

# Operating Costing

## Question 1

A mini-bus, having a capacity of 32 passengers, operates between two places - 'A' and 'B'. The distance between the place 'A' and place 'B' is 30 km. The bus makes 10 round trips in a day for 25 days in a month. On an average, the occupancy ratio is 70% and is expected throughout the year.

The details of other expenses are as under:

### Amount (Rs.)

Insurance	15,600	Per annum
Garage Rent	2,400	Per quarter
Road Tax	5,000	Per annum
Repairs	4,800	Per quarter
Salary of operating staff	7,200	Per month
Tyres and Tubes	3,600	Per quarter
Diesel: (one litre is consumed for every 5 km)	13	Per litre
Oil and Sundries	22	Per 100 km run
Depreciation	68,000	Per annum

Passenger tax @ 22% on total taking is to be levied and bus operator requires a profit of 25% on total taking.

Prepare operating cost statement on the annual basis and find out the cost per passenger kilometer and one way fare per passenger.

**Question 2**

A transport company has 20 vehicles, which capacities are as follows:

No. of Vehicles	Capacity per vehicle
5	9 tonne
6	12 tonne
7	15 tonne
2	20 tonne

The company provides the goods transport service between stations 'A' to station 'B'. Distance between these stations is 200 kilometres. Each vehicle makes one round trip per day an average. Vehicles are loaded with an average of 90 per cent of capacity at the time of departure from station 'A' to station 'B' and at the time of return back loaded with 70 per cent of capacity. 10 per cent of vehicles are laid up for repairs every day. The following information are related to the month of October, 2013:

Salary of Transport Manager	Rs.30,000
Salary of 30 drivers	Rs.4,000 each driver
Wages of 25 Helpers	Rs.2,000 each helper
Wages of 20 Labourers	Rs.1,500 each labourer
Consumable stores	Rs.45,000
Insurance (Annual)	Rs.24,000
Road Licence (Annual)	Rs.60,000
Cost of Diesel per litre	Rs.35
Kilometres run per litre each vehicle	5 Km.

Lubricant, Oil etc.	Rs.23,500
Cost of replacement of Tyres, Tubes, other parts etc.	Rs.1,25,000
Garage rent (Annual)	Rs.90,000
Transport Technical Service Charges	Rs.10,000
Electricity and Gas charges	Rs.5,000
Depreciation of vehicles	Rs.2,00,000

There is a workshop attached to transport department which repairs these vehicles and other vehicles also. 40 per cent of transport manager's salary is debited to the workshop. The transport department is charged Rs. 28,000 for the service rendered by the workshop during October, 2013. During the month of October, 2013 operation was 25 days.

You are required:

- (i) Calculate per ton-km operating cost.
- (ii) Find out the freight to be charged per ton-km, if the company earned a profit of 25 per cent on freight.

### **Question 3**

A company is considering three alternative proposals for conveyance facilities for its sales personnel who has to do considerable traveling, approximately 20,000 kilometres every year. The proposals are as follows:

- (i) Purchase and maintain its own fleet of cars. The average cost of a car is Rs. 6,00,000.
- (ii) Allow the Executive use his own car and reimburse expenses at the rate of Rs. 10 per kilometer and also bear insurance costs.
- (iii) Hire cars from an agency at Rs. 1,80,000 per year per car. The company will have to bear costs of petrol, taxes and tyres.

The following further details are available:

Petrol Rs.6 per km.	Repairs and maintenance Rs.0.20 per km.
Tyre Rs.0.12 per km.	Insurance Rs.1,200 per car per annum
Taxes Rs. 800 per car per annum	Life of the car : 5 years with annual mileage of 20,000 km.

Resale value Rs.80,000 at the end of fifth year.

Work out the relative costs of three proposals and rank them.

#### **Question 4**

You have been given a permit to run a bus on a route of 20 km. long. The bus costs you Rs. 9,00,000. It has to be insured @ 3% p.a. and the annual tax will be Rs. 10,000. Garage rent is Rs. 10,000 p.m. Annual repairs will be Rs. 10,000 and the bus is likely to last for 5 years and at the end of which the scrap value is likely to be Rs. 60,000.

The driver's salary will be Rs. 1,500 p.m. and the conductor's Rs. 1,000 together with 10% of the takings as commission (to be shared equally by both). Stationery will cost Rs. 500 p.m. The manager-cum-accountant's salary will be Rs. 3,500 p.m.

