Answer the Following Questions

First Question:
Compare by details between the competitive and monopolistic firm from the following points in short and long run
1- The equilibrium position by graphical presentation
2- determination the optimal price
3- The ability to gain the economic profit
4- The allocation efficiency

Second Question:—

(A) For each item, determine whether the statement is basically true or false.
1- The leader's sales quantity is equal to total market demand minus the demand of small firms.
2- The duopoly equilibrium" lies between" the pure monopoly and pure competitive outcomes.
3- Shadow price play a crucial role in evaluating current activities.
4- Shadow price measures the improvement in the objective that results from relaxing the constraint or conversely the decrease in the objective from tightening the constraint.
5- Shadow price of a resource is measured as the increase in the value of the objective function associated with change in the resource.
6- When the Rothschild index is close to zero the elasticity of demand for an individual firm's product is much less than the elasticity of the market demand.
7- It's necessary for the firm to able to price discriminate the obviously must possess some market power.
8- If the Lerner index equal 0.26 then the markup factor equal 1.75.
9- In perfect competition market markup factor equal one.
10- If the Rothschild index equal 0.32 and price elasticity of demand for firm's product equal -4.7 then own price elasticity of market demand -1.5 .

(B) Discuss briefly the following basic economic concepts in managerial economics.
1- optimal reaction function
2- The markup factor
3- Global Market
4- Product classes
5- Horizontal integration

(C) Choose the correct answer from the following.
1- If the Rubber industry is markup factor 1.75 then the Lerner index (0.34 - 0.59 - 0.43)
2- When the resource is not used fully in the optimal solution, then the its shadow price equal (one - zero - less than zero )
3- Price discrimination depend on difference between (marginal revenue - marginal cost - price elasticity) in the two markets.
4- In discrimination the output is allocated among the submarkets so as to equate (price - quantity - marginal revenue) in each
5- In the long run the firm's product in perfect competition showing the (economic - technical) equilibrium.

Question three :--
(A) Yuesif company is one of firm in particular industry operating in perfect competition market. The total cost for this firm $\text{TC} = 32 + 16Q + 2Q^2$. the dominant price in short run equal $P = 48$. the total demand function to this industry $Q = 280 - 2p$. the number of firm in short run 23.

1- The firm supply function.
2- The total industry supply function.
3- The optimal quantity produced in firm level.
4- In firm's level profit or loss and graphical presentation

required in short run

required in long run
1- determine the dominant price
2- Total product in industry level
3- Number of firm which operate and service in market
4- profit or loss for firm and graphical presentation

(B) Monopolistic producer demand function as follow $P = 108 - 0.5Q$

Determine optimal price and quantity by the following three approach
1- profit function
2- $\text{MR} = \text{MC}$
3- Robert Weinberg

(C) Ibrahim company sell its product in two separate markets. if the demand function for each market as follows:

\[ Q_1 = 1200 - 20p_1 \quad Q_2 = 400 - 5p_2 \]

where $Q_T = Q_1 + Q_2$

Assuming the marginal cost was $\text{MC} = 10 + 0.04 Q_T$

1- Calculate the optimal price and quantity sold in each market and total revenue in discrimination price.
2- Calculate the total revenue in the case of non - discrimination price
3- Determine the price elasticity in two markets
4- Comment for your results.

fourth Question :--
(A) A pair of firms compete by selling quantities of identical goods in a market. each firm's average cost is constant at $8 per unit. market demand is given by $P = 48 - Q_1 + Q_2$

1- Determine the optimal price and quantity and profit if the dominant competition between duopolistics.
2- Determine the optimal price and quantity and profit in pure monopoly case.
3- Determine the optimal price and quantity and profit in perfect
(B) El Badawy company producing two different kind from the same product (F, S).
the price for one unit from F product equal (120 LE) and (80 LE) for one unit
from S product. To produce one unit from (F) the company need one unit from K
resource (1K), and four unit from labor (4L) and two unit from raw material (2M).
To produce one unit from (S) the company need (12L) and (16M).
The company have the following quantities from the input
\[ K = 360 \]
\[ L = 1680 \]
\[ M = 1440 \]

1- by using above information calculate the optimal combination from (F,S) to
maximize revenue

2- Calculate shadow price for all inputs by suppose the company have increase the
input (K) from (360) to (372), and increase the input (L) from (1680) to (1420),
and increase the input (M) from (1440) to (1600).

