## Note:1. All questions are compulsory.

2. Figures to the right indicate full marks.
Q. 1 Fill in the blanks with an appropriate answer from the alternative given below:
(1) Checking serial No of vouchers during vouching helps the auditors to $\qquad$ .
(a) Detect Errors of principle
(c) Detect compensating errors
(b) Detect Errors of omission
(d) None of the above
(2) Payroll is an example of $\qquad$ Documents.
(a) External
(b) principle
(c) Internal
(d) None of the Above
(3) The Authority to remove the First Auditors before the expiry of term is with $\qquad$ .
(a) The shareholders in General Meeting
(c)The Board of Directors
(b) The shareholders in First Annual General Meeting
(d)The Central Government
(4) $A$ Auditors is the only non-charted Accountant who can be appointed as the auditor of a company.
(a) Government
(b) Certified
(c) Non certified
(d) Non Government Auditor
(5) The payee should sign on a Revenue Stamp at the payment exceeds ` $\qquad$ .
(a) 15,000
(b) 5,000
(c) 8,000
(d) 10,000

## Q. 2 Answer in one sentence:

(1) What is vouching?
(2) What is Errors of omission?
(3) What are supporting Documents for vouching purchase return?
(4) What are qualifications of Company Auditors?
(5) What are supporting Documents for Vouching Insurance premium?

## Q. 3 Write short notes on (Any two out of three) :

(1) Vouching of Sales Return
(2)Appointment of Auditors by Special Resolution
(3) Vouching of Advertisement
---X---

## Marks : 20

Note:1. All questions are compulsory.
2. Figures to the right indicate full marks.
Q. 1 Fill in the blanks with an appropriate answer from the alternative given below:
(1) The Auditor of a Government company is appointed by $\qquad$ -.
(a) The Shareholders
(b) The Board of Directors
(c) The Comptroller \& Auditor General of India $\quad$ (d) The Central Government
(2) The Auditor will examine Bill of lading in order to vouch $\qquad$ .
(a) sales within the state
(b) sales outside the state
(c) Exports
(d) sales on Approval
(3) If a casual vacancy in the office of auditors arises by his resignation it should only be filled by the company in a $\qquad$ -
(a) Board Meeting
(b) Extra ordinary General Meeting
(c) General Meeting
(d) Annual General Meeting
(4) The provisions of law relating to appointment \& Removal of auditors ensure the independence of
(a) Shareholders
(b) Board of Director
(c) Auditors
(d) All of the Above
(5) Checking the Amount in words during vouching of cash transaction helps the Auditor to $\qquad$ .
(a) Detect Errors of principle
(b) Detect Errors of commission
(c) Detect Misappropriation
(d) None of the Above
Q. 2 Answer in one sentence:
(1) What is Vouching?
(2) What are qualifications of Company Auditors?
(3) What are supporting Documents for vouching Rental Receipt?
(4) What are supporting Documents for vouching Travelling expenses?
(5) What is Errors of commission?

## Q. 3 Write short notes on (Any two out of three) :

(1) Vouching of Purchase Returns
(2) Remuneration of Auditors
(3)Appointment of Auditors by Central Government ---X---

Note:1. All questions are compulsory.
2. Figures to the right indicate full marks.
Q. 1 Fill in the blanks with an appropriate answer from the alternatives given below:
(1) The maximum number of partners permissible in case of banking activities is $\qquad$ . (20, 10,2)
(2) Partners collectively are called $\qquad$ .
(firm, company, co-operatives)
(3) In case of partnership at will a partner can retire at any time by giving $\qquad$ . (letter, notice)
(4) Only set-off upto $\qquad$ is permitted in case of an unregistered firm. (200, 100, 500)
(5) There are $\qquad$ modes of dissolution of a firm. $(5,3,2)$

## Q. 2 Answer in one or two sentence:

(1) Mutual agency
(3) Partnership
(2) Implied authority
(4) Particular partnership
(5) Nominal partner