Diesel and oil be Rs. 450 per hundred kilometres. The bus will make 3 round trips for carrying on the average 40 passengers on each trip. Assuming 15% profit on takings, calculate the bus fare to be charged from each passenger. The bus will work on the average 25 days in a month.

**Question 5**

Calculate total passenger kilometres from the following information:

Number of buses 6, number of days operating in a month 25, trips made by each bus per day 8, distance covered 20 kilometres (one side), capacity of bus 40 passengers, normally 80% of capacity utilization.

**Question 6**

A Mineral is transported from two mines – 'A' and 'B' and unloaded at plots in a Railway Station. Mine A is at a distance of 10 km., and B is at a distance of 15 km. from railhead plots. A fleet of lorries of 5 tonne carrying capacity is used for the transport of mineral from the mines. Records reveal that the lorries average a speed of 30 km. per hour, when running and regularly take 10 minutes to unload at the railhead. At mine 'A' loading time averages 30 minutes per load while at mine 'B' loading time averages 20 minutes per load.

Drivers' wages, depreciation, insurance and taxes are found to cost Rs. 9 per hour operated. Fuel, oil, tyres, repairs and maintenance cost Rs. 1.20 per km.

Draw up a statement, showing the cost per tonne-kilometer of carrying mineral from each mine.

**Question 7**

Voyager Cabs Pvt. Ltd. is a New Delhi based cab renting company, provides cab facility on rent for cities Delhi, Agra and Jaipur to the tourists. To attract more tourists it has launched a new three days tour package for Delhi-Jaipur-Agra-Delhi. Following are the relevant information regarding the package:

Distance between Delhi and Jaipur (km)	274
Distance between Delhi and Agra (km)	242
Distance between Agra and Jaipur (km)	238
Price of diesel in Delhi	Rs. 54 per litre
Price of diesel in Jaipur	Rs. 56 per litre
Price of diesel in Agra	Rs. 58 per litre
Mileage of cab per litre of diesel (Km.)	16
Chauffeur's salary	Rs. 12,000 per month
Cost of the cab	Rs. 12,00,000
Expected life of the cab	24,00,000kms.
Servicing cost	Rs. 30,000 after every 50,000 kilometres run.
Chauffeur's meal allowance	Rs. 50 for every 200 kilometres of completed journey
Other set up and office cost	Rs. 2,400 per month.

Voyager Cabs has made tie-up with fuel service centres at Agra, Jaipur and Delhi to fill diesel to its cabs on production of fuel passbook to the fuel centre. Company has a policy to get fuel filled up sufficient to reach next destination only.

You are required to calculate the price inclusive of passenger tax @ 12.36% to be quoted for the package if company wants to earn profit of 25% on its net takings i.e. excluding passenger tax.

**Question 8**

Global Transport Ltd. charges Rs. 90 per ton for its 6-tonnes truck lorry load from city 'A' to city 'B'. The charges for the return journey are Rs. 84 per ton. No concession or reduction in these rates is made for any delivery of goods at intermediate station 'C'. In January 2012, the truck made 12 outward journeys for city 'B' with full load out of which 2 tons were unloaded twice in the way at city 'C'. The truck carried a load of 8 tonnes in its return journey for 5 times but was once caught by police and Rs. 1,200 was paid as fine. For the remaining trips the truck carried full load out of which all the goods on load were unloaded once at city 'C', but it returned without any load once only from 'C' station to 'A' station. The distance from city 'A' to city 'C' and city 'B' are 140 km. and 300 km. respectively.

Annual fixed costs and maintenance charges are Rs. 60,000 and Rs. 12,000 respectively. Running charges spent during January 2012 are Rs. 2,944.

You are required to find out the cost per absolute tonne-kilometre and the profit for January, 2012.

**Question 9**

A company runs a holiday home for its customers. For this purpose, it has hired a building at a rent of Rs. 10,000 per month alongwith 5% of total taking. It has three types of rooms for its customers, viz., single room, double rooms and triple rooms.

Following information is given:

Type of suite	Number	Occupancy percentage
Single room	100	100%
Double rooms	50	80%
Triple rooms	30	60%

The rent of double rooms is to be fixed at 2.5 times of the single room and that of triple rooms as twice of the double rooms.

