OPERATION MANAGEMENT AND INFORMATION SYSTEM

OPERATION MANAGEMENT

OVERVIEW OF PRODUCTION PROCESS

Objective & Descriptive Type Questions :

Q1. One of the important charts used in programme control is :
(a) Material chart, (b) Gantt chart, (c) Route chart, (d) Inspection chart.
[*Ref* : Q1. (a)(iv), June '09 / Paper-9] 1

Q2. Mention the name of the metal working process involved in carrying out the following operations and also state the machine/ equipment of which this is carried out :
(i) Reducing the diameter of a cylindrical object.
(ii) Making a cylindrical hole on an object.
(iii) Very fine finishing of the inside diameter of a cylindrical linear.
(iv) Reducing the thickness of one side of a metal cube.
[*Ref* : Q1. (c), June '09 / Paper-9] 1×4

Q3. Expand the following systems of production technology. Narrate the main features related to enhancement of production and the advantages derived from the system.
(i) FMS, (ii) CIM [*Ref* : Q2. (a), June '09 / Paper-9] 4

Q4. Advantages of NC Machines. [*Ref* : Q3. (c)(ii), June '09 / Paper-9] 1

Q5. A shaft of 3000 mm in length requires machining on a lathe. If the spindle executes 1500 r.p.m. and the feed is 0·20 mm per revolution, how long does it take the cutter to pass down the entire length of the shaft? [*Ref* : Q4. (a), June '09 / Paper-9] 2

Q6. A shaft 1,200 mm in length is being machined on a lathe. If the spindle rotates 600 r.p.m. and the feed is 0.25 mm per revolution, how long will it take the cutter to pass down the entire length of the shaft? [*Ref* : Q4. (c), Dec '08 / Paper-9] 3

Q7. Mr. X is considering an interchange of departments B and C in the present layout. The present layout and the handling frequencies between the departments are given. What would be the effect of interchange asuming that the departments are of the same size? Also assume that the material handling cost per unit length travel between departments is same.

A	C	E
B	D	F

From / To	A	B	C	D	E	F
A	—	20	70	0	40	0
B	—	—	50	200	0	10
C	—	—	—	30	120	40
D	—	—	—	—	50	220
E	—	—	—	—	—	30
F	—	—	—	—	—	—

[*Ref* : Q2. (d), Dec '08 / Paper-9] 6

Q6. What are the principles for a plant layout? [*Ref* : Q3. (b), Dec. '09 / Paper-9] 4

Q7. What are the characteristics of a good plant layout? [*Ref* : Q3. (c), Dec. '09 / Paper-9] 4

Q7. Distinguish between Multipurpose and Single Purplse Machine tools.
[*Ref* : Q4. (b), June '10 / Paper-9] 4

Q8. A shaft 600 mm long is machined on a lathe at a speed of 200 r.p.m. Calculate the time taken for the cutter to pass through the length of the shaft if the feed is 0.30 mm per revolution.
[*Ref* : Q2. (c), Dec. '10 / Paper-9] 3

Q9. Given below is the existing process layout of a factory manufacturing toys :

C	B	D
E	A	F

The following table gives the trip matrix for the unit. Arrive at an improved layout using the Load Distance matrix assuming that E and F should remain at their current positions :

From/ To	A	B	C	D	E	F
A			2	2	1	
B			1		6	5
C				1	4	
D						5
E						1
F						

[*Ref* : Q3. (a), Dec. '10 / Paper-9] 6

Q10. Differentiate between Jigs and Fixtures. What are their uses in a production system?
[*Ref* : Q4. (b), Dec. '10 / Paper-9] 1+2

Q11. Explain grading method of job evaluation. [*Ref* : Q4. (c), Dec. '10 / Paper-9] 2

Q12. What are the four classes of Drilling machines? [*Ref* : Q3. (b), June '11 / Paper-9] 4

Q13. What is the utility of a Single Purpose Machine Tool? Describe a Single Purpose Machine Tool designed for cutting Gears. What are Spur and Helical Gear?
[*Ref* : Q4. (b), June '11 / Paper-9] 2+2+2

PRODUCTION PLANNING & PRODUCTIVITY MANAGEMENT

Objective & Descriptive Type Questions :

Q1. A and M are two fierce competitors. N, a leading manufacturer of mobile phones approaches them separately to share what they can offer for outsourcing the manufacture of mobile phone components on a standardised machine whose operating cost is Rs. 40/ - per hour. N requests you to evaluate and advice based on following offers made by A and M as to which of the two should be chosen?

	Company A	**CompanyM**
Production Rate / hour	20 pieces	30 pieces
Mobile components / set up	8000 pieces	6000 pieces
Set up Costs	Rs. 600	Rs. 3000

[*Ref* : Q2. (a), Dec '08 / Paper-9] 4

Q2. You as a work study engineer carry out the work sampling study. The following observations were made for a machine shop :

Total number of observations — 2000, No working activities — 500,

Ratio between manual to machine element — 3 : 1, Average rating factor — 110%,

Total number of jobs produced during study — 500 units,

Rest allowance — 10%.

Calculate the standard time for the job. [*Ref* : Q2. (c), Dec '08 / Paper-9] 4

Q3. Company A wants to make large giant trucks called LARJO. Company A now requests you to list out the plant layout principles it should consider before taking any decision?
[*Ref* : Q3. (c), Dec '08 / Paper-9] 4

Q4. The fixed cost for the production of particular item is Rs. 200 per month. Its variable cost being Rs. 3 per unit and its sale price being Rs. 7 per unit, determine its break-even volume. What would be the profit if 2,000 such units were wold in a month? How many such units should be sold to earn a profit of Rs. 3,000 per month? [*Ref* : Q4. (b), Dec '08 / Paper-9] 5

Q5. For each part below, choose the most appropriate answer out of the four options indicated below each part :

(i) The acitivity of specifying when to start the job and when to end the job is known as :
(a) Planning, (b) Scheduling, (c) Timing, (d) Follow-up.

(ii) Most suitable layout for job production is :
(a) Line layout, (b) Matrix layout, (c) Process layout, (d) Product layout.

(iii) The act of assessing the future and making provisions for it is known as :
(a) Planning, (b) Forecasting, (c) Assessment, (d) Scheduling.

[*Ref* : Q1. (a),(i)(ii)(iii) June '09 / Paper-9] 1×3

Q5. As on August 1, the following jobs are to be procesed. Their processing times and due dates are given :

Jbb	A	B	C	D
Processing time (days)	2	6	7	12
Due date	August 12	August 7	August 4	August 8

Sequence the jobs based on minimum critical ratio. [*Ref* : Q3. (a), June '09 / Paper-9] 4

Q6. What are the factors that force an organisation to redesign plant layout?

[*Ref* : Q3. (b), June '09 / Paper-9] 4

Q7. Briefly explain :

(i) MDD as a sequencing rule for single facility. [*Ref* : Q3. (c)(i), June '09 / Paper-9] 2

Q8. A company is planning to undertake the production of medical testing equipment and has to decide on the location of the plant. Two locations are being considered, namely, A and B. The fixed costs of two locations are estimated to be Rs. 25 lakhs and Rs. 30 lakhs respectively. The variable costs are Rs. 300 and Rs. 250 per unit respectively. The average sale price of the equipment is Rs. 550 per unit.

Find the range of annual production/ sales volume for which each location is most suitable.