## Q. 3 Write short notes on (any two out of three):

(1) Test of partnership
(2) Rights of partners
(3) Compulsory dissolution

## Note:1. All questions are compulsory.

2. Figures to the right indicate full marks.
Q. 1 Fill in the blanks with an appropriate answer from the alternatives given below:
(1) The maximum number of partners permissible in case of non-banking activities is $\qquad$ . $(20,10,2)$
(2) In case of dissolution of the firm the relationship of $\qquad$ comes to an end. (partner, partnership, company)
(3) Every partner is both an agent and a principal which is called $\qquad$ . (mutual agency, partnership, company)
(4) Whenever a partnership continues beyond the term prescribed it becomes partnership $\qquad$ . (particular, at will, fixed term)
(5) A new partner may be admitted $\qquad$ of existing partner.
(without the consent, with the consent)
Q. 2 Answer in one or two sentence:
(1) Express authority
(3)Expulsion of partner
(2) Partner
(4) Partnership for fixed term
(5)Voluntary dissolution
Q. 3 Write short notes on (any two out of three):
(1) Types of partners
(2) Duties of partners
(3) Partnership deed

## Note:1. All questions are compulsory.

## 2. Figures to the right indicate full marks.

Q. 1 Choose an appropriate answer from the alternatives given below :
(1) Which of the following are prime costs?
(i) Direct Material
(ii) Direct labour
(iii) Indirect labour
(iv) Indirect Expenses
(a) (i) and (ii)
(b) (ii) and (iii)
(c) (i) and (iii)
(d) (ii) and (iv)
(2) Which of the following item is included in Selling and Distribution overhead?
(a) Depreciation on Machinery
(b) Depreciation on Furniture
(c) Depreciation on Loose tools
(d) Depreciation on Delivery Van
(3) Process cost is based on the concept of-
(a) Average cost
(b) Marginal cost
(c) Standard cost
(d) Differential cost
(4) Normal loss is equal to-
(a) Normal output - Actual output
(b) Actual output - Normal output
(c) Input $\mathrm{x} \%$ of Normal loss
(d) None of the above
(5) 12000 kg of a material was used as input for a process. The normal loss is $10 \%$ of the input. There is no opening or closing work-in-progress. The output in the period was 10920 kg . What was the abnormal loss / gain in the period?
(a) Abnormal gain of 120 kg
(b) Abnormal loss of 120 kg
(c) Abnormal gain of 1080 kg
(d) Abnormal loss of 1080 kg
Q. 2 Match the columns:

|  | Expenses |  | Overheads |
| :--- | :--- | :--- | :--- |
| (1) | Carriage Inward | (a) | Selling and Distribution |
| (2) | Depreciation of Machinery | (b) | Financial Expense |
| (3) | Office staff salaries | (c) | Prime Cost |
| (4) | Carriage Outward | (d) | Administration Expense |
| (5) | Cash Discount | (e) | Work Overhead |

Q. 3 A product of a factory passes through three processes. From the following particulars, find out process-wise cost for the month ending on $31^{\text {st }}$ December, 2014.

| Particulars | Process |  |  |
| :--- | :---: | :---: | :---: |
|  | P | Q | R |
| Material | 27,000 | 23,500 | 22,000 |
| Labour | 25,000 | 24,000 | 22,500 |
| Direct Expense | 21,500 | 20,800 | 21,100 |

Unit produced-1000 units. Indirect Expenses of the factory to be recovered are ` 24,600 on the basis of respective labour cost.
Q. 4 The following particulars have been extracted from the books of $\mathrm{M} / \mathrm{s}$ Kartik Manufacturing company for the year ended 31.03 .2015 . you are required to compute
(1) Prime cost
(2) Works cost

| Particulars |  |
| :--- | ---: |
| Opening stock of raw materials | $3,35,000$ |
| Closing stock of raw materials | $3,50,000$ |
| Raw Materials Purchase | $11,40,000$ |
| Drawing office salaries | $1,48,000$ |
| Royalty on production | $1,40,000$ |
| Carriage inwards | $1,17,000$ |
| Cash Discount allowed | $1,53,000$ |
| Repairs to plant and machinery | $1,15,000$ |
| Rent, rates and taxes [Factory] | $8,00,000$ |
| Productive wages | $1,35,500$ |
| Depreciation on plant and machinery | $1,07,500$ |
| Gas and water charges [Factory] | 28,000 |
| Loose tools written off |  |

## Marks : 20

Time: 40 mins.