The other expenses for the year 2013 are as follows:

Particulars	Amount (Rs.)
Staff salaries	14,25,000
Room attendants' wages	4,50,000
Lighting, heating and power	2,15,000
Repairs and renovation	1,23,500
Laundry charges	80,500
Interior decoration	74,000
Sundries	1,53,000

Provide profit @ 20% on total taking and assume 360 days in a year.

You are required to calculate the rent to be charged for each type of suite.

### **Question 10**

A lorry starts with a load of 24 tonnes of goods from station A. It unloads 10 tonnes at station B and rest of goods at station C. It reaches back directly to station A after getting reloaded with 18 tonnes of goods at station C. The distance between A to B, B to C and then from C to A are 270 kms, 150 kms and 325 kms respectively.



Compute 'Absolute tonnes km.' and 'Commercial tones-km'.

**Question 11**

A transport company has been given a 40 kilometre long route to run 5 buses. The cost of each bus is Rs. 6,50,000. The buses will make 3 round trips per day carrying on an average 80 percent passengers of their seating capacity. The seating capacity of each bus is 40 passengers. The buses will run on an average 25 days in a month. The other information for the year 2013-14 are given below:

Garage rent	Rs.4,000 per month
Annual repairs and maintenance	Rs.22,500each bus
Salaries of 5 drivers	Rs.3,000 each per month
Wages of 5 conductors	Rs.1,200 each per month
Manager's salary	Rs.7,500 per month
Road tax, permit fee, etc.	Rs.5,000 for a quarter
Office expenses	Rs.2,000 per month
Cost of diesel per litre	Rs.33
Kilometre run per litre for each but	6 kilometres
Annual depreciation	15% of cost
Annual Insurance	3% of cost

You are required to calculate the bus fare to be charged from each passenger per kilometre, if the company wants to earn profits of  $33\frac{1}{3}$  percent on taking (total receipts from passengers).

**Question 12**

SMC is a public school having five buses each plying in different directions for the transport of its school students. In view of a larger number of students availing of the bus service the buses work two shifts daily both in the morning and in the afternoon. The buses are garaged in the school. The work-load of the students has been so arranged that in the morning the first trip picks up senior students and the second trip plying an hour later picks up the junior students. Similarly in the afternoon the first trip takes the junior students and an hour later the second trip takes the senior students home.

The distance travelled by each bus one way is 8 km. The school works 25 days in a month and remains closed for vacation in May, June and December. Bus fee, however, is payable by the students for all 12 months in a year.

The details of expenses for a year are as under:

Driver's salary	Rs.4,500 per month per driver
Cleaner's salary	Rs.3,500 per month
(Salary payable for all 12 months)	
(One cleaner employed for all the five buses)	
Licence fee, taxes, etc.	Rs.8,600 per bus per annum
Insurance	Rs.10,000 per bus per annum
Repairs & maintenance	Rs.35,000 per bus per annum
Purchase price of the bus	Rs.15,00,000 each
Life of each bus	12 years
Scrap value of buses at the end of life	Rs.3,00,000
Diesel cost	Rs.45.00 per litre

Each bus gives an average mileage of 4 km. per litre of diesel.

Seating capacity of each bus is 50 students.

The seating capacity is fully occupied during the whole year.

Students picked up and dropped within a range upto 4 km. of distance from the school are charged half fare and fifty per cent of the students travelling in each trip are in this category.

Ignore interest. Since the charges are to be based on average cost you are required to :

- (i) Prepare a statement showing the expenses of operating a single bus and the fleet of five buses for a year.
- (ii) Work out the average cost per student per month in respect of –
  - (A) students coming from a distance of upto 4 km. from the school and
  - (B) students coming from a distance beyond 4 km. from the school.

