personnel and the project manager.
53. Explain the nature and importance of a work breakdown structure in project management.
54. Give a general description of PERT/CPM techniques.
55. Give some examples of ethical issues that may arise on projects. What can a project manager do to minimize such issues?
56. The normal duration and normal cost of activity are 24 days and ₹ 50,000 respectively. The activity crash duration is 22 days and the indirect cost is 1000 per day. If the cost slope is ₹1500 per day, then what will be the total cost of activity after crashing?

PART C

Long Answer Questions

Unit I: Work Study

1. What do you understand by 'Work Study'? Discuss the systematic procedure for work study and its components in brief.
2. Describe the steps involved in developing a time study. Why time study is relevant in present scenario?
3. The data in the table below represent time study observations for a woodworking operation.
    a. Based on the observations, determine the standard time for the operation, assuming an allowance of 15% of job time.
    b. How many observations would be needed to estimate the mean time for element 2 within 1% of its true value with a 95.5% confidence?
    c. How many observations would be needed to estimate the mean time for element 2 within 0.01 minute of its true value with a 95.5 % confidence?

		Observations (minutes per cycle)					
Element	Performance rating	1	2	3	4	5	6
1	110%	1.20	1.17	1.16	1.22	1.24	1.15
2	115%	0.83	0.87	0.78	0.82	0.85	1.32*
3	105%	0.58	0.53	0.52	0.59	0.60	0.54
*unusual delay, disregarded time							

Unit II: Quality Management

4. Discuss the concept of Total Quality Management. What are the techniques and principles of TQM?
5. Does the concept of quality management and quality control are similar? Discuss the concept and significance of both.
6. Discuss the various dimensions of quality. How dimensions of quality are different for product and service? Explain the important quality control tools.

Unit III: Process Quality Improvement

7. What do you mean by Statistical Process Control? Describe the various tools available for process control.
8. Discuss the types of control charts in detail.

9. The time to replace vehicle wiper blades at a service center was monitored using a mean and a range chart. Six samples of n=20 observations were obtained and the sample means and ranges computed:

Sample	Mean	Range
1	3.06	0.42
2	3.15	0.50
3	3.11	0.41
4	3.13	0.46
5	3.06	0.46
6	3.09	0.45

   a. Determine the upper and lower limits for mean and range charts.
   b. Prepare mean and range chart.
   c. Is the process in control?
10. Explain the role of acceptance sampling in quality control in detail.

Unit IV: Production Control

11. Describe the different ways in which Shop Floor Control is practiced. Also explain the objective, importance and components of Shop Floor Control.
12. Discuss the concept of scheduling operations in high volume systems, intermediate volume systems and low volume systems.

Unit V: JIT and Lean Operations

13. What is the ultimate goal of a lean system? What are the supporting goals? Explain the different types of lean tools.

Unit VI: Introduction to Maintenance Management

14. 'Maintenance Management is the process of maintaining a company's assets and resources while controlling time and costs, ensuring maximum efficiency of the manufacturing process.' Comment.
15. Describe the objectives and benefits of maintenance management. Also explain the types of maintenance in detail.

Unit VII: Supply Chain Management

16. Describe the concept, challenges and trends of supply chain management. In what ways an effective supply chain can be created?
17. Discuss the role of ERP and supplier management in supply chain management.

Unit VIII: Project Management

18. 'Projects are a unique aspect of business operations that require a special management approach.' Elucidate.
19. The following table contains information related to the major activities of a research project. Use the information to do the following:
    a. Draw a precedence diagram.
    b. Find the critical path.
    c. Determine the expected length of the project.

Activity	Immediate Predecessor	Expected Time (Days)
a	-	5
c	a	8
d	c	2
b	a	7
e	-	3
f	e	6
i	b,d	10
m	f,i	8
g	-	1
h	g	2
k	h	17
end	k,m	

20. Using the following information, develop the optimal time-cost solution. Project costs are ₹ 1,000 per day.

Activity	Normal Time (days)	Crash Time (days)	Cost per day to crash (in ₹)
a	6	6	-
B	10	8	500
C	5	4	300
D	4	1	700
E	9	7	600
F	2	1	800