3- Evaluate the new product (X) that the firm is contemplating producing and sale,
if each unit of this new product has expected contribution (140 LE). and
contains two unit from K and four unit from L and eight unit from M.

Good luck.....
Dr. Gamal I.Hassan

G. I. Hassan
Use MINITAB to answer the following questions: 4 Pages, 3 Questions

**Question (1): 30 Points**

(1-1) Briefly explain the meaning of each of the following MINITAB statements:

1. `MTB > LET C1(2) = 8`
2. `MTB > COPY C1 C2`
3. `MTB > SORT C1 C11;`  
   `SUBC> DESC C1.
4. `MTB > UNSTACK C1 C3 C20 ;`
   `SUBC> SUBS C5.`

(1-2) The following data show the sale price of 5 single family houses in a certain community along with the number of bedrooms for each house.

<table>
<thead>
<tr>
<th>House Number</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sale Price ($000)</td>
<td>200</td>
<td>250</td>
<td>180</td>
<td>160</td>
<td>240</td>
</tr>
<tr>
<td>Number of bedrooms</td>
<td>3</td>
<td>5</td>
<td>3</td>
<td>2</td>
<td>4</td>
</tr>
</tbody>
</table>

**Note:** Consider each statement separately.

Please stick to the same sequence of statements.

1. Enter data on house number, price, number of bedrooms in columns C1, C2, and C3, respectively.
2. Assign the names HOUSE, PRICE, and BEDROOM to C1, C2, and C3, respectively.
3. Delete the second and third rows of column C3.
4. Check the data on C1 for errors.
5. Determine which house has the lowest price?
6. Replace the data values of column C2 by their ranks.
7. If it is known that the number of bedrooms varies from 2 to 5, determine the number of bedrooms that occurs most frequently.

(1-3) If you have the following MINITAB program:

1. `MTB > SET C1`
2. `DATA > 3(1) 2(0)`
3. `DATA > END`
4. `MTB > .......... Missing`  
   `0 0 0 1 1`

Using two different methods, complete the missing command to obtain the MINITAB output for C3 as shown above.

**Question (2): 35 Points**

(2-1) Consider the following data:

```
50 44 88 68 76 32 58 46 20 40
40 52 66 56 26 36 94 44 52 80
```

Construct a histogram for these data with each class having a width of 15, and
- the lower limit of the first class is 20.  
- the upper limit for the last class is 95.
(2-2) Use the data for the 5 houses given in Question (1-2) to answer the following:
(1) Enter data on **price, number of bedrooms** in columns C1 and C2, respectively.
(2) Assign the names **PRICE**, and **BEDROOM** for C1, C2, respectively.
(3) Find the following measures for **prices**:
   (a) **Mean, median, and standard deviation** as a set of measures. i.e., using only one command for obtaining all these measures simultaneously.
   (b) The **coefficient of variation**.
(4) Develop a **scatter diagram** for the relationship between **price** and **number of bedrooms**. Let price be represented by the vertical axis.
(5) Find the **correlation coefficient** between **price** and **number of bedrooms**.
(6) Find the **regression equation** with **price** (C1) as the **dependent** variable and **number of bedrooms** (C2) as the **independent** variable. Then, predict the **price** of a house having 6 bedrooms.
(7) Following is a portion of the **Minitab** output for Part (6).

<table>
<thead>
<tr>
<th>Predictor</th>
<th>Coef</th>
<th>SE Coef</th>
<th>T</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>96.00</td>
<td>63.66</td>
<td>1.51</td>
<td>0.229</td>
</tr>
<tr>
<td>BEDROOM</td>
<td>27.50</td>
<td>15.53</td>
<td>1.77</td>
<td>0.175</td>
</tr>
</tbody>
</table>

\[ S = 31.0644 \quad R-Sq = 51.1\% \quad R-Sq(adj) = 34.8\% \]

**Predicted Values**

<table>
<thead>
<tr>
<th>Fit</th>
<th>SE Fit</th>
<th>95% CI</th>
<th>95% PI</th>
</tr>
</thead>
<tbody>
<tr>
<td>261.0</td>
<td>34.0</td>
<td>(152.7; 369.3)</td>
<td>(114.4; 407.6)</td>
</tr>
</tbody>
</table>

From the **Minitab** printout shown above, determine the following:
(a) Any **outliers**, if exist.
(b) The **regression line** of **price on number of bedrooms**.
(c) The **predicted price** of a house having 6 bedrooms.
(d) The **standard error** of estimate.
(e) The **correlation coefficient** between **price** and **number of bedrooms**.
(f) Show how to use the **regression equation** obtained above to predict the **price** for the house with 6 bedrooms.

