Project Engg. &, Economics & management
B. Tech. VII Sem.

Solution

Section A (1) c (2) a (3) a (4) b (5) d (6) c
(7) d (8) b (9) c (10) c.

Section B. Q. 3 (Ans) – Factors :- (i) Man factor (ii) Material factor (iii) machinery factor (iv) movement factor (v) waiting factor [brief explaination of each].

Principles :- Principle of :- overall integration, minimum distance, flow, cubic space utilization, satisfaction & safety and flexibility.

OR.

Q.4 Ans. (a) Advantage :- (i) existance of educational & recreational facilities (ii) facilities for technical / industrial education and training for children of workers (iii) All types of skilled man power is available (iv) Repair, maintenance and service facilities for various utilities are available in abundance. (v) Banking facilities regarding finance (loan etc.) for industry ~~in case~~ are available.

(b) Disadvantages :- (i) insurance & taxation rate are high. (ii) Cost of consumer goods and wage rates are high (iii) Scarcity of land (iv) Cost of land is high (v) Atmospheric conditions not very pleasant rather suffocating.

(b) When accurate data are not available in the literature or when past experience does not give an adequate design basis, pilot plants test may be necessary in order to design effective plant equipment. The results of these tests ~~may~~ must be scaled up to the plant capacity. Pilot plant data are ~~a~~ required for the design of some equipments like filter. There is a table which presents an analysis of important factors in the design of different types of equipment.
Different major variables can be considered as similarities for scaling up.

Unit II

5 Ans. – Cost estimation – Process of determining the probable cost of the product before the actual manufacture starts.
Objectives:- (i) To determine actual cost of product in order to fix the sales price allowing a suitable margine of profit. (ii) Provides basis for comparision of actual cost with the estimated cost. (iii) Provides data for planning, budgeting & cost control (iv) helps in marketing regarding filling quotations & tenders (v) suggests changes in product design

Differences –

Cost accounting	Cost estimation.
(i) Process of calculating actual cost of a product	(i) Process of determination of probable cost of a product

(i) gives the profitability of the product after being manufactured.

(ii) Job of accounts dept.

(iv) Based on facts

before manufacturing.

(ii) tells whether it is profitable or not to manufacture a product.

(iii) Requires tech. knowledge

(iv) Based on assumptions & past experience

Or.

6.

Journal

Date	Particulars	Dr.	Cr.
Jan 1.	Cash A/C Dr	80,000	
	To Capital A/c		80,000
Jan 6	Goods A/C Dr	30,000	
	To Cash A/C		30,000
Jan 9	Cash A/C Dr.	10,000	
	To Goods A/C		10,000
~~Jan 12~~	~~P A/C Dr.~~	~~5000~~	~~5000~~
	~~To Cash A/c~~		
Jan 13	R A/C Dr.	3000	
	To Goods A/C		3000
Jan 16	Wages A/C Dr	8000	
	To cash A/c		8000
Jan 16	Goods A/C Dr	3000	
	To R A/C		3000
Jan 20	Bank A/C Dr	1000	
	To cash A/c		1000
Jan 24	Cash A/C Dr	2000	
	To Bank A/c		2000
Jan 27	Z A/C Dr	10,000	
	To Goods A/C		10,000

Jan 28	Cash A/c Dr. To R A/c	2000	2000
Jan 31.	Rent A/c Dr. To Cash A/c	500	500.

Ledger

Cash A/c.

Dr. Date	Particular	Amt.	Date	Parti.	Amt. Cr.
Jan 1	To Capital	80,000	Jan 6.	by goods	30,000
Jan 9	To goods	10,000	Jan 16	by wages	8000
Jan 24	To Bank	2000	Jan 20	by bank	1000
Jan 28	To R A/c	2000	Jan 31	by Rent A/c	500
			Jan 31	by balance	52,500

Capital A/c

Jan 31.	To balance	80,000	Jan 1.	by cash A/c	80,000

Goods A/c.

Jan 6	To cash A/c	30,000	Jan 9	by Cash A/c	10,000
Jan 16	To R A/c	3000	Jan 13	by R A/c	3000
~~Jan 22~~	~~To cash A/c~~		Jan 27	by Z A/c	10,000
			Jan 31	by balance	10,000

R A/c.

Jan 13	To goods A/c	3000	Jan 16	by goods A/c	3000
Jan 31	To balance	2000	Jan 28	by Cash A/c	2000

Wages A/c.

Jan 16	To cash A/c	8000	Jan 31	by balance	8000

Bank A/c

Jan 20	To cash A/c	1000	Jan 24	by cash A/c	2000
Jan 31	To balance	1000			

Z A/c.

Jan 27	To goods A/c	10,000	Jan 31	by balance	10,000

Rent A/c

Jan 31	To cash A/c	500	Jan 31	by balance	500.

Ans. 7

(i) Break even quantity $Q_B = \frac{F}{S-V}$

$= \frac{30,00,000}{8500-1000} = 400$ passengers

(ii) Q_B (sales) $= \frac{F \cdot S}{S-V} = 400 \times 8500$

$=$ Rs. 3400000

(iii) Break even percentage of capacity.