[*Ref* : Q3. (d), June '09 / Paper-9] 4

Q9. Requirement of raw materials for a company is 250 units per month. The carrying cost for the same is 10% of its purchase price which is Rs. 10 per unit. The ordering cost is Rs. 15 per order. Compute EOQ and related total cost. [*Ref* : Q4. (b), June '09 / Paper-9] 4

Q10. From the following time series data of sales of Refrigerators, project the sales for the year 2010 :

Year	2002	2003	2004	2005	2006	2007	2008
Sales (thousand units)	90	100	102	93	104	109	102

[*Ref* : Q2. (a), Dec. '09 / Paper-9] 6

Q11. Enumerate four differences between PERT and CPM. [*Ref* : Q2. (b), Dec. '09 / Paper-9] 1×4

Q12. Write short notes on :

(i) Case hardening

(ii) Centrifugal casting

(iii) Galvanising

(iv) Hobbing machine [*Ref* : Q2. (c), Dec. '09 / Paper-9] 1×4

Q13. A manufacturer requires 10,000 components for use during the next year which is assumed to consist of 250 working days. The cost of storing one component for one year is Rs. 40 and the cost of placing order is Rs. 320.
There must always be a safety stock of two working days usage and the lead time from the supplier will be 5 working days. Assume that usage takes place steadily throughout the working days, delivery takes place at the end of the day and the orders are placed at the end of the working day. Compute (i) EOQ and (ii) Re-order Point. [*Ref* : Q2. (d), Dec. '09 / Paper-9] 2+2

Q14. A company planning to start an assembly unit of television sets has to decide on the location of its plant at any of the three cities viz. Kolkata, Delhi or Mumbai. The extent of fixed and variable costs for each of these locations are estimated to be as under :

Locations	Kolkata	Delhi	Mumbai
Fixed Costs per annum Rs. Lakhs	30	50	25
Variable cost per unit Rs.	300	200	350

The expected selling price is Rs. 700 per unit.

Calculate : (i) the range of annual production/ sales volume for which each location is most suitable;

(ii) Which one of the three locations is most suitable for a production/ sales volume of 18000 units?

(iii) BEP for each location. [*Ref* : Q3. (a), Dec. '09 / Paper-9] 4+3+3

Q15. Super Electronics manufactures TV sets and carries out the picture tube testing for 2500 hours. A sample of 200 tubes was put through this quality test during which 4 tubes failed. If the average usage of TV by the customer is 5 hours/ day and if 15000 TV sets were sold, then in one year how many tubes were expected to fail and what is the mean time between failures for these tubes? [*Ref* : Q4. (c), Dec. '09 / Paper-9] 3+1

Q16. Expand the term CIM and write the implication of adopting CIM.
[*Ref* : Q4. (d), Dec. '09 / Paper-9] 1+2

Q17. It is observed that there exists a relationship between Expenditure on Advertising and the Annual Sales. The details for last six years are as follows :

Year	Expenditure on Advertising (Rs. Crore)	Annual Sales (Rs. Crore)
2004	1	18
2005	2	23
2006	4	32
2007	3	28
2008	10	38
2009	4	29

Estimate the Annual Sales when Expenditure on Advertising is Rs. 5 Crore.

[*Ref* : Q2. (a), June '10 / Paper-9] 6

Q18. A sample of 10 pieces is drawn from the production of last two hours of an automatic screw machine and each unit is inspected for several characteristics and is classified as "OK" or "Not OK". The number of units marked "Not OK" for the last 20 samples are given in the following table in succession :

Sl No	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Not OK units	0	2	1	1	0	3	0	1	1	2	1	0	2	3	0	0	2	0	0	1

Find P and the control limits. Comment on the automatic machine condition.

[*Ref* : Q2. (d), June '10 / Paper-9] 5+1

Q19. A manager has to decide about the number of machines to be purchased. He has three options i.e. purchasing one, or two, or three machines. The data are given below :

Number of machines	Annual fixed cost (Rs.)	Correponding range of output (units)
1	10000	0 to 400
2	12000	401 to 700
3	20000	701 to 1000

Variable cost is Rs. 20 and revenue is Rs. 40 per unit.

(i) Determine the break-even point for each range.

(ii) If projected demand is between 600 and 750 units, how many machines should the manager purchase? [*Ref* : Q3. (a), June '10 / Paper-9] 3+2

Q20. A manufacturer's study of various locations has found that the following costs vary from one location to another. The firm will finance the new plant from deposits bearing 5% interest. Determine the most suitable location for a sales volume of 20000 units/ year.

Location	A	B	C
Revenue (Rs. per unit)	16.00	25.00	12.00
Labour (Rs. per unit)	0.50	1.00	0.80
Plant (Rs. Crore)	0.25	0.35	0.45
Material & Equipment* (Rs. per unit)	0.20	0.50	0.25
Electricity (Rs. p.a. '000)	25.00	28.00	30.00
Water (Rs. p.a. '000)	7.00	5.00	4.00
Transportation (Rs. per unit)	0.01	0.05	0.10
Taxes (Rs. p.a. '000)	22.00	15.00	30.00

*This cost includes a projected depreciation, but no interest.

[*Ref* : Q4. (a), June '10 / Paper-9] 6

Q21. A SSI unit is engaged in manufacturing fuel nozzles for engines. The operations are performed on a CNC verticle drilling cum tapping centre. The operation cylce time is as follows :

Drilling time : 50 secs.

Trapping time : 95 secs.

Tool change time of ATC : 25 secs.

For feeding the nozzles the unit designed a fixture holding 10 nozzles at a time and set up time for the 10 nozzles in the fixture is 90 secs. The unit recently received an additional order to the extent of 1 lakh nozzles per year. Assuming the manpower is no constraint, how many additional drilling cum tapping centre the unit should install under capacity augmentation plan? Average rejection is 2.5% of the produced nozzles. Assume 300 working days per year of 8 hours per days shift, 20% time the drilling tapping centers are not available due to preventive maintenance and utilization is 70% of the available time due to power and service line shutdown.

[*Ref* : Q4. (c), June '10 / Paper-9] 6

Q22. Briefly explain "Flow control" as a basic type of Production control.

[*Ref* : Q4. (d), June '10 / Paper-9] 2

Q23. A manufacturing organisation operates an incentive scheme on slab-rates based on cost of production as shown below :

Savings in production cost (Labour + Material + Overheads)	Incentive Amount (as % of savings)
1 — 10%	5%
11 — 20%	15%
21 — 40%	30%
41 —70%	40%
Above 70%	50%

The workers X, Y, and Z take 25 hours, 30 hours and 15 hours respectively to produce 10 units of the product and their respective wage rates are Rs. 6.00, Rs. 6.50 and Rs. 7.00 per hour. The material cost is Rs. 50/ - per unit and the overhead recovery rate is @ 500% of cost of wages. The standard cost of production per unit is determined at Rs. 175 per unit.

What is the amount of incentive earned by each of these workers and what is the actual cost of production per unit in each case? [*Ref* : Q2. (a), Dec. '10 / Paper-9] 10

Q24. A tool manufacturing SSI Unit requires about 900 nos. of HSS bars of size 2 cm square and 10 cms length in machined and annealed condition. The unit can get the inpout as above in two days :

(i) Purchase un-machined HSS bars of standard size of 2.5 cm square and 10 cms length from market at a price of Rs. 60.00 per piece and then machine in its machine shop with shapers to size 2 cms square and 10 cms length and anneal it further in its heat treatment shop. The cost of shapers is Rs. 6 per cubic centimeter of metal removed. The annealing cost is Rs. 900 for a batch size of upto 200 nos. maximum and if the batch size is smaller the same cost will be incurred. The HSS scrap produced after machined can be sold in scrap market at the rate of Rs. 4 per cubic cm.