(2-3) Suppose \( x \) is a **Poisson** random variable with \( \lambda = 4 \), and \( y \) is **normally** distributed with a **mean** of 75 and a **variance** of 25. Find the following:
(1) \( P(x < 3) \) \quad (2) \( P(x = 1) \) \quad (3) \( P(85 \leq y \leq 95) \)
(5) The value of \( a \) so that: \( P(x \leq a) = 0.9 \). \( \text{Continued} \Rightarrow \)
Question (3): 35 Points

(3-1) A common final examination was given to the students of the applied statistics class. Random samples of final scores obtained by some male and some female students were taken and the scores are recorded as follows.

Males: 92, 67, 96, 64, 83, 80, 77, 78, 75, 65, 82, 90, 85, 76, 68
Females: 79, 80, 88, 76, 90, 78, 74, 96, 86, 85

Assume that the two samples were selected from two normal populations.

Let $\mu_1$ be the mean of population (1) and $\mu_2$ be the mean of population (2).

1. Construct a 99% confidence interval to estimate $\mu_1$. Assume that $\sigma_1 = 9$.
2. Perform the following test: $H_0: \mu_2 = 85$ versus $H_1: \mu_2 < 85$, given $\sigma_2 = 7$.
3. Provide a 95% confidence interval for $\mu_2 - \mu_1$.
4. Test if $\mu_2$ is greater than $\mu_1$.
5. The results of the MINITAB interval estimation and hypothesis testing procedures for Parts (1) to (4) are shown below.

MINITAB OUTPUT FOR PARTS: (1) to (4)

**MINITAB OUTPUT FOR PART (1):**

Z Confidence Intervals
The assumed standard deviation = 9

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>Mean</th>
<th>StDev</th>
<th>SE Mean</th>
<th>99% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>MALES</td>
<td>15</td>
<td>79.27</td>
<td>9.05</td>
<td>2.32</td>
<td>(73.28; 85.25)</td>
</tr>
</tbody>
</table>

**MINITAB OUTPUT FOR PART (2):**

Z-Test
Test of $\mu = 85$ vs $\mu < 85$
The assumed standard deviation = 7

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>Mean</th>
<th>StDev</th>
<th>SE Mean</th>
<th>Z</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>FEMALES</td>
<td>10</td>
<td>83.20</td>
<td>6.96</td>
<td>2.21</td>
<td>-0.81</td>
<td>0.208</td>
</tr>
</tbody>
</table>

**MINITAB OUTPUT FOR PARTS (3) and (4):**

Two Sample T-Test and Confidence Interval

Two-sample T for FEMALES vs MALES

<table>
<thead>
<tr>
<th>N</th>
<th>Mean</th>
<th>StDev</th>
<th>SE Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>FEMALES</td>
<td>10</td>
<td>83.20</td>
<td>6.96</td>
</tr>
<tr>
<td>MALES</td>
<td>15</td>
<td>79.27</td>
<td>9.05</td>
</tr>
</tbody>
</table>

95% CI for $\mu$ FEMALES - $\mu$ MALES: (-2.72, 10.59)
T-Test of difference = 0 (vs >): T-Value = 1.23 P-Value = 0.117

From the MINITAB output shown above, answer the following:

(a) What is the 99% confidence interval for $\mu_1$?
(b) What is the value of the test statistic for Part (2)?
(c) Using the 5% significance level, can you conclude that the population mean ($\mu_2$) is less than 85? Explain.  

Continued ⇒
(d) Determine the maximum error associated with the 95% confidence interval of \((\mu_2 - \mu_1)\).

(e) Can you conclude that \(\mu_2\) is greater than \(\mu_1\) Using \(\alpha = 0.01\). Explain.

(3-2) Suppose we have two populations, population (1) and population (2). A sample of 600 observations from the first population indicated that \(X_1 = 480\). A sample of 700 observations from the second population revealed \(X_2 = 420\). That is, \(n_1 = 600\), \(X_1 = 480\) and \(n_2 = 700\), \(X_2 = 420\).

Let \(P_1\) be the proportion of Population (1) and \(P_2\) be the proportion of Population (2).

