INTERMEDIATE EXAMINATION

December, 2016

RE-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 instruction provided below each Section.
All workings must form part of your answer.
Assumptions, if any, must be clearly indicated.

Section A

There are *two* questions in this Section. Answer *both* the questions which are compulsory.

1. Answer *all* the questions: 2×10=20

   (a) 'Computers have entered the maintenance function in a big way.'

   List two important areas in maintenance where computer assistance is taken.

   (b) Define 'critical path'.

   (c) After forecasting human resource needs, it is logical to _____ how these needs can be _____.

   (d) List categories of processes in a production system.

   (e) List causes of low productivity in the Indian context.

   (f) State whether 'True' or 'False':

   (i) An individual having lower capabilities than his / her job requirements should be transferred to a less demanding job.

   (ii) The change in technology has no impact on the established methods, procedures and processes in an industry.

   (g) 'Information can broadly be divided into two different types.' List such types.

   (h) With reference to DBMS, illustrate 'privileged software' in one or two sentences.

   (i) List the three levels of management in the order of hierarchy.

   (j) List basic characteristics of Business Process Re-engineering.

2. Match List A with List B: 1×5=5

List A	List B
(a) Work Study	(i) To make the hardware work
(b) Product Life Cycle	(ii) Improved work flow
(c) Software	(iii) Correcting programming language errors
(d) Economies of Scale	(iv) Introduction, growth, maturity and decline
(e) Debugging	(v) Reduces overall costs of operation

Please Turn Over

Section B

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

1. (a) Calculate the break-even point for the following: 7

   Production Manager of a unit wants to know, from what quantity he can use automatic machine against semi-automatic machine.

Data	Automatic	Semi-automatic
Time for the job	2 minutes	5 minutes
Set-up time	2 hours	1·5 hours
Cost per hour	₹20	₹12

   (b) Describe the areas of Production Planning and Control.   8

2. (a) The demand function of a firm is q = 200 – 10 p and the average cost function is AC = 10 + 25q.

   If the firm's objective is to maximise profit, what will be its profit maximising output?   6

   (b) Write down the formula for the following which are used for measuring maintenance effectiveness: 2×2=4

   (i) Down-time index (as a percentage); and

   (ii) Maintenance cost index as a percentage.

   (c) Expand the following: 1×5=5

   (i) DFM   (ii) TPM   (iii) RA   (iv) TQC   (v) VAM

3. (a) List the information to be collected before scheduling maintenance activities.   8

   (b) Compute the productivity per machine hour with the following data. Also draw your interpretation.   7

Month	No. of machines employed	Working hours	Production units
July	390	210	95,000
August	540	170	1,00,000
September	570	230	1,30,000

4. (a) List the objectives of scheduling in an organisation.   5

   (b) Reddy Transport Company (RTC) has a fleet of 50 trucks. The past data on the breakdown of the trucks show the following probability distribution (for a new truck as well as for one which has been repaired after a breakdown).   10

Months after Maintenance	Probability of Breakdown
1	0·10
2	0·20
3	0·30
4	0·40

   Each breakdown costs ₹3,000 on an average, which includes cost of time lost and cost of materials and manpower.

The manager of RTC knows the importance of preventive maintenance. He estimates the costs of the preventive maintenance to be ₹500 per such preventive action.

What should be the appropriate maintenance policy in terms of the mix of preventive and breakdown maintenance?

Section C

There are *three* questions in this Section. Answer *any two* questions.   15×2=30

1. (a) State the important characteristics of useful and effective information.   8

   (b) In the context of DBMS, define the following in one or two sentences:

       (i) Universe of Discourse; and (ii) Data Model.   2+2=4

   (c) From the following two relations of X and Y, find $X \cup Y$.   3

Relation X	
Batch No.	Course
1	BA
2	BSC
3	BCOM

Relation Y	
Batch No.	Course
1	BA
2	BSC
3	BCOM
4	MA
5	MSC
6	MCOM

2. (a) Explain the characteristics of Client Server platform in ERP architecture.   5

   (b) Draw important symbols used in flow chart and also state limitations of using Flow Chart.   3+3=6

   (c) Fill in the blanks in the context of MIS: 1×4=4

       (i) Customers' _____ level is one of the critical success factors.

       (ii) The use of computers increases the _____ of MIS.

       (iii) MIS is important to managers in the process of _____.

       (iv) Depending on the level of management, different _____ areas will require different types of reports.

3. (a) Explain the three-schema architecture in DBMS.   3

   (b) State the effects of using computers for MIS.   7

   (c) Expand the following: 1×5=5

       (i) EFT (ii) ISP (iii) AP (iv) TPS (v) LAN

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