### Question 13

A transport company has a fleet of three trucks of 10 tonnes capacity each plying in different directions for transport of customer's goods. The trucks run loaded with goods and return empty. The distance travelled, number of trips made and the load carried per day by each truck are as under:

Truck No.	One way Distance Km	No. of trips per day	Load carried per trip / day tonnes
1	16	4	6
2	40	2	9
3	30	3	8

The analysis of maintenance cost and the total distance travelled during the last

two years is as under

Year	Total distance travelled	Maintenance Cost Rs.
1	1,60,200	46,050
2	1,56,700	45,175

The following are the details of expenses for the year under review:

Diesel	Rs. 10 per litre. Each litre gives 4 km per litre of diesel on an average.
Driver's salary	Rs. 2,000 per month
Licence and taxes	Rs. 5,000 per annum per truck
Insurance	Rs. 5,000 per annum for all the three vehicles
Purchase Price per truck	Rs. 3,00,000, Life 10 years. Scrap value at the end of life is Rs. 10,000.
Oil and sundries	Rs. 25 per 100 km run.
General Overhead	Rs. 11,084 per annum

The vehicles operate 24 days per month on an average.

Required

- (i) Prepare an Annual Cost Statement covering the fleet of three vehicles.
- (ii) Calculate the cost per km. run.
- (iii) Determine the freight rate per tonne km. to yield a profit of 10% on freight.

**Question 14**

Gopal Milk Co-Operative Society (GMCS) collects raw milk from the farmers of Ramgarh, Pratapgarh and Devgarh panchayats and processes these milk to make various dairy products. GMCS has its own vehicles (tankers) to collect and bring the milk to the processing plant. Vehicles are parked in the GMCS's garage situated within the plant compound. Following are the some information related with the vehicles:

	<b>Ramgarh</b>	<b>Pratapgarg</b>	<b>Devgarh</b>
No. of vehicles assigned	4	3	5
No. of trips a day	3	2	2
One way distance from the processing plant	24 k.m.	34 k.m.	16 k.m.
Toll tax paid p.m. (Rs.)	2,850	3,020	---

All the 5 vehicles assigned to Devgarh panchayat, were purchased five years back at a cost of Rs.9,25,000 each. The 4 vehicles assigned to Ramgarh panchayat, were purchased two yearsback at a cost of Rs. 11,02,000 each and the remaining vehicles assigned to Pratapgarh were purchased last year at a cost of Rs. 13,12,000 each. With the purchase of each vehicle a two years free servicing warranty is provided. A vehicle gives 10 kmplmileage in the first two year of purchase, 8 kmpl in next two years and 6 kmpl afterwards. The vehicles are subject to depreciation of 10% p.a. on straight line basis irrespective of usage. A vehicle has thecapacity to carry 25,000 litres of milk but on an average only 70% of the total capacity is utilized.

The following expenditure is related with the vehicles:

Salary of Driver (a driver for each vehicle)	Rs.18,000 p.m.
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Salary to Cleaner (a cleaner for each vehicle)	Rs.11,000 p.m.
Allocated garage parking fee	Rs.1,350 per vehicle per month
Servicing cost	Rs.3,000 for every complete 5,000 k.m. run.
Price of diesel per litre	Rs.58.00

From the above information you are required to calculate

- Total operating cost per month for each vehicle. (Take 30 days for the month)
- Vehicle operating cost per litre of milk.

### Question 15

From the following data pertaining to the year 2014-15 prepare a cost statement showing the cost of electricity generated per kwh by Chambal Thermal Power Station.

Total units generated	10,00,000 kwh
	(Rs.)
Operating labour	15,00,000
Repairs & maintenance	5,00,000
Lubricants, spares and stores	4,00,000
Plant supervision	3,00,000
Administration overheads	20,00,000

5 kwh. of electricity generated per kg. of coal consumed @Rs. 4.25 per kg.  
Depreciation charges @ 5% on capital cost of Rs. 2,00,00,000.

**Question 16**

EPS is a Public School having 25 buses each plying in different directions for the transport of its school students. In view of large number of students availing of the bus service, the buses work two shifts daily both in the morning and in the afternoon. The buses are garaged in the school. The workload of the students has been so arranged that in the morning, the first trip picks up senior students and the second trip plying an hour later picks up junior students. Similarly, in the afternoon, the first trip takes the junior students and an hour later the second trip takes the senior students home.

The distance travelled by each bus, one way is 16 km. The school works 24 days in a month and remains closed for vacation in May and June. The bus fee, however, is payable by the students for all the 12 months in a year.

The details of expenses for the year 2013-2014 are as under:

Driver's salary – payable for all the 12 months.      Rs.5,000 per month per driver.

Cleaner's salary payable for all the 12 months      Rs.3,000 per month per cleaner

(one cleaner has been employed for every five buses).