## Note:1. All questions are compulsory.

2. Figures to the right indicate full marks.
Q. 1 Fill in the blanks with an appropriate answer from the alternatives given below :
(1) $\qquad$ has no sale value.
(a) Waste
(b) Scrap
(2) $A$ $\qquad$ has a minimal sales value.
(a) joint product
(b) by-product
(3) Direct Materials + Direct labour + Direct Expenses $=$ $\qquad$ -
(a) Works cost
(b) Cost of production
(c) Cost of sales
(d) Prime cost
(4) If sales of a product are ${ }^{`} 1,20,000$ and profit is $20 \%$ on sales, the cost of sales is `\(\qquad\) . (a)` $1,44,000$
(b) ` 96,000 (c) ' \(1,00,000\) (d) \({ }^{`} 1,40,000\)
(5) Abnormal loss is $\qquad$ (debited / credited) to process account and Abnormal gain is
$\qquad$ (debited / credited) to process account.
Q. 2 Match the columns:

|  | Expenses |  | Overheads |
| :--- | :--- | :--- | :--- |
| (1) | Indirect Wages | (a) | Selling and Distribution |
| (2) | Depreciation on Computer | (b) | Financial Expense |
| (3) | Direct Materials | (c) | Works Overhead |
| (4) | Trade Fair Expenses | (d) | Administration Overhead |
| (5) | Interest on Loan | (e) | Prime Cost |

Q. 3 A product passes through three distinct processes for completion. During the first week of October 2014, 500 units were produced. The following information is obtained:

| Particulars | Process |  |  |
| :--- | ---: | ---: | ---: |
|  | I | II | III |
|  | 30,000 | 15,000 | 10,000 |
| Material | 25,000 | 20,000 | 25,000 |
| Labour | 5,000 | 1,000 | 5,000 |
| Direct Expense |  |  |  |

The indirect expenses for the period were ` 14,000 apportioned to the process on the basis of wages.
You are required to prepare the Process Accounts showing total cost in each process.
Q. 4 From the following details, calculate:
(1) Prime cost (2) Works cost

| Particulars | ' |  |
| :--- | ---: | :---: |
| Opening stock of raw materials | $1,80,000$ |  |
| Opening stock of work in progress | $1,51,000$ |  |
| Purchase of raw materials | $3,30,000$ |  |
| Direct labour cost | $1,94,000$ |  |
| Factory overheads | $1,79,000$ |  |
| Closing stock of raw material | $1,66,000$ |  |
| Closing stock of work in progress | $1,44,000$ |  |
|  |  |  |

## Note:1. All questions are compulsory.

2. Figures to the right indicate full marks.
Q. 1 Fill in the blanks with the appropriate answer from the alternatives given below:
(a) Gross national product at market price $\qquad$ subsidies. (includes, excludes, provides)
(b) The value of output within a country is called $\qquad$ .
(domestic income, national product, disposable income)
(c) A thee sector economy includes households, business firms and $\qquad$ . (financial market, world economy, government)
(d) The level of unemployment is very high during $\qquad$ . (recession, recovery, depression)
(e) The fluctuations of trade cycle are controlled by monetary and $\qquad$ policies. (fiscal, financial, trade)
Q. 2 Answer in one sentence:
(a) Net domestic product
(c) World Economy
(b) Per capita income
(d) Factor income
(e) Peak
Q. 3 Write short notes on (Any two):
(a) GDP and GNP
(b) Circular flow of income in an open economy
(c) Features of trade cycle

## Note:1. All questions are compulsory.

2. Figures to the right indicate full marks.
Q. 1 Fill in the blanks with the appropriate answer from the alternatives given below:
(a) Gross domestic product at factor cost $\qquad$ indirect taxes.
(provides, excludes, includes)
(b) $\qquad$ is used for making international comparison regarding standard of living enjoyed by the people of a country (Personal income, Per capita income, Disposable income)
(c) An economy which has no foreign trade is known as $\qquad$ .
(open economy, closed economy, four sector economy)
(d) Trade cycle refers to the $\qquad$ in business.
(ups and downs, activities, transactions)
(e) Recession if not controlled will lead to $\qquad$ . (recovery, prosperity, depression)

## Q. 2 Answer in one sentence:

(a) Net national product
(c) Savings
(b) Business firms
(d)Personal Income
(e) Trough

## Q. 3 Write short notes on (Any two):

(a) Methods of measuring national income
(b) Circular flow of income in a three sector economy
(c) Control of trade cycle

## Note:1. All questions are compulsory.

## 2. Figures to the right indicate full marks.

Q. 1 Fill in the blanks:
(1) Income received in advance is shown on $\qquad$ side of balance sheet
(2) Royalty on sale is shown in $\qquad$ .
(3) Government dues are $\qquad$ liabilities.
(4) Realisation expenses are first adjusted from sale proceeds of $\qquad$ .
(5) Excess capital method is also known as $\qquad$ method.