$= \frac{\text{Break even quantity}}{\text{Total quantity}} \times 100$

$= \frac{400}{10,000} \times 100 = 4\%$.

(iv) 46% tax $\therefore$ $0.54P = 20,00,000$

$P = 3703703$.

$Q_B = \frac{F+P}{S-V}$

$400 = \frac{30,00,000 + 3703703}{S-1000}$

$S = 17759.25$/- per passenger

or.

Ans. 8(b) Payback period $= \frac{\text{Net investment}}{\text{Annual after tax earnings}}$

$= \frac{1,20,000 - 20,000}{50,000 \times 0.5} = 4$ yrs.

(a) Let us select a rate of 20% and calculate the NPV of the project.

Yr	Cash inflows	Discount factor at 20%	Present value
1	Rs. 16,000	0.833	13,328
2.	14,000	0.694	9,716.
3.	12,000	0.579	6,948
			29,992
		Less cash	32,400

NPV = −2408

Since NPV is −ve, the rate assumed is higher. Therefore, lower rates should be tried. We now try 18%, 16% and 14% and get the following results:

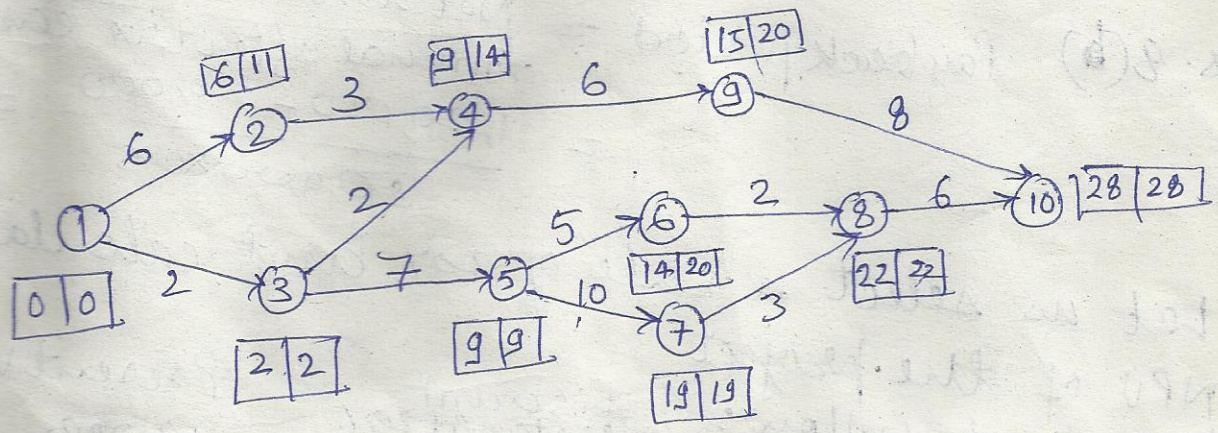
Yr	Cash inflows Rs.	D.F. at 18%	PV Rs.	D.F at 16%	PV Rs.	D.F at 14%	PV Rs.
1	16,000	0.847	13,552	0.862	13,792	0.877	14,032
2	14,000	0.718	10,052	0.743	10,402	0.769	10,766
3	12,000	0.609	7,308	0.641	7,692	0.675	8,100
			30,912		31,886		32,898
			− 32,400		− 32,400		− 32,400
			− 1,488		− 514		+ 498

∴ Let us try 15%.

Yr	Cash inflows	D.F at 15%	PV
1	Rs. 16,000	0.870	13,920
2	14,000	0.756	10,584
3	12,000	0.658	7896
			32,400
			− 32,400
			0

Unit IV

Q.9.



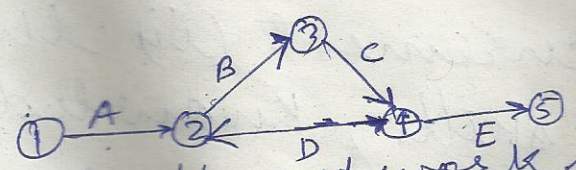
Activity (1)	Time (days) (2)	Start E (3)	Start L (4) (6-2)	Finish E (5) (3+2)	Finish L (6)	T.F. (7)=(6-5)	F.F. (8)	Ind. float (9)
~~1-2~~ 1-2	6	0	5	6	11	5	0	0
1-3	2	0	0	2	2	0	0	0
2-4	3	6	11	9	14	5	0	-5
3-4	2	2	12	4	14	10	5	5
3-5	7	2	2	9	9	0	0	0
4-9	6	9	14	15	20	5	0	-5
5-6	5	9	15	14	20	6	0	0
5-7	10	9	9	19	19	0	0	0
6-8	2	14	20	16	22	6	6	0
7-8	3	19	19	22	22	0	0	0
8-10	6	22	22	28	28	0	0	0
9-10	8	15	20	23	28	5	5	0

F.F = T.F − (L − E) of event j

Ind. Float = F.F − (L − E) of event i

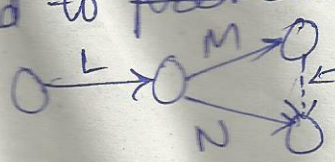
Or.