Licence Fees, Taxes etc.      Rs.2,300 per bus per annum

Insurance Premium      Rs. 15,600 per bus per annum

Repairs and Maintenance      Rs. 16,400 per bus per annum

Purchase price of the bus      Rs. 16,50,000 each

Life of the bus      16 years

Scrap value      Rs. 1,50,000

Diesel Cost

Rs.18.50 per litre

Each bus gives an average of 10 km. per litre of diesel. The seating capacity of each bus is 60 students. The seating capacity is fully occupied during the whole year.

The school follows differential bus fees based on distance traveled as under:

<b>Students picked up and dropped within the range of distance from the school</b>	<b>Bus fee</b>	<b>Percentage of students availing this facility</b>
4 km.	25% of Full	15%
8 km.	50% of Full	30%
16 km.	Full	55%

Ignore interest. Since the bus fees has to be based on average cost, you are required to

- (i) Prepare a statement showing the expenses of operating a single bus and the fleet of 25 buses for a year.
- (ii) Work out average cost per student per month in respect of:
  - (a) Students coming from a distance of upto 4 km. from the school.
  - (b) Students coming from a distance of upto 8 km. from the school; and
  - (c) Students coming from a distance of upto 16 km. from the school.

### **Question 17**

The following information relates to a bus operator:



Cost of the bus	Rs.18,00,000
Insurance charges	3% p.a.
Manager-cum accountant's salary	Rs. 8,000 p.m.
Annual Tax	Rs. 50,000
Garage Rent	Rs. 2,500 p.m.
Annual repair & maintenance	Rs. 1,50,000
Expected life of the bus	15 years
Scrap value at the end of 15 years	Rs. 1,20,000
Driver's salary	Rs.15,000 p.m.
Conductor's salary	Rs. 12,000 p.m.
Stationery	Rs. 500 p.m.
Engine oil, lubricants (for 1200 km.)	Rs. 2,500
Diesel and oil (for 10 km.)	Rs. 52
Commission to driver and conductor (shared equally)	10% of collections
Route distance	20 km long

The bus will make 3 round trips for carrying on the average 40 passengers in each trip. Assume 15% profit on collections. The bus will work on the average 25 days in a month

Calculate fare for passenger-km

### **Question 18**

In order to develop tourism, ABCL airline has been given permit to operate three flights in a week between X and Y cities (both side). The airline operates a single aircraft of 160 seats capacity. The normal occupancy is estimated at 60% throughout the year of 52 weeks. The one-way fare is Rs. 7,200. The cost of

operation of flights are:

Fuel cost (variable)	Rs.96,000 per flight
Food served on board on non-chargeable basis	Rs.125 per passenger
Commission	5% of fare applicable for all booking
Fixed cost:	
Aircraft lease	Rs.3,50,000 per flight
Landing Charges	Rs.72,000 per flight

Required:

- (i) Calculate the net operating income per flight.
- (ii) The airline expects that its occupancy will increase to 108 passengers per flight if the fare is reduced to Rs. 6,720. Advise whether this proposal should be implemented or not.

### **Question 19**

Mr. X owns a bus which runs according to the following schedule:

- a) Delhi to Chandigarh and back, the same day.

Distance covered: 250 km. one way.

Number of days run each month : 8

Seating capacity occupied 90%.

- (b) Delhi to Agra and back, the same day.

Distance covered: 210 km. one way

Number of days run each month : 10

Seating capacity occupied 85%

(c) Delhi to Jaipur and back, the same day.

Distance covered: 270 km. one way

Number of days run each month : 6

Seating capacity occupied 100%

Following are the other details:

Cost of the bus	Rs.12,00,000
Salary of the Driver	Rs.24,000 p.m.
Salary of the Conductor	Rs.21,000 p.m.
Salary of the part-time Accountant	Rs.5,000 p.m.
Insurance of the bus	Rs.4,800 p.a.
Diesel consumption 4 km. per litre at	Rs.56 per litre
Road tax	Rs.15,915 p.a.
Lubricant oil	Rs.10 per 100 km.
Permit fee	Rs.315 p.m.
Repairs and maintenance	Rs.1,000 p.m.
Depreciation of the bus	@ 20% p.a.
Seating capacity of the bus	50 persons.