(ii) The Unit has got an offer from another firm for supply of machined and annealed HSS bars @ Rs. 115 per piece.

Which alternative should the Unit adopt? [*Ref* : Q3. (c), Dec. '10 / Paper-9] 5

Q25. M/ s HMT Bearings Ltd. is committed to supply 24,000 bearings per annum to M/ s Lokesh Machines on a steady daily basis. It is estimated that it costs Re. 1.00 as inventory holding cost per bearing per month and that the setup cost per run of bearing manufacture is Rs. 3240.

(i) What is the optimum run size for bearing manufacture?

(ii) What should be the interval between the consecutive optimum runs?

(iii) What is the minimum inventory holding cost? [*Ref* : Q4. (a), Dec. '10 / Paper-9] 2+1+2

Q26. Jaago Engineering is analyzing the efficiency of its work and service personnel. Its service procedure is classified into the following seven activities along with its duration :

Activity	Duration (Hrs.)	Precedence Activity
A	8	-
B	4	-
C	6	A
D	9	B
E	11	A
F	3	C
G	1	D, E, F

From the above details :

(i) Draw the network diagram

(ii) Find the critical path

(iii) Calculate the expected time

(iv) Slack time for each path

(v) Earliest Start and Finish Time

(vi) Latest Finish and Start Time. [*Ref* : Q4. (d), Dec. '10 / Paper-9] 8

Q27. Manufacturing of a gunmetal bush requires operations on Lathe, Milling and Drilling machine tools. The operator efficiencies, standard times, and machine tool availabilities are as follows :

Type of Machine Tool	Operator Efficiency	Standard man-hours/ bush	Machine Tool availability
Lathe	75%	0.15	95%
Milling	80%	0.20	75%
Drilling	80%	0.10	75%

If the factory operates one shift of 8 hours for 6 days in a week, how many Lathe, Milling and Drilling machine will be required to produce 2000 bushes/ week? What will be the percentage of spare capacity available in each type of machine tool?

[*Ref* : Q2. (a), June '11 / Paper-9] 9

Q28. Two alternative set-ups, A and B are available for the manufacture of a component on a particular machine, where the operating cost per hour is Rs. 25.

	Set-up A	**Set-up B**
Components/ Set-up	20,000 pieces	30,000 pieces
Set-up cost per year	Rs. 500	Rs. 600
Production rate/ hour	20 pieces	40 pieces

Find out the manufacturing cost/ piece under each set-up. Which of these set-ups should be used for long range and economic production, assuming 3000 hours of working in a year?

[*Ref* : Q3. (a), June '11 / Paper-9] 3+5

Q29. Mention the advantages of the following advancements in production technology :

(i) Robots

(ii) FMS [*Ref* : Q3. (c), June '11 / Paper-9] 3+3

Q30. An article is processed on three machines A, B and C as shown below :

Machine	Machine operation time (mnutes)			Preparation time (min/ day)	Cleaning time (min/ day)
	Time	Processing	Total		
A	2	2.5	4.5	15	10
B	3	10	13	30	10
C	2	5	7	25	10

A study revealed that if the jigs for machines B and C were to be redesigned, loading and unloading times could be reduced to 2 minutes and 1 minute respectively :

(i) Find the number of pieces produced per day (single sift of 8 hrs.)

(ii) Costing has shown that unless production is increased by 20 per cent, the installation of new jigs would not be worthwile. Would you recommend redesign of jigs?

(iii) If the number to be produced is large, suggest changes in present arrangement and estimate new production rate. [*Ref* : Q4. (a), June '11 / Paper-9] 3+3+3

MAINTENANCE MANAGEMENT

Objective & Descriptive Type Questions :

Q1. What requirements need to be fulfilled in the order to ensure that the full benefits of effective maintenance are achieved? [*Ref* : Q2. (b), Dec '08 / Paper-9] 4

Q2. A key electric component lasts for a maximum of 3 weeks. The chances of its failing at the end of first week is 0.1 and the chance of its failing at the end of second week is 0.3. The cost per component for individual replacement is Rs. 5 and cost per component for bulk replacement is Rs. 3. What is the optimal replancement period assuming there are 100 components initially? [*Ref* : Q3. (a), Dec '08 / Paper-9] 4

Q3. Briefly enlist and explain the rules to be enforced for proper control of maintenance work. [*Ref* : Q3. (d)(i), Dec '08 / Paper-9] 3

Q4. Load Schedding Power Utility Company has been given the task of power supply by the State. The Company has noticed that the system has been experiencing the following number of failures for months over the past one year.

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

Each breakdown costs an average of Rs. 10,000/ - Preventive maintenance can be carried out for a cost of Rs. 3,000/ - to limit the failures to an average of one month. The Company seeks your advice on which policy is most suitable for adoption.

[*Ref* : Q4. (a), Dec '08 / Paper-9] 4

Q5. What types of work are carried out during routine maintenance? [*Ref* : Q3. (e), June '09 / Paper-9] 2

Q6. Calculate the number of units expected to fail in a year and the mean time between failures from the following :

Testing time = 100 hours

Samples tested = 50 units

Failures = 2 units

Average usage = 2 hours/ day

Total sales in the year = 500 units [*Ref* : Q4. (c), June '09 / Paper-9] 4

Q7. What are the requirements to be fulfilled in order to get the full benefits of effective maintenance? [*Ref* : Q4. (d), June '09 / Paper-9] 3

Q8. A Public Transport Corporation has gathered the data about the number of breakdowns for months over the past two years in their new fleet of vehicles :

Number of breakdowns	0	1	2	3	4
Number of months this occurred	3	7	11	2	1

Each breakdown costs the firm an average of Rs. 3000. For a cost of Rs. 1375 per month, preventive maintenance can be carried out to limit the breakdowns to an average of one per month. Which policy will be suitable for the firm?

[*Ref* : Q4. (e), June '09 / Paper-9] 5

Q9. Briefly write about Maintenance Request. [*Ref* : Q2. (c), June '10 / Paper-9] 2

Q10. A solar manufacturing company has observed the following number of breakdowns in its new latern over the past year :

No. of breakdowns	0	1	2	3
No. of months it occurred	3	6	2	1

It costs the firm Rs. 1500 to rectify a lantern. Should the company go in for preventive maintenance at Rs. 600 per month which will limit the breakdown to one per month? Please advise.

[*Ref* : Q3. (b), Dec. '10 / Paper-9] 4

Q11. A workshop has 25 nos. of identical machines. The failure pattern of the machine is given below :

Elapsed time after maintaince attention (in month)	Probability of failure
1	0.10
1	0.10
1	0.10
1	0.10
1	0.10
1	0.10

It costs Rs. 160 to attend a failed machine and rectify the same. Compute the yearly cost of servicing the broken down machines. [*Ref* : Q2. (c), June '11 / Paper-9] 4

RESOURCE MANAGEMENT

Objective & Descriptive Type Questions :

Q1. The following is the demand for Product A in 5 towns :

Population (in lacs) : X	9	5	8	5	3
Demand : Y	12	20	15	10	5

Estimate the demand for Product A for a town with a population of 10 lacs.