## Q. 2 Answer the given questions in one sentence:

(1) What is secured liability?
(2) What is piecemeal distribution?
(3) What is unexpired expenses?
(4) What is fixed capital method?
(5) What is contingent liability?

## Q. 3 Attempt any two of the following :

(a) Amal, Bimal and Kamal are three partners. On $1^{\text {st }}$ April, 2011, their capitals stood as : Amal `40,000, Bimal` 30,000 and Kamal `25,000. It was decided that: a) They would receive interest on capital @ 5\% p.a. b) Amal would get salary of` 250 per month.
c) Bimal would receive commission @ $4 \%$ on the net profit after deduction of the commission from it and
d) After deducting all of these $10 \%$ of the profits should be transferred to the general reserve. Before the above items were taken into account, the profits for the year ended $31^{\text {st }}$
March, 2012 were ` 33,360
Prepare the Profit and Loss appropriation account.
(b) P, Q, R,S and T are partners sharing profits and losses in the proportion of 3:2:2:2:1 respectively. Their Balance sheet on $31^{\text {st }}$ December, 2014 as follows:

| Liabilities | Assets |  |  |
| :--- | ---: | :--- | ---: |
| Capitals |  | Sundry Assets | $3,00,000$ |
| P | $1,00,000$ | Bank Balance | 50,000 |
| Q | 60,000 | Profit \& Loss account | 20,000 |
| S | 40,000 | Capitals:- |  |
| Reserves | $1,20,000$ | R | 20,000 |
| Creditors | 80,000 | T | 10,000 |
|  | $4,00,000$ |  | $4,00,000$ |

Prepare a statement of surplus capital and decide order of payment to partners.
(c) Write short note on preferential liabilities.
---X---

## Note:1. All questions are compulsory.

## 2. Figures to the right indicate full marks.

Q. 1 Fill in the blanks:
(1) Interest on drawings is credited to $\qquad$ account in final account.
(2) Interest on capital is debited to $\qquad$ account in final account.
(3) Goodwill is an $\qquad$ asset.
(4) Productive wages are debited to $\qquad$ account.
(5) Unearned income is shown as a $\qquad$ in balance sheet.
Q. 2 Answer the following questions in one sentence:
(1) What is bad debts?
(2) What is fluctuating capital method?
(3) What is preferential liability?
(4) How is general reserve dealt with on piecemeal distribution?
(5) What is partnership deed?

## Q. 3 Attempt any two of the following :

(a) $X$ and $Y$ are partners sharing profits and losses in the ratio of $3: 1$. On $1^{\text {st }}$ April, 2013, their capitals were :X`50,000 and Y` 30,000 . During the year ended $31^{\text {st }}$ March, 2014 they earned a net profit of `50,000 . The terms of partnership are: a) \(X\) will get a commission @ \(2 \%\) on turnover. b) \(Y\) will get a salary of` 500 per month.
c) Interest on capital is to be charged @ 6\% p.a.
d) $Y$ will get commission of $5 \%$ on profits after deduction of all expenses including such commission.

Partner's drawings for the year were: $X^{`} 8,000$ and $Y^{`} 6,000$.Turnover for the year was ` 3,00,000.
You are required to prepare the Profit and Loss appropriation account.
(b) $\mathrm{U}, \mathrm{V}, \mathrm{W}, \mathrm{X}$ and Y are partners sharing profits and losses in the proportion of 3:2:2:2:1 respectively. Their Balance sheet on $31^{\text {st }}$ December, 2013 as follows

| Liabilities | Assets |  |  |
| :--- | ---: | :--- | ---: |
| Creditors | 20,000 | Bank Balance | 12,500 |
| Reserves | 30,000 | Sundry Assets | 75,000 |
| Capitals |  | Deferred Revenue Expenditure | 5,000 |
| V | 25,000 | Capitals |  |
| X | 15,000 | W | 5,000 |
|  | 10,000 | Y | 2,500 |
|  | $1,00,000$ |  | $1,00,000$ |

Prepare a statement of surplus capital and decide order of payment to partners.
(c) Write short note on contingent liability.