Passenger tax is 20% of the total takings. Calculate the bus fare to be charged from each passenger to earn a profit of 30% on total takings. The fares are to be indicated per passenger for the journeys:

- 1) Delhi to Chandigarh
- 2) Delhi to Agra and
- 3) Delhi to Jaipur.

### **Question 20**

A Club runs a library for its members. As part of club policy, an annual subsidy of

uptoRs. 5 per member including cost of books may be given from the general funds of the club. The management of the club has provided the following figures for its library department.

Number of Club members	5,000
Number of Library members	1,000
Library fee per member per month	Rs.100
Fine for late return of books	Rs.1 per book per day
Average No. of books returned late per month	500
Average No. of days each book is returned late	5 days
Number of available old books	50,000 books
Cost of new books	Rs.300 per book
Number of books purchased per year	1,200 books
Cost of maintenance per old book per year	Rs.10

<b>Staff details</b>	<b>No.</b>	<b>Per Employee Salary per month (Rs.)</b>
Librarian	01	10,000
Assistant Librarian	03	7,000
Clerk	01	4,000

You are required to calculate:

- (i) the cost of maintaining the library per year excluding the cost of new books;
- (ii) the cost incurred per member per month on the library excluding cost of new

books; and

(iii) the net income from the library per year.

(iv) If the club follows a policy that all new books must be purchased out of library revenue

(a) What is the maximum number of books that can be purchased per year

(b) How many excess books are being purchased by the library per year?

**Question 21**

From the following information, calculate Patient Days:

	General Ward	Semi-Deluxe Ward	Deluxe Ward
Number of Wards	10	20	30
Number of Beds in each Ward	30	2	1
Occupancy Rate for 200 Days	100%	80%	60%
Occupancy Rate for rest of the year	80%	60%	40%

Assume 365 days in a year.

The Rent of semi-deluxe ward bed is to be fixed at 3 times of the general ward bed and that of deluxe ward bed as twice of semi-deluxe ward bed.

Desired Profit = 20% on total cost

Calculate rent to be charged for each bed day for different types of wards if Total operating cost = 1368 Lacs

### **Question 22**

Roop Nagar Hospital runs an intensive Medical Care Unit. For this purpose, it has hired a building at a rent of Rs. 5,000 p.m. with the understanding that it would bear the repairs and maintenance charges also.

The unit consists of 25 beds and 5 more beds can be comfortably accommodated when occasion demands. The permanent staff attached to the unit are as follows :

1 Supervisor, at a salary of Rs. 1,000 p.m.

2 Nurses, each at a salary of Rs. 600 p.m.

1 Ward boy, at a salary of Rs. 300 p.m.

Though the unit was open for the patients all the 365 days in a year, scrutiny of accounts in 20X1 revealed that only for 120 days in the year, the unit had the 100% occupancy rate and for another 80 days it had on an average 80% occupancy rate. But there were occasions when the beds were full, extra beds were hired from outside at a charge of Rs. 5 per bed per day and this did not come to more than 5 beds extra above the normal capacity on any one day. The total hire charges for the extra beds incurred for the whole year amounted to Rs. 2,000.

The unit engaged expert doctors from outside to attend on the patients and the fees were paid on the basis of the number of patients attended and time spent by them and on an average

worked out to Rs. 10,000 p.m. in 20X1. The other expenses for the year were as under:

Particulars	Rs.
Repairs and Maintenance	14,450
Food supplied to patients	44,000
Monitor and other services for them	12,500
Laundry charges for their bed linen	28,000
Medicines supplied	73,500
General administration charges allocated to the unit	49,550

(i) If the unit recovered an overall amount of Rs. 100 per day on an average from each patient, what is the profit per patient made by the unit in 20X1 ?

(ii) The unit wants to work on a budget for the year 20X2, but the number of patients requiring intensive medical care is a very uncertain factor. Assuming that same revenue and expenses prevail in 20X2, in the first instance, work out the number of patient-days required by the unit to break even.