[*Ref* : Q3. (b), Dec '08 / Paper-9] 4

Q2. List out the internal factors, which influence the choice of technology in an organisation?

[*Ref* : Q3. (d)(ii), Dec '08 / Paper-9] 3

Q3. A workshop has 30 nos. of identical machines. From the failure pattern of the machines it is calculated that the expected time before failure is 3 months. It costs Rs. 200 to attend a failed machine and rectify the same. Compute the yearly cost of servicing the broken down machines.

[*Ref* : Q4. (d), Dec '08 / Paper-9] 2

Q4. Expand and briefly explain the following in the context of technology used to enhance production :

(i) AGV, (ii) AIS. [*Ref* : Q4. (e), Dec '08 / Paper-9] 2×2

Q5. A company manufactures items X_1 and X_2 which are sold at a profit of Rs. 35 per unit of X_1 and Rs. 25 per unit of X_2.

X_1 requires 3 kgs. of materials, 4 man-hours and 2 machine-hours per unit.

X_2 requires 2 kgs. of materials, 3 man-hours and 2 machine-hours per unit.

During each production run, there are 350 kgs. of materials available, 600 man-hours and 550 machine-hours for use.

Formulate under Simplex method of linear programming :

(i) the objective function and the linear constraints, and

(ii) the equations after introducing slack variables.

(iii) What are the various methods of solving a linear programming problem?

[*Ref* : Q2. (b), June '09 / Paper-9] 2+2+2

Q6. The annual sales of TV sets by a dealer in Delhi are as under :

Year	2004	2005	2006	2007	2008
Sales (thousand units)	3	14	36	4	33

Fit a linear trend equation to the sales figure and estimate the sales for the year 2009.

[*Ref* : Q2. (c), June '09 / Paper-9] 4

Q7. A company has 3 factories and 3 customers. The following table gives the transportation cost per unit from the factories to the customers and also the quantities available and required. Determine the initial transportation solution using Vogel's method.

Factory	A	B	C	Availability
F1	10	11	20	10
F2	15	12	10	2
F3	17	9	16	8
Requirement	8	5	7	20

[*Ref* : Q4. (a), Dec. '09 / Paper-9] 6

Q8. Justify the necessity of keeping records of Maintenance Work Done. What should you ensure to get the full benefits of effective maintenance? [*Ref* : Q4. (b), Dec. '09 / Paper-9] 2+3

Q9. What is Degeneracy in a simplex LPP? How is it resolved?
[*Ref* : Q2. (b), Dec. '09 / Paper-9] 2+2

Q10. A manufacturing company has product line consisting of five work stations in series. The individual work station capacities are given. The actual output of the line is 540 units per shift.

Work station No.	1	2	3	4	5
Capacity/ shift	700	650	700	650	600

Calculate (i) System capaicity (ii) Efficiency of the production line.
[*Ref* : Q4. (c), June '10 / Paper-9] 1+2

MIXING BAG

Objective Type Questions :

Q1. For each part below, choose the most appropriate one and write its number only in the answer sheet :

Match column (1) with column (2)

Column (1)	Column (2)
(i) Castings	A. Gravity Chute
(ii) Pig Iron	B. Rotary kiln
(iii) Steel	C. Foundry
(iv) Rails	D. Blast furnace
(v) Cement	E. Open Hearth Furnace
(vi) Material Handling	F. Rolling Mills

[*Ref* : Q1. (a), Dec '08 / Paper-9] 1×6

Q2. Expand the following abbrevitations :

(i) ASRS

(ii) GERT

(iii) AQL [*Ref* : Q1. (b), Dec '08 / Paper-9] 1×3

Q3. Put an appropriate word or two in blank position :

(i) _____ uses algebraic procedure to solve any problem, which satisfies the test of linearity and certainty.

(ii) Under preventive maintenance "(hours worked for maintenance)/ (Scheduled hours) × 100 = _____ "

(iii) Trend values of all years of the series may be obtained advantageously using the _____ .

(iv) _____ is a process that bakes on a white, brittle protection finish.

(v) _____ is the degree to which a firm's own production system handles the entire supply chain starting from procurement of raw materials to distribution of finished goods.

[*Ref* : Q1. (c), Dec '08 / Paper-9] 1×5

Q4. Given below are two lists—list 'A' containing six observations and list 'B' containing various functional areas associated with production management. Expand the abbreviations and match them with the corresponding functional areas.

List 'A'	List 'B'
LP	Quality control
PERT	Project planning
CRAFT	Inventory management
MRP	Product design
CAD	Product mix determination
AOQ	Plan layout

[*Ref* : Q1. (b), June '09 / Paper-9] 1×6

Q5. For each part below, choose the most appropriate answer out of the four options indicated below each part :

(i) Variety reduction is generally known as :

(a) Less varieties, (b) Simplification, (c) Reduced varieties, (d) None of the above.

(ii) Line of best fit is another name give to :

(a) Method of least squares, (b) Moving average mthod, (c) Semi-average method,

(d) Trend line method.

(iii) The card, which shows the number of rejected products from the total quantity produced, is :

(a) Quality control card, (b) Inspection card, (c) Rejection card, (d) Job card.

(iv) Route card and technological route card are :

(a) Different type of documents, (b) Route card shows route and technological card shows the technology used, (c) Same type of documents, (d) One is prepared by Production Manager and the other by Dispatcher. [*Ref* : Q1. (a), Dec. '09 / Paper-9] 1×4

Q6. Expand the terms in List 'A' and match them with the related functional areas of production management in List 'B'.

List 'A'	List 'B'
SPT	Production control
ISO	Work measurment
CNC	Scheduling
MTM	Machine tool
WIP	Standardisation

[*Ref* : Q4. (c), Dec. '09 / Paper-9] 1×5

Q7. Put an appropriate word or phrase in blank position :

(i) Statistical analysis is used to determine the optimum policy of _____ maintenance.

(ii) _____ layout is used for mass production.

(iii) Factor comparison is a method of _____ .

(iv) _____ cannot be delegated.

(v) Ergonomics is another name for _____ .

[*Ref* : Q1. (c), Dec. '09 / Paper-9] 1×5

Q8. Expand the following :

(i) CRAFT

(ii) SRAC

(iii) USP [*Ref* : Q3. (b), June '10 / Paper-9] 3

Q9. Put an appropriate word or phrase in blank position :

(i) _____ casting metal working process is used mainly for steel and iron and it can also be used for brass, aluminium, bronze, copper, etc. and relatively large amount of metal is to be removed.

(ii) In _____ method of analytical evaluation of a job, different points are assigned to the different characteristics of doing jobs.

(iii) Technological _____ arises due to continuous improvements in the methods and techniques of production and sometime the rate of improvement is so fast that it becomes economical to replace the machinery before its expected life.

(iv) In solving a linear programming problem, _____ method is generally used where there are two or three variables.

(v) The _____ consists of a powerful desktop computer and graphics software that enables a designer to manipulate geometric shapes.

(vi) The product layout involves the arrangement of machines in one line depending upon the _____ of operations. [*Ref* : Q3. (c), June '10 / Paper-9] 1×6

Q10. For each part below, choose the most appropriate answer out of the four options given against each part :

(i) Most suitable layout for continuous production is :

(a) process layout, (b) group technology, (c) line layout, (d) matrix layout.

