

# INTERMEDIATE EXAMINATION

JUNE 2014

Subject: Operation Management and Information Systems

Time Allowed: 3 Hours

I-P9(OMS)

Syllabus 2008

Full Marks : 100

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

*All workings should form part of your answer.*

## Operation Management

*Answer Question No. 1 which is compulsory and any two questions from the rest.*

1. (a) Match the terms in Column I with the relevant terms in Column II:

0.5×8

Column I	Column II
(i) air blasting small shots to increase surface hardness	A. Lapping
(ii) the process of polishing a work by-means of abrasive materials, to give fine finish	B. Tapping
(iii) machining a large flat surface on metal	C. Belt Conveyor
(iv) to make threads on the inside surface of a hole	D. Planing Machine
(v) machining cylindrical and tapered surfaces	E. Shot penning
(vi) move heavy loads within a circular area	F. Grinding Machine
(vii) place where materials tend to pile up or produced at speed less rapid than the previous or subsequent operations	G. Product Layout
(viii) material is fed into the first machine and finished products come out of the last machine	H. Bottlenecks

- (b) Examine each statement and indicate whether it is 'True' or 'False':

1×5

- (i) There is a limit beyond which labour productivity cannot be improved.
- (ii) When demand does not exist in the market, we should start Production Incentives.
- (iii) Breakdown maintenance doesn't require use of standby machines.
- (iv) Work study aims at finding the best and most efficient way of using the available resources.
- (v) Mechanisation and Automation lower employee morale.

- (c) Put an appropriate word in blank position:

1×5

- (i) Machines are purchased or replaced to \_\_\_\_\_ the productive capacity.
- (ii) \_\_\_\_\_ are machines or equipments that combine video camera and computing technology and have been integrated into the inspection of products for controlling quality.
- (iii) \_\_\_\_\_ can be determined using the Northwest Corner Rule.
- (iv) A \_\_\_\_\_ is an appliance which holds the work when it is machined.
- (v) Taylor originated the idea of \_\_\_\_\_ relationships in an organisation.

**Please Turn Over**

2. (a) The annual sales of truck tyres manufactured by a company are as follows:

Year	(X)	2008	2009	2010	2011	2012
Sales ('000 units)	(Y)	25	34	45	38	53

Fit a linear trend equation to the sales figures and estimate the sales for 2013.

4

- (b) Write short notes on:

2×2

- (i) Routine Maintenance  
(ii) Maintenance Request

- (c) Expand and briefly explain

2×2

- (i) CT  
(ii) NC

- (d) (i) Find the machining cost of a M.S. bar on a lathe from the following data: R.P.M. of the Job = 300. Feed of tool per revolution of job = 0.5 mm. Depth of cut = 2 mm. Diameter of raw material = 50 mm. Diameter of finished job = 30 mm. Length of Job = 1000 mm. Machining cost = ₹ 3 per hour.

3

- (ii) Mention the major objectives of Waste Management.

3

3. (a) Dev Company has two factories A and B located at some distance and three regional warehouse R. S. T. The transport manager must schedule shipments for the coming week according to the following:

Warehouse R requires	70 tonnes
Warehouse S requires	60 tonnes
Warehouse T requires	50 tonnes
Capacity of factory A	100 tonnes
Capacity of factory B	200 tonnes

Transportation costs are as follows:

From factory A to warehouse R	₹ 30 per tonne
From factory A to warehouse S	₹ 10 per tonne
From factory A to warehouse T	₹ 50 per tonne
From factory B to warehouse R	₹ 20 per tonne
From factory B to warehouse S	₹ 40 per tonne
From factory B to warehouse T	₹ 60 per tonne

Find the least cost shipping schedule.

6

- (b) The company is engaged in the assembly of a wagon on a conveyor. 500 wagons are required per day. Production time available per day is 420 minutes. The other information is given below regarding assembly steps and precedence relationships. Find the minimum number of work stations required. 6

The element times and precedence relationships.

Task	Time (sec)	Task that must precede
A	15	—
B	20	A
C	12	B
D	12	—
E	10	D
F	8	C
G	8	C
H	10	E
I	15	E
J	20	F, G, H, I
K	5	—
Total	135	—

- (c) State the principles to be borne in mind while selecting and applying various material handling equipment. 6
4. (a) Aztec Power Company has noticed that the system has been experiencing the following number of failures for months over the past 1 year.