## Note:1. All questions are compulsory.

2. Figures to the right indicate full marks.
Q. 1 (A) Fill in the blanks with the appropriate answer from the alternatives given :
(1) $\qquad$ is concerned with ultimate control on the organisation.
(Code of conduct, Social obligation, Administration)
(2) Decision-making is a responsible job as $\qquad$ decisions prove to be costly to the organisation.
(wrong, situation based, right, effective)
(3) $\qquad$ decisions are normal and repetitive in character.
(Routine, administrative, strategic, open)
(4) Planning is a $\qquad$ process.
(physical, virtual, mental)
(5) A problem well defined is a problem $\qquad$ .
(half baked, half processed, help solved)
Q. 2 Answer in one sentence:
(1) Management
(3) Motivation
(2) Unity of command
(4)Manpower
(5) Scalar chain
Q. 3 Write short note on (Any two of three) :
(1) Team Spirit
(2) Strategy
(3) Planning

Note:1. All questions are compulsory.
2. Figures to the right indicate full marks.
Q. 1 (A) Fill in the blanks with appropriate answer from the alternatives given below:
(1) Planning is a $\qquad$ function.
(regular, continuous, final)
(2) Policy is a plan to act as a $\qquad$ to decision making. (guide, standard, strategy)
(3) Management is a field of $\qquad$ .
(debate, sports, creativity)
(4) $\qquad$ is the primary objective of every business.
(profitability, survival, growth)
(5) Management is $\qquad$ .
(dynamic, rigid, permanent)
Q. 2 Answer in one sentence:
(1) Administration
(3) Decision Making
(2) Unity of direction
(4) Standards
(5) Planning
Q. 3 Write short notes on (Any two out of three):
(1) Six Ms of Management
(2) Scalar Chain
(3) Importance of planning

## Note:1. All questions are compulsory.

## 2. Figures to right indicates full marks

Q. 1 (a) Choose the correct alternative and rewrite the sentences:
(1) Which of the following method is applicable to find better IBFS in transportation problem?
(i) Vogel's approximation method
(ii) North west corner rule method
(iii) Least cost Method
(iv) All of the above
(2) Maximization assignment problems are transformed into minimization by
(i) Adding maximum element from each element
(ii) Subtracting maximum element from each element
(iii) Subtracting each element from maximum element
(iv) Adding minimum element to each element
(3) The purpose of a dummy origin or dummy destination in an transportation problem is to
(i) Convert degenerate solution into non-degenerate
(ii) Obtain balance between total supply \& total demand
(iii) Find alternate solution
(iv) None of the above
(4) An optimal solution of an Assignment problem can be obtained only if
(i) Each row \& column has only one zero
(ii) Each row \& column has at least one zero
(iii) Each row \& column has at most one zero
(iv) None of the above
(5) The occurrence of degeneracy while transportation problem means
(i) Total supply is not equal to total demand
(ii) Number of occupied cells $=m+n-1$
(iii) Number of occupied cells $<m+n-1$
(iv) Number of occupied cells $>\mathrm{m}+\mathrm{n}-1$
(b) Answer the following with proper justification:
(1) Comment on the following statement The cost associated with dummy row or dummy column in assignment problem are any numerical values.
(2) State the necessary conditions to form a closed loop in transportation problem.
(3) What is meant by prohibited transportation problem?
(4) Explain how to resolve degeneracy in assignment problem.
(5) What is interpretation of opportunity cost value $\left(\Delta_{\mathrm{j}}\right)$ in transportation problem?

## Q. 2 Attempt any two:

(1) Company has three warehouses \& four distribution centres. The supply from each warehouse, demand at each distribution centre, associated transportation cost \& from the past experience dispatch schedule of a company is as follows.

|  | Distribution centres (Cost in ‘000` Per unit) |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Warehouses | D1 | D2 | D3 | D4 | SUPPLY |
| W1 | 3 | $(40) 5$ | $(10) 3$ | 6 | 50 |
| W2 | $(50) 3$ | 6 | 7 | $(20) 3$ | 70 |
| W3 | 1 | 4 | $(80) 1$ | 2 | 80 |
| DEMAND | 50 | 40 | 90 | 20 |  |

Answer the following questions with proper justification
(a) Is the solution degenerate or non-degenerate?
(b) Is the solution optimal or non optimal?
(c) If solution is optimal find minimum transportation cost.
(d) Is there any alternate solution to the given transportation problem?
(2) In a mall there are 4 salesmen to handle 4 counters. The service time in hrs. of each salesman to handle each counter is as follows.

|  | SALESMAN (SERVICE TIME IN HRS) |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| COUNTER | S1 | S2 | S3 | S4 |


| C1 | 41 | 72 | 39 | 52 |
| :--- | :--- | :--- | :--- | :--- |
| C2 | 22 | 29 | 49 | 65 |
| C3 | 27 | 39 | 60 | 51 |
| C4 | 45 | 50 | 48 | 52 |