### **Question 23**

A Multinational company runs a Public Medical Health Center. For this purpose, it has hired a building at a rent of Rs.10,000 per month with 5% of total taking. Health center has three types of wards for its patients namely. General ward, Cottage ward and Deluxe ward. State the rent to be

charged to each bed-day for different type of ward on the basis of the following information;

- i. The number of beds of each type is General ward 100, Cottage ward 50, Deluxe ward 30.
- ii. The rent of cottage ward bed is to be fixed at 2.5 times of the General ward bed and that of Deluxe ward bed as twice of the Cottage ward bed.
- iii. The occupancy of each type of ward is as follows: General ward 100%, Cottage ward 80% and Deluxe ward 60%. But, in General ward there were occasions when beds are full, extra beds were hired at a charges of Rs. 20 per bed per day. The total hire charges for the extra beds incurred for the whole year amount to Rs. 12,000.
- iv. The Health center engaged a heart specialist from outside and on an average fees paid to him was Rs. 15,000 per trip. He makes three trips in the whole year.
- v. The other expenses for the year were as under:

	<b>(Rs.)</b>
Salary of Supervisors, Nurses, Ward Boys	4,25,000
Repairs and Maintenance	90,000
Salary of Doctors	13,50,000



Food Supplied to Patients	40,000
Laundry Charges for their Bed Linens	80,500
Medicines Supplied	74,000
Cost of Oxygen, X-Ray etc. (other than directly borne for treatment of Patients)	49,500
General Administration Charges	63,000

6. Provide profit @ 20% on total taking.
7. The Health center imposes 8% tax on rent received
8. 360 days may be taken in a year.

### **Question 24**

ABC Hospital runs a Critical Care Unit (CCU) in a hired building. CCU consists of 35 beds and 5 more beds can be added, if required.

Rent per month - Rs. 75,000

Supervisors – 2 persons – Rs. 25,000 Per month – each

Nurses – 4 persons – Rs. 20,000 per month – each

Ward Boys – 4 persons – Rs. 5,000 per month – each

Doctors paid Rs.2, 50,000 per month – paid on the basis of number of patients attended and the time spent by them

**Other expenses for the year are as follows:**

Repairs (Fixed) – Rs. 81,000

Food to Patients (Variable) – Rs. 8, 80,000

Other services to patients (Variable) – Rs. 3, 00,000

Laundry charges (Variable) – Rs. 6,00,000

Medicines (Variable) – Rs.7,50,000

Other fixed expenses – Rs.10, 80,000 Administration  
expenses allocated – Rs. 10,00,000

It was estimated that for 150 days in a year 35 beds are occupied and for 80 days only 25 beds are occupied.

The hospital hired 750 beds at a charge of Rs.100 per bed per day, to accommodate the flow of patients. However, this does not exceed more than 5 extra beds over and above the normal capacity of 35 beds on any day.

**You are required to –**

- (a) Calculate profit per Patient day, if the hospital recovers on an average Rs.2,000 per day from each patient
- (b) Find out Breakeven point for the hospital.

**Question 25**

RAM JI KA DHABA serves fixed lunch/dinner thali to its customers and provides you the following information for the month of April 20X6:

Wheat flour	9,000
Vegetables	4,500
Oil	3,600
Spices etc.	900
Wages of cook	3,000
Wages of Kitchen assistant	2,400
Wages of waiter	1,500
Gas	1,500
Water	300
Power & lighting	750
Crockery	225
Cleaning materials	150
Rent	2,175
No. of thalies served	1,560
(including 60 thalies served to Drivers & Conductors)	
Profit margin	$33\frac{1}{3}\%$ on sales

It is the policy to serve drivers & conductors free of charge.

Calculate Price Per Thali ?

**Question 26**

A lodging home is being run in a small hill station with 100 single rooms. The home offers concessional rates during six off- season months in a year. During this period, half of the full room rent is charged. The management's profit margin is targeted at 20% of the room rent. The following are the cost estimates and other details for the year ending on 31st March 20X7. [Assume a month to be of 30 days].

(i) Occupancy during the season is 80% while in the off- season it is 40% only.

(ii) Total investment in the home is Rs.200 lakhs of which 80% relate to buildings and balance for furniture and equipment.

(iii) Expenses:

Staff salary [Excluding room attendants] : Rs.5,50,000

Repairs to building : Rs.2,61,000

Laundry charges : Rs.80, 000

Interior : Rs.1,75,000

Miscellaneous expenses : Rs.1,90,800

(iv) Annual depreciation is to be provided for buildings @ 5% and on furniture and equipment @ 15% on straight-line basis.

(v) Room attendants are paid Rs. 10 per room day on the basis of occupancy of the rooms in a month.