(ii) To decide workload for men and machines :

(a) medium range forecasting is used, (b) short term forecasting is used, (c) long range forecasting is used, (d) combination of long range and medium range forecasting is used.

(iii) In solving a problem on Line of Balance, the number of workstations required is given by :

(a) Cycle Time/ Total Time, (b) Cycle Time / Element Time, (c) Total Time / Element Time, (d) Total Time / Cycle Time.

(iv) JIT stands for :
(a) Just in time purchase, (b) Just in time production, (c) Just in time use of materials
(d) Just in time order of materials.

(v) The act of assessing the future and making provisions for it is known as: (a) Planning, (b) Forecasting, (c) Assessment, (d) Scheduling.

[*Ref* : Q1. (a), June '10 / Paper-9] 1×5

Q11. Match the products in Column I with the production centers in Column II.

Column I		Column II	
(A)	Steam	(i)	Blast Furnace
(B)	Electricity	(ii)	Boiler
(C)	Steel	(iii)	Generator
(D)	Petrol	(iv)	Open Hearth Furnace
(E)	Iron	(v)	Refinery
(F)	Cloth	(vi)	Assembly Line
(G)	Car	(vii)	Smithy
(H)	Castings	(viii)	Spinning Mill
(I)	Cotton Yarn	(ix)	Foundry
(J)	Forgings	(x)	Power Loom

[*Ref* : Q1. (b), June '10 / Paper-9] 0.5×10

Q12. Examine each statement and indicate whether it is 'True' or 'False'.

(i) A transformer is a device that uses electrical energy to produce mechanical energy.

(ii) A transistor is a semiconductor device commonly used as an amplifier or an electrically controlled switch.

(iii) The ultimate objective of production planning and control is to contribute to the profits of the enterprise.

(iv) Level capacity plan is based on "produce-to-stock and sell" approaches wherein the production systems are operated at uniform production levels and finished goods inventories rise and fall depending upon whether production level exceeds demand or vice versa from time period to time period. [*Ref* : Q1. (c), June '10 / Paper-9] 1×4

Q13. Expand the following :

(i) GERT

(ii) CRP

(iii) CIM

(iv) MTBF

(v) TQM [*Ref* : Q2. (b), Dec. '10 / Paper-9] 1×5

Q14. For each part below, choose the most appropriate answer out of the four options given against each part :

(i) Linear programming is a technique used in ;

(a) Plant layout, (b) Production programme, (c) Product mix, (d) Manufacturing sequences.

(ii) Relaxation allowances are considered in :

(a) Time study, (b) Method study, (c) Ergonomic study, (d) Feasibility study.

(iii) PERT is :

(a) Event oriented technique, (b) Activity oriented technique, (c) Both (a) and (b), (d) None of these.

(iv) Industrial Engineering is a :

(a) Line function, (b) Staff function, (c) Both line and staff function, (d) Co-ordination function.

(v) Annealing is process of :

(a) Joining, (b) Forming, (c) Machining, (d) Heat treatment.

[*Ref* : Q1. (a), Dec. '10 / Paper-9] 1×5

Q15. Match the terms in Column I with the relevant terms in Column II.

Column I		Column II	
(A)	Foundary	(i)	Gearbox
(B)	Machine Shop	(ii)	Value Analysis
(C)	Brainstorming	(iii)	Electrode
(D)	Automobile	(iv)	Lathe
(E)	Forge Shop	(v)	Cupola
(F)	Welding	(vi)	Power Hammer
(G)	Heat Treatment	(vii)	Rubber
(H)	Tyres Plant	(viii)	Hardening
(I)	Assembly Line	(ix)	GO-NO-GO gauge
(J)	Inspection	(x)	Conveyor

[*Ref* : Q1. (b), Dec. '10 / Paper-9] 0.5×10

Q16. What recording technique will be used for the following production situation?

(i) To reduce movement of materials.

(ii) To reduce ineffective body movements.

(iii) To study one operator running one machine.

(iv) To develop work bench layout.

[*Ref* : Q1. (c), Dec. '10 / Paper-9] 1×4

Q17. Examine each statement and indicate whether it is '**True**' or **'False'** :

(i) MRP is a marketing technique.
(ii) FMS stands for 'Flexible Machine System'.
(iii) Method Study should precede Work Measurement.
(iv) 'Z' chart is a chart used in Programme Control.
(v) EOQ formula does not consider storage cost. [*Ref* : Q1. (a), June '11 / Paper-9] 1×5

Q18. Match the terms in Column I with the relevant terms in Column II.

Column I	Column II
(A) Feeding coal continuously into the furnace in an Electric Power Station	(i) Electromagnet
(B) Handling crates on Pallets within a factory	(ii) Electric Arc Furnace
(C) Moving a heavy load above the Machineon the shop floor in a workshop	(iii) Gravity Chute
(D) Transporting fertilizer packed in bags to arailway wagon/ truck on the ground below	(iv) Drilling Machine
(E) Making a small deep hole in block of metal	(v) Plaining Machine
(F) Machining a large flat surface on metal	(vi) E.O.T. Crane
(G) Melting steel for making castings	(vii) Fork-lift Truck
(H) Picking up bits of iron and steel in ascrap yard	(viii) Belt Conveyor

[*Ref* : Q1. (b), June '11 / Paper-9] 0.5×8

Q19. For each part below, choose the most appropriate answer out of the four options given against each part :

(i) Ergonomics is another name of
  (a) Chemical Engineering
  (b) Human Engineering
  (c) Mechanical Engineering
  (d) Electrical Engineering

(ii) ALDEP is a technique used in
  (a) Production Planning
  (b) Resource Management
  (c) Plant Layout
  (d) Maintenance Management

(iii) The study of relationship between the load on hand and the capacity of the work centres is known as
  (a) Scheduling
  (b) Loading
  (c) Routing
  (d) Controlling

(iv) Buffer Stock is built to cater to
  (a) Machine Breakdown
  (b) Import Substitution
  (c) Fluctuating Load
  (d) Diversification

(v) Independnt Float is
  (a) Total Float Head Slack
  (b) Earliest Start Time-Earliest Finish Time
  (c) Free Float—Total Float
  (d) None of these

[*Ref* : Q1. (c), June '11 / Paper-9] 1×5

INFORMATION SYSTEM

INFORMATION SYSTEM ANALYSIS AND DESIGN

Objective & Descriptive Type Questions :

Q1. _____ System is a software that controls the hardware devices, software, Communication media and channels. [*Ref* : Q5. (a)(v), Dec '08 / Paper-9] 1

Q2. Expand the following abbreviations :
EEPROM. [*Ref* : Q5. (c)(iii), Dec '08 / Paper-9] 1

Q3. Each statement below is either **True** or **False**, Indicate the same in your answers :
Virtual memory is a provision of primary storage which acts as secondary memory.
[*Ref* : Q5. (b)(i), Dec '08 / Paper-9] 1

Q4. Explain peer-to-peer architecture and list out its benefits? [*Ref* : Q6. (b), Dec '08 / Paper-9] 5

Q5. Expand the following abbreviations :
TCP/ IP. [*Ref* : Q5. (c)(iv), Dec '08 / Paper-9] 1