Find the optimal assignment of counter to salesman to minimize total service time.
(3) Find IBFS by of the given transportation problems by Vogel's Approximation Method \&
determine whether solution is degenerate or non-degenerate.

|  | DISTRIBUTION CENTRES (profit in ‘000`/unit) |  |  | Supply |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| WAREHOUSE | D1 | D2 | D3 |  |  |
| W1 | 24 | 18 | 28 | 29 | 1600 |
| W2 | 19 | 17 | 14 | 15 | 1500 |
| W3 | 33 | 28 | 26 | 21 | 1900 |
| Demand | 800 | 900 | 1700 | 1600 |  |

Note:1. All questions are compulsory.
2. Figures to the right indicate full marks.
Q. 1 (a) Choose the correct alternative and rewrite the sentences:
(1) Formation of closed loop in transportation problem begins \& ends at
(i) Unoccupied cell with an opportunity cost value ( $\Delta_{\mathrm{j}}$ ) most negative
(ii) Unoccupied cell with an opportunity cost value ( $\Delta_{j}$ ) most positive
(iii) Unoccupied cell with any opportunity cost value ( $\Delta_{\mathrm{j}}$ )
(iv)None of the above
(2) A prohibited assignment problem can be handled by assigning a value which is
(i) A very large positive number
(iii) Zero
(ii) A very large negative number
(iv) Any value
(3) To resolve degeneracy in transportation problem we add $\epsilon$
(i) In any place
(iii) In unoccupied place which has minimum cost
(ii) In any unoccupied place
(iv) In unoccupied place which has maximum cost
(4) In given transportation problem, we add dummy destination if
(i) Number of origins < number of destinations
(iii) $\sum b_{i}<\sum a_{1}$
(ii) $\sum a_{1}<\sum b_{\text {I }}$
(iv) Number of origins $>$ number of destinations
(5) To convert profit matrix into regret matrix
(i) We add minimum profit to each profit
(ii) We subtract each profit from maximum profit
(iii) We subtract maximum profit from each profit
(iv)We subtract minimum profit from each profit
(b) Answer the following with proper justification:
(1) What is meant by balanced assignment problem?
(2) Comment on the following statement

To find IBFS of given transportation problem matrix minima method is more effective than north west corner rule method.
(3) State the major two steps which are required to solve unbalanced maximization assignment problem?
(4) What is meant by feasibility of IBFS in transportation problem?
(5) What is meant by degeneracy of basic solution in transportation problem?

## Q. 2 Attempt any two:

(1) Company has three plans \& three warehouses. The supply from each plant, demand at each warehouse \& associated transportation cost of a company is as follows.

|  | WAREHOUSE (Cost in` Per unit) |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| PLANTS | W1 | W2 | W3 | Supply |
| P1 | 40 | 50 | 45 | 500 |
| P2 | 30 | 25 | 40 | 400 |
| P3 | 45 | 30 | 40 | 600 |
| DEMAND | 400 | 800 | 300 |  |

Find the IBFS of the given transportation problem by VAM
(2) From the following information determine which salesman is appointed to which city so that total sale is maximum.

|  | CITIES (Sales in '000 `) } & \\ \hline Salesman & P & Q & R & S \\ \hline A & 42 & 35 & 28 & 21 \\ \hline B & 30 & 25 & 20 & 15 \\ \hline C & 30 & 25 & 20 & 15 \\ \hline D & 24 & 20 & 16 & 12 \\ \hline \end{tabular} (3) Goods have to transported from sources S1,S2 \& S3 to destinations D1, D2 \& D3. The transportation cost per unit, demand of each destination, supply from each sources \& dispatch schedule are given as follows. \begin{tabular}{\|c|c|c|c|c|} \hline & \multicolumn{3}{|c|}{ Destinations (cost per unit of transportation in '000 `) |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| Sources | D1 | D2 | D3 | Supply |
| S1 | $(70) 8$ | 5 | $(50) 6$ | 120 |
| S2 | 15 | $(80) 10$ | 12 | 80 |
| S3 | $(80) 3$ | 9 | 10 | 80 |
| Demand | 150 | 80 | 50 |  |

Answer the following questions with proper justification
(i) Is the solution degenerate or non-degenerate?
(ii) Is the solution optimal or non optimal?
(iii) If solution is optimal find minimum transportation cost.
(iv) Is there any alternate solution to the given transportation problem?