Number of failures	0	1	2	3
Number of months this occurred	4	2	3	3

Each breakdown costs an average of ₹ 25,000/-. Preventive maintenance can be carried out for a cost of ₹ 8,000/- to limit the failures to an average of one per month. The company seeks your advice on which policy is most suitable for adoption. 4

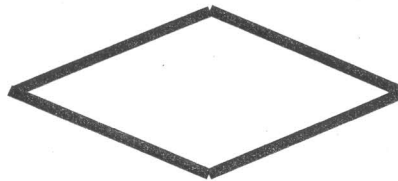
- (b) An item is produced in a plant having a fixed cost of ₹ 6,000 per month, variable cost of ₹ 3 per unit and a selling price of ₹ 5 per unit. Determine:
- The break-even volume.
  - If 4,000 units are produced and sold in a month, what would be the profit?
  - How many units should be produced to earn a profit of ₹ 4,000 per month? 6
- (c) Explain the different Point Rating methods of Job Evaluation. 4
- (d) (i) What are the technical factors on which equipment is replaced? 2
- (ii) List the various forms of capacity planning. 2

Please Turn Over

**Information Systems**

*Answer Question No. 5 which is compulsory and any two questions from the rest.*

5. (a) Put an appropriate word in blank position: 1×5=5
- (i) Software which is directed to destroying information in a computer is known as \_\_\_\_\_.
  - (ii) \_\_\_\_\_ in Information System mean the policy, procedure and system followed to ensure the desired objectives.
  - (iii) The software which provides integration of information related to all functional areas, with the help of DBMS is referred to as \_\_\_\_\_.
  - (iv) Traditional EDI communication route is through \_\_\_\_\_, a third party service provider that receives, stores and transmits data.
  - (v) In \_\_\_\_\_, one CPU processes a number of programs by time-sharing technique.
- (b) Each statement below in either **TRUE** or **FALSE**. Indicate the same in your answers: 1×5=5
- (i) In an organisation having a computer based Information System, the security of data is the responsibility of the Database Administrator.
  - (ii) In Binary Numbering System 'bits' and 'bytes' convey different meaning.
  - (iii) Operational management staff are mainly involved in strategic decision making.
  - (iv) An on-line system is necessarily a real-time system but the reverse is not true.
  - (v) To separate one record from another record, inter record gap (IRG) is maintained in a magnetic tape.
- (c) Expand the following abbreviations: 1×4=4
- (i) CBIS
  - (ii) EIS
  - (iii) CASE
  - (iv) TACACS
6. (a) State the objectives of Information Systems Audit. 4
- (b) Explain the sub-systems of EDI and list down its advantages. 5
- (c) In a flow chart what are the following symbols used to indicate? 2



(d) Mention the exercises undertaken in the System Evaluation and review phase. 4

(e) Briefly describe the three categories of Information System Control. 3

7. (a) Match the following: 0.5×8=4

Column I	Column II
1. Key field	(a) Defining user profile based on physical parameters and behaviour
2. Open system	(b) Written in High-Level Language.
3. Firmware	(c) A process to improve operational efficiency of the organization.
4. Source Program	(d) Used for searching a particular record for processing, display, editing, etc.
5. Knowledge	(e) Deal with low-level machine instructions to be carried out by different circuits.
6. Decision Making	(f) Physical replica of the system based on different scale from original.
7. Iconic Scale Model	(g) Mix of information, experience and evaluation.
8. Biometric Security	(h) Seamless connection of any computing devices, regardless of size and operating system.

(b) Kindly mention the steps involved in decision making process. 4

(c) Depending on the level of management, different functional areas will require various types of MIS reports. Keeping this in view, you are required to list out kind of reports required in Sales Management in Top Level. Middle Level and Operational Level Reports. 6

(d) Give the different classifications of an Operating System. 4

8. Write short notes on *any six* of the following: 3×6=18

- (i) Structured Programming
- (ii) Primary Memory
- (iii) Time-Sharing Companies
- (iv) Random (Direct) File Organisation
- (v) Three modes of data transmission over a channel
- (vi) Some common computer frauds
- (vii) Advantages of OLTP
- (viii) Stages of SLDC