10 (a) Looping-

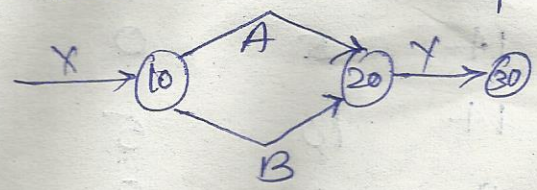


Sometimes due to faulty network sequence a condition shown in fig, arises. Here activities B, C & D form a loop.

(b) Dummy activity :- Any activity which does not consume either any resource or time is known as dummy activity. These are not real activities, they are used to ~~represent~~ preserve the logic of network.

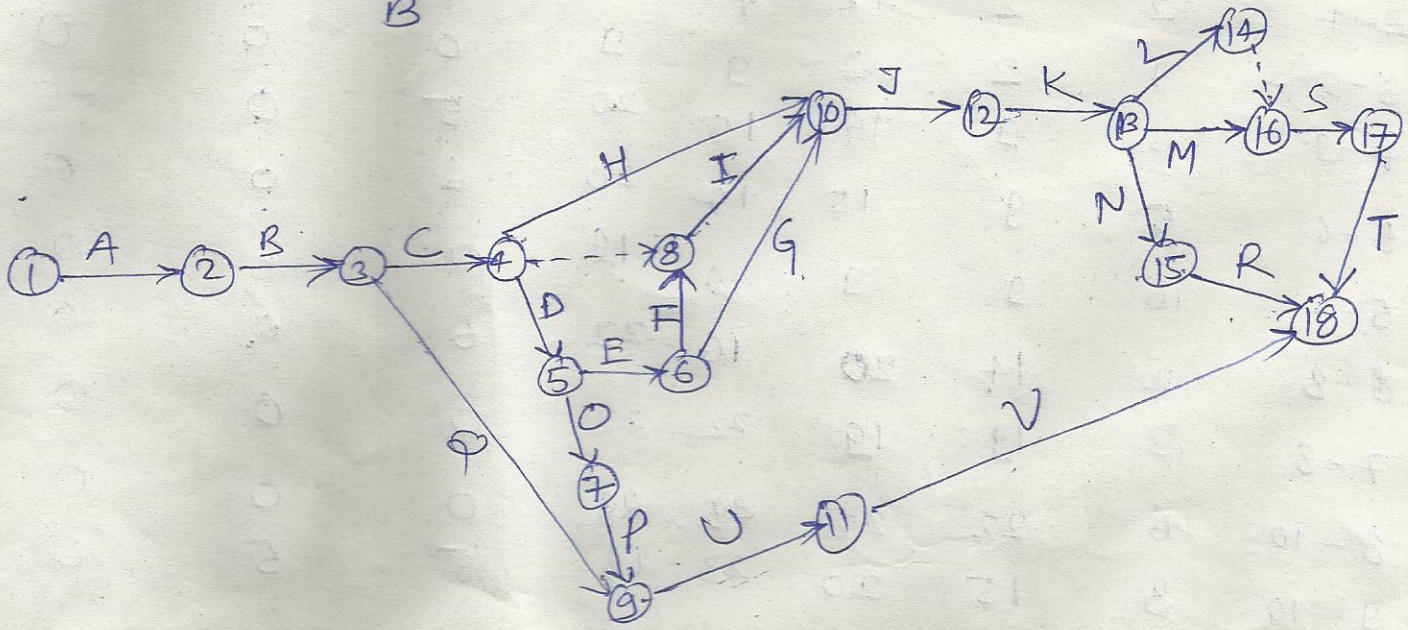


(iii) Duplicate activity :- No two activities can have the same pair of tail & head events. Such activities are called duplicate activities. (8)



Activities A & B are duplicate activities.

(b)



Unit V

11. HRM - It is that part of the total management of an organisation which specifically deals with human resources in respect of : (i) their procurement (ii) their development in terms of skills, knowledge and attitude. (iii) their motivation towards the attainment of organisational objectives by creating and maintaining an organisational climate conducive to such development. Other definitions.

Functions :- (i) Development of a personnel policy. (ii) manpower planning. Ascertaining the requirements of human resources in the light of organisation goals & objectives. (iii) Recruitment & selection of manpower. (iv) Analysis, discription & valuation of work. (v) Keeping records of personnel. (vi) Welfare & safety programmes. (vii) Wages & salaries administration. etc.

Or

12. Recruitment :- is the process by which manpower is discovered and then encouraged to apply for employment. Whenever vacancy occurs due to resignation, death, retirement, illness, promotion etc. the H.R. department should intimate the same to the nearest employment exchange or should give the advertisement to public through any media. Now interested candidates will apply in plain paper or in a form, if any, obtainable from the employer, giving the required details. The applications received upto the last date of submission are collected,

their summary sheet is prepared and suitable candidates are then called for selection by interview or test or both.