

INTERMEDIATE EXAMINATION

June 2017

P-9(OMS)
Syllabus 2012

Operation Management and Information Systems

Time Allowed: 3 Hours

Full Marks: 100

The figures in the margin on the right side indicate full marks.

This paper contains 3 Sections.

All Sections are compulsory, subject to instructions provided in each Section.

All workings must form part of your answer.

Assumptions, if any, must be clearly indicated.

Section A

There are *four* questions in this Section, which are compulsory.

1. Answer *any five* of the following questions:

2×5=10

- Define the 'Run Time' in batch production.
- What is Route Sheet in Production Planning Function?
- Write down the formula for Planned Capacity.
- Mention the different phases in Project Life Cycle.
- What do you mean by the term "Total" in "Total Production Maintenance"?
- Provide the definition of Domain in Relational Database Management System.
- How can you identify a 'bottleneck' in a process?
- Mention some of the modules of master data in an ERP system.

2. Match List A with List B:

1×5=5

List A	List B
(a) Operating System in an organisation	(i) to deliver a product or service that satisfies a customer
(b) Resistance to Change	(ii) Not limited to Internal data only, access to external sources of data is also provided
(c) Digital Signature	(iii) Some of the employees may be unwilling to adopt a new way of working
(d) Quality	(iv) Configuration of resources combined for the provision of goods or services
(e) EIS	(v) Authentication of electronic record

Please Turn Over

3. State whether following statements are 'True' or 'False': 1×5=5
- (a) Industrial engineering is not concerned with scheduling, performance standards, work methods, quality control and material handling.
 - (b) Database manipulation, involves querying and updating.
 - (c) Greater safety for workers, reduced production downtime and fewer repetitive repairs are some of the benefits of preventive maintenance.
 - (d) ERP confines to manufacturing only and does not cover any other aspect of organization.
 - (e) With the help of flowchart, problem cannot be analysed in an effective way.

4. Fill in the blanks: 1×5=5
- (a) _____ consists of the buying and selling of products or services over electronic systems such as the internet and other computer networks.
 - (b) The effectiveness of maintenance can be evaluated in terms of maintenance costs incurred, equipment _____ etc.
 - (c) The _____ is the use of the English language with the syntax of structured programming.
 - (d) The characteristic that allows program-data independence and program-operation independence is called _____.
 - (e) The _____ control system assigns materials, labour and overhead costs to production jobs or products.

Section B

There are *four* questions in this Section. Answer *any three* questions. 15×3=45

5. (a) A department of a company has to process a large number of components/month. The process equipment time required is 42 minutes/component, whereas the requirement of an important process chemical is 1.8 litres/component. The manual skilled manpower required is 18 minutes/component for polishing and cleaning. The following additional data are available:

	Availability/month	Efficiency of utilization
Equipment hour	600	90%
Imported Chemicals - Litres	1200	98%
Skilled manpower - Hours	300	70%

- (i) What is the maximum possible production under the current conditions?
- (ii) If skilled manpower availability is increased by overtime by 25%, what will be the impact on production increase? 6+2=8

- (b) A firm is using a machine whose purchase price is ₹ 12,000. The installation charges amount to ₹ 3,500, and the machine has a scrap value of only ₹ 1,500 because the firm has a monopoly of this type of work. The maintenance cost in various years is given in the following table.

Year	1	2	3	4	5	6	7	8	9
Cost (₹)	260	760	1200	1800	2500	3200	4100	5000	6500

The firm wants to determine after how many years should the machine be replaced on economic considerations, assuming that the machine replacement can be done only at the year ends. 7

6. (a) A company intends to buy a machine having a capacity to produce 1,50,000 good parts per annum. The machine constitutes a part of the total product line. The system efficiency of the product line is 75%.

(i) Find the system capacity.

(ii) If the time required to produce each part is 120 seconds, and the machine works for 2200 hours per year, and if the utilization of the machine is 65% and the efficiency of the machine is 95%, compute the output of the machine.

(iii) Calculate the no. of machines required. 3×3=9

- (b) A project consists of seven activities. Draw the network diagram of this project with the following situations: 6

- Q is the Pre-requisites for T
- R is the Pre-requisites for T & U
- S is the Pre-requisites for U
- T and U are the Pre-requisites for V
- Activity W is the last activity and is the immediate successor to activity V.

7. (a) The time study of a machinery operation recorded cycle times of 7.5, 8.5, 7.0 and 8.0 minutes. The analyst rated the observed worker as 80%. The firm uses a 0.25 allowance fraction. Compute the Average Cycle time, Normal time and Standard time. 3×3=9

(b) Discuss the main areas requiring maintenance. 6

8. (a) Identify the objectives of Quality Control and also Quality requirements from customer point of view. 2+5=7

(b) Identify the requirement of a good maintenance program. 8

Section C

There are *three* questions in this Section. Answer *any two* questions.

15×2=30

9. (a) Mention the activities and responsibilities of the following personnel engaged in the Information System Department: 2×4=8
- (i) Business Analyst
 - (ii) Database Administrator
 - (iii) Information System Manager
 - (iv) Programmer
- (b) Discuss about the role of various categories of End Users of the database. 7
10. (a) What are the prerequisites of an MIS? 8
- (b) What are the various objectives of the Information Technology Act, 2000? 7
11. (a) Explain the various critical failure factors in ERP implementation. 8
- (b) In the context of MIS, discuss about the points to be considered before determining information requirements of Management. 7
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