Q6. What is Access Control? What are the checks one needs to ensure before executing a system of access control? [*Ref* : Q7. (b), Dec '08 / Paper-9] 4

Q7. Expand the following abbreviations :
EEPROM. [*Ref* : Q5. (c)(iii), Dec '08 / Paper-9] 1

Q8. Q. File and Smile Online asks you to draw a flow chart for calculation of income tax as per slabs prescribed which are as below :

Salary in currency limit	Rate %
Up to 1,50,000	Nil
1,50,001 to 3,00,000	10
3,00,001 to 5,00,000	20
5,00,001 and above	30

[*Ref* : Q7. (d), Dec '08 / Paper-9] 4

Q9. _____ System is a software that controls the hardware devices, software, Communication media and channels. [*Ref* : Q5. (a)(v), Dec '08 / Paper-9] 1

Q10. List the salient features of a WAN? [*Ref* : Q8. (c), Dec '08 / Paper-9] 4

Q11. Fill up the following missing blocks which form part of the system development team in a System Development Life cycle. Write missing answer against Serial Number only in the answer sheet :

Sl No.	Step	Person Responsible	Responsibility
1.	System proposal	?	Study requirement and prepare proposal for clearance by management
2.	Systems Implementation	Programmer and Systems Analyst	?
3.	?	Programmers	To develop programs according to system specifications and testing the programs

[*Ref* : Q8. (d), Dec '08 / Paper-9] 3

Q12. _____ basically sends a mail to the e-mail address of the receiver.
[*Ref* : Q5. (a)(iv), Dec '08 / Paper-9] 1

Q13. Expand the following abbreviations :
(i) MICR.
(ii) ASCII
(iii) GUI [*Ref* : Q5. (a), June '09 / Paper-9] 1×3

Q14. Put an appropriate word or two in blank position :
(i) _____ means loading Operating System in computer after power is switched on.
(ii) Programs written in High Level Language are called _____ .
(iii) _____ is a process of continuous checking of possible encroachmnt of virus in a machine.
[*Ref* : Q5. (b), June '09 / Paper-9] 1×4

Q15. Each statement below is either *True* or *False*. Indicate the same in your answers :
(i) ROM is used for temporary data storage.
(ii) File Volatility is the rate of change in the records in the file.
[*Ref* : Q5. (a), June '09 / Paper-9] 2

Q16. Name the four divisions in COBOL. What are its advantages?
[*Ref* : Q7. (b), June '09 / Paper-9] 2+2

Q17. Explain FTP mentioning the steps involved in it. [*Ref* : Q7. (d), June '09 / Paper-9] 3

Q18. (i) What are the objectives of Information System Auditing?
(ii) Explain the major areas for imposition of system of Internal Control.
[*Ref* : Q8. (a), June '09 / Paper-9] 3+4

Q19. What are the facilities that are required in the computer for an access to the Internet? What are the problems associated with use of Internet? [*Ref* : Q8. (b), June '09 / Paper-9] 2+4

Q20. Explain self-regulatory aspect of an Information System. [*Ref* : Q6. (b), Dec. '09 / Paper-9] 3

Q21. What are the advantage of Client – Server Technology [*Ref* : Q6. (c), Dec. '09 / Paper-9] 4

Q22. Make a list of commonly used internet protocols. [*Ref* : Q6. (d), Dec. '09 / Paper-9] 3

Q23. What is computer fraud? What is the motivation behind computer fraud? Name five common types of computer fraud. [*Ref* : Q8. (a), Dec. '09 / Paper-9] 1+3+5

Q24. How do you distinguish between Internet and Intranet? What are the problems usually faced by users of Internet? [*Ref* : Q8. (b), Dec. '09 / Paper-9] 2+4

Q25. What are the measures to ensure Access Security with Checks in a computer system. [*Ref* : Q6. (a), June '10 / Paper-9] 5

Q26. What are the guidelines to conduct audit of computerised accounting system? [*Ref* : Q6. (b), June '10 / Paper-9] 8

Q27. "Digital signatures do for electronic documents what hand written documents do for printed documents." What is a digital signature? How is it created and verified? [*Ref* : Q6. (c), June '10 / Paper-9] 2+3

Q28. What is knowledge management and what are its benefits? [*Ref* : Q7. (a), June '10 / Paper-9] 1+3

Q29. What is BPR? Explain different steps in BPR. [*Ref* : Q7. (b), June '10 / Paper-9] 1+6

Q30. Write short note on Biometric Security. [*Ref* : Q8. (c), June '10 / Paper-9] 3

Q31. (i) What is Computer fraud? Describe five common types of computer fraud.

(ii) Mention two important measures each for detection of fraud and prevention of damage out of fraud. [*Ref* : Q6. (c), Dec. '10 / Paper-9] 1+2

Q32. What is an Interface device? Describe three commonly used Interface devices. [*Ref* : Q7. (a), Dec. '10 / Paper-9] 1+3

Q33. What is a virus scanner? Describe briefly the functions of a virus scanner. [*Ref* : Q7. (b), Dec. '10 / Paper-9] 1+3

Q34. PQR Ltd. is considering three options to acquire software for computerizing one of its important functional areas. The options are ;

(i) Buying the software package available in the market;

(ii) Engaging software industries to desing the software;

(iii) Developing the software in-house with the help of their own IT people.

Narrate the relative advantages and disadvantages of each option.

[*Ref* : Q7. (c), Dec. '10 / Paper-9] 6

Q35. Write short notes on :

(a) Models to represent Information

(b) Computer as audit tools

(c) Problems in Internet

(d) VB

(e) Audit Charter [*Ref* : Q8. (a, c, d, e, f), Dec. '10 / Paper-9] 3×5

Q36. What are the types of File Organization with respect to the mode of access? Mention at least three advantages under each type of file organization. [*Ref* : Q6. (a), June '11 / Paper-9] 2+6

Q37. What are the stages of System Development Life Cycle? [*Ref* : Q7. (b), June '11 / Paper-9] 4

Q38. What are the points to be considered while designing a new source document?

[*Ref* : Q7. (c), June '11 / Paper-9] 4

Q39. Write short notes on :

(a) Reasons for Outsourcing Information System Function

(b) HTTP and HTML

(c) System adopted by SET

(d) OLAP

(e) AI

(f) Going Live [*Ref* : Q8. (a, c, e, f, g, h), June '11 / Paper-9] 3×6

DATABASE MANAGEMENT SYSTEMS

Objective & Descriptive Type Questions :

Q1. (i) Name any two models of DBMS.

(ii) What does one mean by "Going Live". [*Ref* : Q6. (d), Dec '08 / Paper-9] 2+2

Q2. What are the characteristics of a database? [*Ref* : Q8. (b), Dec '08 / Paper-9] 4

Q3. Put an appropriate word or two in blank position :

(i) Oracle is based on a concept of _____ Technology. [*Ref* : Q5. (a)(i), Dec '08 / Paper-9] 1

Q4. Each statement below is either **True** or **False**, Indicate the same in your answers :

In Multiprogramming, one CPU processes a number of programs by time-sharing technique.
[*Ref* : Q5. (b)(iii), Dec '08 / Paper-9] 1

Q5. Expand the following abbreviations:

ORDBMS. [*Ref* : Q5. (c)(i), Dec '08 / Paper-9] 1

Q6. Expand the following abbreviations :

DML. [*Ref* : Q5. (a)(i), June '09 / Paper-9] 1

Q7. Put an appropriate word or two in blank position :

_____ is extracting of data from multiple data sources by way of interactive and analytical software tools. [*Ref* : Q5. (b)(iv), June '09 / Paper-9] 1

Q8. Each statement below is either *True* or *False*. Indicate the same in your answers :

(i) File Volatility is the rate of change in the records in the file.