(vi) Monthly lighting charges are Rs.120 per room, except in four months in winter when it is Rs.30 per room and this cost is on the basis of full occupancy for a month.

You are required to work out the room rent chargeable per day both during the season and the off-season months on the basis of the foregoing information.

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**Question 27**

Following are the data pertaining to Infotech Pvt. Ltd, for the year 20X6 - X7

Particulars	Amount (Rs)
Salary to Software Engineers (5 persons)	15,00,000
Salary to Project Leaders (2 persons)	9,00,000
Salary to Project Manager	6,00,000
Repairs & maintenance	3,00,000
Administration overheads	12,00,000

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The company executes a Project XYZ, the details of the same as are as follows: Project duration – 6 months

One Project Leader and three Software Engineers were involved for the entire duration of the project, whereas Project Manager spends 2 months' efforts, during the execution of the project.

Travel expenses incurred for the project – Rs.1,87,500

Two Laptops were purchased at a cost of Rs. 50,000 each, for use in the project and the life of the same is estimated to be 2 years

Prepare Project cost sheet

**Question 28**

BHG Toll Plaza Ltd built a 60 km. long highway and now operates a toll plaza to collect tolls from passing vehicles using the same. The company has invested Rs.600 crore to build the road and has estimated that a total of 60 crore vehicles will be using the highway during the 10 years toll collection tenure. Toll Operating and Maintenance cost for the month of April 20X7 are as follows:

(i) Salary to –

Collection Personnel (3 Shifts and 4 persons per shift) -Rs.150 per day per person

Supervisor (2 Shifts and 1 person per shift) -Rs. 250 per day per person

Security Personnel (3 Shifts and 2 persons per shift) -Rs.150 per day per person

Toll Booth Manager (2 Shifts and 1 person per shift) -Rs.400 per day per person

(ii) Electricity – Rs. 80,000

(iii) Telephone – Rs. 40,000

(iv) Maintenance cost – Rs. 30 Lacs

(v) The company needs 25% profit over total cost to cover interest and other costs. **Required:**

i. Calculate cost per kilometer.

- ii. Calculate the toll rate per vehicle (assume there is only one type of vehicle).

### **Question 29**

The loan department of a bank performs several functions in addition to home loan application processing task. It is estimated that 25% of the overhead costs of loan department are applicable to the processing of home-loan application. The following information is given concerning the processing of a loan application:

#### **Direct professional labor:**

	<b>(Rs)</b>
Loan processor monthly salary: (4 employees @ Rs.20,000 each)	80,000
Loan department overhead costs (monthly):-	
Chief loan officer's salary	5,000
Telephone expenses	750
Depreciation Building	2,800
Legal advice	2,400
Advertising	400
Miscellaneous	650
<b>Total overhead costs</b>	<b>12,000</b>

You are required to compute the cost of processing home loan application on the assumption that one hundred home loan applications are processed each month.

**Question 30**

The New Thermal Power Generating Plant gives you the following data. Find out in an appropriate form, the cost of electricity produced per unit, during the month of August.

1. Coal: Annual contract for supply of coal and inputs from a supplier F.O.R colliery at ₹ 1,000 per tonne.

Stock of Coal on 1<sup>st</sup> August: 500 tonnes, Supplies received during August: 1,100 tonnes.

Stock of Coal at the end of the month – 400 tonnes.

2. Oil 10 Tonnes at ₹ 25,000 per tonne.

3. Water: 5,00,000 litres. Pumping Charges at ₹ 2.50 per 100 litres.

4. Depreciation of Steam Boiler: Capital value ₹ 24,00,000 and the rate of depreciation is 12.5% p.a.

5. Wages of the Boiler House – 10 Men at ₹ 10,000 p.m. each, 40 Ancillary workers at ₹ 2,000 p.m each.

6. Wages of the Generating Station: 50 Men at ₹ 10,000 p.m each, 20 Ancillary workers at ₹ 2,000 p.m each.

7. Recovery on account of Sale of Ashes: 100 tonnes at ₹ 75 per tonne

8. Repairs and Maintenance of Generating Equipment ₹ 2,60,000.

9. Depreciation of the Generating Equipment to be charged on Capital Value ₹ 12,00,000 at 12.5% p.a.

10. Share of Administration Charges ₹ 1,75,000 for the month of August.

11. Number of units generated – 7,00,000, Loss in the process: 20,000 units generated.