

PTP_Intermediate_Syllabus2008_Dec2014_Set-3

Paper 9 - Operations Management & Information Systems

Time allowed-3hrs

Full Marks: 100

Section I (Operations Management)

Answer Question No. 1 which is compulsory and answer any two from the rest, under Section I.

Working Notes should form part of the answer.

1. (a) Fill in the blanks given below: [1 x 7 =7]

- (i) ----- is a technique by which a large number of instantaneous observations are made over a period of time of group of workmen, processes or machine.
- (ii) ----- Analysis is a rule that recommends focus on the most important aspect of decision making, in order to simplify the process of decision –making.
- (iii) The Spur Gears have their teeth ----- to the axis of rotation of the gear.
- (iv) ----- planning is an intermediate term planning decision.
- (v) Quality ----- deals with the present and focuses to create and operate appropriate systems to prevent defects from occurring.
- (vi) The ----- Technique is a way to obtain the opinion of experts without necessarily bringing them together face to face.
- (vii) Technology Life Cycle comprises of 4 stages, viz. , Innovation, ----- , Diffusion and Substitution.

(b) Expand the following abbreviations: [1 x 7 =7]

- (i) PERT
- (ii) MTM
- (iii) CRAFT
- (iv) AOQ
- (v) LRC
- (vi) FMEA
- (vii) CIM

2. (a) A city hospital has the following minimal daily requirement for nurses:

Period	Clock time (24 hours day)	Minimal number of nurses required
1	6 AM - 10 AM	2
2	10 AM - 2 PM	7
3	2 PM- 6 PM	15
4	6 PM- 10 PM	8
5	10 PM – 2 AM	20
6	2 AM - 6 AM	6

Nurses report to the hospital at the beginning of each period and work for consecutive 8 hours. The hospital wants to determine the minimal number of nurses to be employed so that there will be sufficient number of nurses available for each period. Formulate LPP. Do not solve. [6]

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(b) ABC airline operating 7 days a week has given the following time table. Crews must have a minimum layover of five hours between the flights. Obtain the pairing flights that minimize the layover time away from home. For any given pairing the crew will be based at the city that results in the smaller layover.

HYDERABAD - DELHI		
Flight No.	Departure	Arrival
A1	6 AM	8 AM
A2	8 AM	10 AM
A3	2 PM	4 PM
A4	8 PM	10 PM

HYDERABAD - DELHI		
Flight No.	Departure	Arrival
B1	8 AM	10 AM
B2	9 AM	11 AM
B3	2 PM	4 PM
B4	7 PM	9 PM

[12]

3.(a) The following activities must be accomplished in order to complete a construction project:

Activity	A	B	C	D	E	F	G	H	I	J
Time	3	8	4	2	1	7	5	6	8	9
Predecessors	—	—	AB	B	A	C	EF	DF	GH	I

- Construct a network diagram for this project. Find the CP and the duration of the project.
- Assume that you are project manager of the project mentioned above. The project has progressed for 10 weeks and the status is follows:

Activities completed: A, B, E. Other activities have not started as yet.

- ❖ If no managerial action is taken at all when will the project get completed?
- ❖ What action might you take to get the project back to a schedule that can be completed by the end of week 42? [5+5=10]

(b) An analyst has observed a job long enough to become familiar with it and has divided it into five elements. The element times for the first four cycles and a performance rating for each element are given in the following table:

Element	Cycle-1	Cycle-2	Cycle-3	Cycle-4	Performance Rating(%)
1	1.246	1.328	1.298	1.306	90
2	0.972	0.895	0.798	0.919	100
3	0.914	1.875	1.964	1.972	100
4	2.121	2.198	2.146	2.421	110
5	1.253	1.175	1.413	2.218	100

- Compute an estimated normal time for the job based on the data available at this stage of the study. [4]

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- (c) A department works on 8 hours shift, 250 days a year and has the usage data of a machine, as given below:

Product	Annual demand (units)	Processing time (Standard time in hours)
A	600	4.0
B	800	6.0
C	1000	3.0

Determine the number of machines required. [4]

4. (a) Describe the term Commercialisation in relation to planning of products. [5]
(b) Define Process Strategy and name its key aspects. [3]
(c) List the benefits of Production Control. [6]
(d) State the limitations of Production Planning and Control. [4]

Section II Information System

Answer Question No. 5 which is compulsory and answer any two from the rest, under Section II.

5. (a) Fill in the blanks given below : [1 x 10 =10]

- (i) Network Topology refers to the ----- arrangement of computer resources, remote devices and communication facilities.
- (ii) ----- publishing is the use of a computer to prepare printed output, using software with sophisticated publishing capabilities.
- (iii) Firewall is used to protect the firm's ----- resources from access by unauthorized user.
- (iv) During ----- operations, the mistakes detected are often not those of the new system, but of the old.
- (v) ----- control is used as detective control.
- (vi) A ----- is responsible for the performance, integrity and security of a database.
- (vii) -----disks are used by end user companies to store their own proprietary information.
- (viii) Magnetic tapes are ----- media and stores the records physically one after the other.
- (ix) After -----, Operating System from hard disk is loaded into Ram to put the computer in operation.
- (x) Digital signature is created by using a ----- result which is unique to both the signed message and a given private key.

- (b) Expand the following abbreviations: [1 x 4 =4]

- (i) SRAM
- (ii) CODASYL
- (iii) HTML
- (iv) OAS

6. (a) List Codd's Rules as designed for stable structure of Relational Database. [8]
(b) State the points required for developing scientific codification. [5]

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- (c) Discuss the major areas of internal control system. [5]
7. (a) State the main goals of E-commerce. [3]
(b) List the benefits of Electronic Data Interchange. [5]
(c) State the reasons for accepting ERP system replacing old business system. [5]
(d) Explain the checks that must be followed to ensure accuracy in input. [5]
8. (a) Describe Expert System. [5]
(b) List the salient features of WAN. [4]
(c) 'Creation for proper environment is essential for effective control system.' -Justify [4]
(d) Discuss the software tools available for data mining. [5]