(ii) Data Mart has no relevance to Data Warehousing.

[*Ref* : Q5. (c)(iii)(iv), June '09 / Paper-9] 1+1

Q9. What is Data Warehousing? Give examples of strategic use of data warehousing in different business environment. [*Ref* : Q6. (d), June '09 / Paper-9] 2+2

Q10. What are the advantages of Database Management System?
[*Ref* : Q6. (e), June '09 / Paper-9] 2

Q11. The following are the fields and its size in a purchase order record :

Field Name	Maximum Field Size
Purchase Order Number	5
Vendor Code	2
Order Quantity	4
Order Date	6

The maximum number of estimated outstanding purchase order records will be 500. Expected increase in total records is 10%. The software also requires an overhead of 20% for minimizing collision and overflow conditions. Compute the total file space requirement after allowing for 10% contingency factor on the total size. [*Ref* : Q6. (a), Dec. '09 / Paper-9] 4

Q12. What is data mining? What are the various types of services available from the related software tools? [*Ref* : Q7. (a), Dec. '09 / Paper-9] 3+3

Q13. Write short notes on :

(a) Normalization
(b) Extranet
(c) Data Warehousing
(d) EDI
(e) Packet Switching
(f) Data Mart
(g) Test Deck [*Ref* : Q8. (a, b, d, e, f, g, h), June '10 / Paper-9] 3×7

Q14. Write short notes on :

(i) Search Engines
(ii) Characteristics of Data Base [*Ref* : Q8. (b, g), Dec. '10 / Paper-9] 3+3

Q15. Narrate the concept and characteristics of a data base. [*Ref* : Q6. (b), June '11 / Paper-9] 1+3

Q16. (i) What are the different models of DBMS?

(ii) What is the basic concept in the hierarchical Database? Mention main features of hierarchical database structure. [*Ref* : Q6. (c), June '11 / Paper-9] 1+3

Q17. Write short notes on :

(i) HTTP and HTML
(ii) System adopted by SET [*Ref* : Q8. (c, e), June '11 / Paper-9] 3+3

MANAGEMENT INFORMATION SYSTEMS (MIS)

Objective & Descriptive Type Questions :

Q1. List the nature of preparatory work to be undertaken before a decision on outsourcing of information system services can be taken? [*Ref* : Q7. (a), Dec '08 / Paper-9] 4

Q2. 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 under the following categories :

(i) Top level (Strategic) Reports required for Personnel Management;

(ii) Middle Level (Tactical) Reports for Production Management;

(iii) Operational Level (Operational) Reports for Sales Mnagement.

[*Ref* : Q7. (c), Dec '08 / Paper-9] 6

Q3. Put an appropriate word or two in blank position :

_____ basically sends a mail to the e-mail address of the receiver.

[*Ref* : Q5. (a)(iv), Dec '08 / Paper-9] 1

Q4. One of the important factors for the success for MIS is the quality of software. List out the criteria, which the software must fulfil for the basis for selection apart from meeting the user specific functional specifications? [*Ref* : Q8. (a), Dec '08 / Paper-9] 4

Q5. Fill up the following missing blocks which form part of the decision making pattern. Write missing answer against Serial Number only in the answer sheet :

Sl No.	Level of Management	Decision making on	Information support from
1.	Lower Level	?	Transaction Processing
2.	Middle Level	Planning & Control	?
3.	Top Level	?	Executive System/ Expert System

[*Ref* : Q6. (b), June '09 / Paper-9] 3

Q6. What is 'Risk Management' in an Infomation System and what are the steps involved in it? [*Ref* : Q7. (a), June '09 / Paper-9] 1+3

Q7. List eight basic features of an MIS. [*Ref* : Q7. (c), June '10 / Paper-9] 0.5×8

Q8. In a payroll system, the employee master file is designed to have records of fixed length consisting of the following fields :

Field Name	Maximum Field Size
Employee Number	6
Employee Name	35
Designation	10
Date of Birth	6
Date of Joining	6
Section Code	3
Qualification	20
Training Codes	10
Scale of Pay	10

The Employee Master has 2000 employee records presently. Once and employee leaves, his record is deleted. However, it is estimated that there may be fresh recruitment upto 15% of present strength in future. The file managment software also requires an overhead of 20% for minimizing probabilities of collision and overflow conditions. Compute the total file space requirement after allowing for 10% contingency factor on total.

[*Ref* : Q7. (a), June '11 / Paper-9] 6

ENTERPRISE RESOURCE PLANNING (ERP)

Objective & Descriptive Type Questions :

Q1. PTC a large manufacturer of agro-based products is in the process of evaluation to go in for an ERP package for managing its entire Financial, Supply Chain Management, Manufacturing, Procurement, Inventory, and Sales etc. and requests you to list out the common criteria it should consider before selection of a package. [*Ref* : Q6. (a), Dec '08 / Paper-9] 4

Q2. Name common modules of an ERP Package and a few important sub-systems under each module. [*Ref* : Q6. (c), Dec '08 / Paper-9] 5

Q3. Name three popular ERP packages. [*Ref* : Q8. (e), Dec '08 / Paper-9] 3

Q4. Each statement below is either **True** or **False**, Indicate the same in your answers :

Readymade sofware is one, which meets the full-customised requirements of a specific organisation. [*Ref* : Q5. (b)(ii), Dec '08 / Paper-9] 1

Q5. Expand the following abbreviations :
ISAM [*Ref* : Q5. (c)(v), June '09 / Paper-9] 1

Q6. Each statement below is either *True* or *False*, Indicate the same in your answers :
ERP package convers the function of production management only and excludes Finance and Human Resources. [*Ref* : Q5. (c)(v), June '09 / Paper-9] 1

Q7. Explain briefly the different phases in implementation methodologies of an ERP system. [*Ref* : Q6. (a), June '09 / Paper-9] 5

Q8. What are the sub-systems under the Sales and Distribution Module of an ERP system? [*Ref* : Q6. (c), June '09 / Paper-9] 4

Q9. (i) What will be the nature of costs to be included in the budget for implementation of an ERP package?
(ii) What is 'Gap Analysis' in ERP Life Cycle? [*Ref* : Q7. (c), June '09 / Paper-9] 3+1

Q10. What is E-Commerce? What are the components involved in it? What are the steps by which a transaction take place in E-Commerce? [*Ref* : Q8. (c), June '09 / Paper-9] 1+1+3

Q11. What are generally the sub-systems in the Manufacturing Module of an ERP Package? [*Ref* : Q7. (b), Dec. '09 / Paper-9] 3

Q12. How will you start the selection process of an ERP Package? What would be the criteria for the selection? What are costs to be included in the Budget for implementation of ERP? [*Ref* : Q7. (c), Dec. '09 / Paper-9] 3+3+3

Q13. A company engaged in steel manfacturing activites is considering the implementation of an ERP system. The company has a few computerized applications running in different areas of the organisation. All these will be discontinued after ERP system is implemented.

A software firm has given a quotation for the new system which states that the implementation will take a little more than a year and the capital cost will be Rs. 86 lakhs (payable as Rs. 55 lakhs in the first year and Rs. 31 lakhs in the second year).

The management is wondering as to when the ERP system will recover all of its initial costs and start making a profit. What would be you answer based on the above data and the following information about operational costs (Rs. lakhs)?

	Year 1	Year 2	Year 3	Year 4	Year 5
Old system	25	28	34	45	47
New system	-	7	14	15	16

[*Ref* : Q8. (c), Dec. '09 / Paper-9] 3

Q14. List six common criteria for selecting an ERP Package.[*Ref* : Q7. (d), June '10 / Paper-9] 0.5×6

Q15. What are generally the sub-systems in Sales and Distribution Module of an ERP package? [*Ref* : Q6. (a), Dec. '10 / Paper-9] 5

Q16. What is Gap analysis? How is it important in ERP implementation? [*Ref* : Q6. (b), Dec. '10 / Paper-9] 1+2

Q17. Write short note on WAN [*Ref* : Q8. (h), Dec. '10 / Paper-9] 3

MIXING BAG

Objective Type Questions :

Q1. Put an approriate word or phrase in blank position :

(i) An _____ system is one which interacts with its environment and can change itself to accommodate the modifications.

(ii) _____ are the procedure and rules for intercomputer communication.

(iii) _____ Device is a reading device used to interpret printed, hand-written data directly from source documents.

(iv) _____ is the logical steps of problem decision in which a problem is divided into distinct logical conditions and actions under each condition are framed.

(v) File activity = _____ / Number of records in the file.

(vi) _____ is an illegal action with the help of computer technology to make financial gain, to have unauthorized access to private information of others, to damage software/ data etc. [*Ref* : Q5. (a), Dec. '09 / Paper-9] 1×6

Q2. Which of the following features will apply for an Interpreter and which ones for a Compiler?

(i) Cost of software is high

(ii) Translation takes place during execution

(iii) Execution time is high

(iv) Translates the whole program

(v) Requires more memory

(vi) Cost of software is less

(vii) Translation happens in one go

(viii) Execution is fast

(ix) Requires less memory

(x) Translates line by line

[*Ref* : Q5. (b), Dec. '09 / Paper-9] 5

Q3. Each statement below is either **True** or **False**. Indicate the same in your answers :

(i) Transaction Files are basically intermediate files created during processing for an application area.

(ii) In bus topology, a single network cable runs within a specified area and the terminals are connected to it.

(iii) An Executive Information System (EIS) takes care of the requirement of information for senior managers only and hence is not a useful tool for people working in different managerial levels.

[*Ref* : Q5. (c), Dec. '09 / Paper-9] 1×3

Q4. Put an approriate word or phrase in blank position :

(i) Generally. An MIS uses Computer System and _____ technology to collect information from different operational points and disseminate them to different users for decision making.

(ii) _____ is a provision of secondary storage which acts as primary memory.

(iii) _____ a program means eliminating errors in the program.

(iv) In a database, duplicate data are eliminated and thus _____ is controlled.

(iv) _____ consists of high frequency radio transmission and is generally used for high volume data transmission and point-to-point communication.

(v) _____ is a redundant digit derived from some mathematical relation, out of other digits of the code, which is incorporated in the code itself to ensure correctness of code.

[*Ref* : Q5. (a), June '10 / Paper-9] 1×6

Q5. Match the items in Column I with those in Column II.

Column I Column II	
(A) Search Engine	(a) A language system that delivers programs to user which can be run on the user's machine.
(B) JAVA	(b) Spreadsheet package
(C) Microsoft Excel	(c) A programming language
(D) C++	(d) A web site enabling users to access various levels of information

[*Ref* : Q5. (b), June '10 / Paper-9] 1×4

Q6. Each statement below is either **True** or **False**. Indicate the same in your answers :

(i) OCR is a reading device used to interpret printed, hand-written data directly from source documents.

(ii) In a ring topology, the transmitted signal is regenerated at each node thereby minimizes the transmission error and enhances the safe distance coverage area.

(iii) While taking the decision for an ERP package and its implementation in an enterprise, it is easy to budget for the same as one just needs to get the price of the package from established vendors like Oracle, SAP etc. and arrive at a budget.

(iv) Interpreter translates the whole program, while Compiler translates line by line.

[*Ref* : Q5. (c), June '10 / Paper-9] 1×4

Q7. Match the Column I with the relevant term in Column II.

Column I		Column II	
(A)	Encryption	(i)	Relating to measurement to network speed
(B)	Broadband	(ii)	Output device
(C)	Peer-to-peer	(iii)	Communication between two pieces of hardware
(D)	Bandwidth	(iv)	Scrambling of Data
(E)	Handshaking	(v)	Picture elements in individual dots
(F)	LCD	(vi)	Collection of computers with same access right as every other computer on the network
(G)	Spooling	(vii)	Buffer storage to reduce processing delays
(G)	Pixels	(viii)	Different kind of transmission at the same time

[*Ref* : Q7. (d), Dec. '10 / Paper-9] 0.5×8

Q8. Put an appropriate word in blank position :

(i) Check digit is to ensure _____ of code.

(ii) Firewall offers an effective system of protect _____ access.

(iii) Time sharing allows number of jobs processed _____ .

(iv) Debugging is the process of eliminating _____ .

[*Ref* : Q5. (a), Dec. '10 / Paper-9] 1×4

Q9. Expand the following acronyms :

(i) BPR

(ii) PROM

(iii) VGA

(iv) OLAP

(v) ASCII

[*Ref* : Q5. (b), Dec. '10 / Paper-9] 1×5

Q10. Each statement below is either **True** or **False**. Indicate the same in your answers :

(i) Interpreter translates a whole program.

(ii) File volatility is the rate of change in the records in a file.

(iii) Cache memory is a very fast RAM.

(iv) Oracle is a programming language.

(v) DBMS reduces data redundancy.

[*Ref* : Q5. (c), Dec. '10 / Paper-9] 1×5

Q11. Match the items in Column I with those in Column II :

Column I	Column II
(A) ALU	(i) Knowledge base
(B) Parallel run	(ii) Winchester
(C) Expert System	(iii) Programming language
(D) PASCAL	(iv) Change-over
(E) Fixed Disk	(v) CPU
(F) VA	(vi) Processed data
(G) Transaction log	(vii) Cost Control
(G) Information	(viii) Audit trail

[*Ref* : Q7. (d), June '11 / Paper-9] 0.5×8

Q12. Put an appropriate word in blank position :

(i) Internet is an in-house version of _____ .

(ii) Peoplesoft is an _____ package.

(iii) Laser printer is a _____ printer.

(iv) Half-duplex is a mode of data _____ .

[*Ref* : Q5. (a), June '11 / Paper-9] 1×5

Q13. Expand the following acronyms :

(i) B2C

(ii) EPROM

(iii) MODEM

(iv) RISC

(v) GUI

[*Ref* : Q5. (b), June '11 / Paper-9] 1×5

Q14. Each statement below is either **True** or **False**. Indicate the same in your answers :

(i) Random files are stored on magnetic tapes.

(ii) MICR is a device to read characters.

(iii) Operating system is an application software.

(iv) BPR is an exercise to follow ERP implementation.

(v) Normalisation is a process of organizing data in a data base.

[*Ref* : Q5. (c), June '11 / Paper-9] 1×5