(1) Make a 95% confidence interval for \(P_1\).

(2) Perform the following test: \(H_0: P_1 = 0.75\) versus \(H_1: P_1 > 0.75\).

(3) Make a 99% confidence interval for \(P_1 - P_2\).

(4) Perform the following test: \(H_0: P_1 - P_2 = 0\) versus \(H_1: P_1 - P_2 \neq 0\).

(5) The Minitab Computer output for Parts (1) to (4) follows.

**MINITAB OUTPUT FOR PARTS (1) to (4)**

```
MINITAB OUTPUT FOR PARTS (1) and (2):
Test of p = 0.75 vs p > 0.75

<table>
<thead>
<tr>
<th>Sample</th>
<th>X</th>
<th>N</th>
<th>Sample p</th>
<th>95% CI</th>
<th>Z-Value</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>480</td>
<td>600</td>
<td>0.800000</td>
<td>(0.765717; 0.831298)</td>
<td>2.83</td>
<td>0.002</td>
</tr>
</tbody>
</table>

MINITAB OUTPUT FOR PARTS (3) and (4):
Test and CI for Two Proportions

<table>
<thead>
<tr>
<th>Sample</th>
<th>X</th>
<th>N</th>
<th>Sample p</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>480</td>
<td>600</td>
<td>0.800000</td>
</tr>
<tr>
<td>2</td>
<td>525</td>
<td>700</td>
<td>0.750000</td>
</tr>
</tbody>
</table>

Estimate for p(1) - p(2): 0.05
99% CI for p(1) - p(2): (-0.00955258; 0.109553)
Test for p(1) - p(2) = 0 (vs not = 0): Z = 2.16 P-Value = 0.031
```

Based on the results shown above, answer the following:

(a) What is the width for the 95% confidence interval of \(P_1\).

(b) What is your decision about the test of Part (2) Using \(\alpha = 0.05\)? Explain.

(c) What is the upper limit of the 99% confidence interval of \((P_2 - P_1)\)?

(d) Using two different methods, can you conclude that the two Population proportions \(P_1\) and \(P_2\) are different? Use the 1% significance level.

Good Luck and Best Wishes....

Abu-Bakr...
Answer the following questions:

This exam includes three questions presented on two pages.

Question One (40 marks): First (20 marks):
(1) Indicate whether each of the following statements is true (√) or false (×):
1.1 Dispatch of goods on consignment amounts to sales of goods by the consignor.
1.2 A consignee is paid over-riding commission for bearing the risk of bad debts on account of credit sales made by him/her.
1.3 Sales Account and account Sales are synonymous terms.
1.4 The consignee passes no entry in his/her books for unsold stock of the consignor remaining with him/her.
1.5 Discount on bills discounted is debited to the Profit and Loss Account and not to the Consignment Account.

(2) Choose the most appropriate answer:
2.1 Consignment account is of the nature of a:
   a. Real account, b. Nominal account, c. Personal account.
2.2 Goods sent on consignment account is a:
   a. Real account, b. Personal account, c. Nominal account.
2.3 Del-credre commission is allowed to the consignee to bear:
2.4 The abnormal loss on consignment is credited to:
2.5 Over-riding commission is calculated on:
   a. Total sales, b. Credit sales, c. Cash sales.

Second (20 marks):
- The firm of United Traders of Alexandria consigned to Manar & Co. of Kena 50 cases of goods valued at L.E.3,500 each.
- The consignors paid freight and insurance of L.E.18,000.
- They received an advance from Manar & Co. L.E.80,000.
- They received an Account Sales from Manar & Co. giving information as below: Gross proceeds L.E.280,000, expenses incurred by them amounted to L.E.9,000 and their commission amounted to L.E.10,000.
- They received a bank demand draft of the balance due by them on the consignment.

Required: From the above information, prepare the necessary ledger accounts in the books of consignors and those of the consignees.
**Question Two (30 marks):**
Adel maintains his books by single entry system. His position on January 1, 2013 was as follows:

- Cash at Bank L.E.50,000, Cash in hand L.E.10,000, stock L.E.70,000, Sundry Debtors L.E.84,000, Machinery L.E.65,000, Bills Payable L.E.40,000, Bills Receivable L.E.26,000, and Creditors L.E.25,000.

- On December 31, 2013, his position was as follows:
  - Cash at Bank L.E.43,000, Cash in hand L.E.17,000, Stock L.E.90,000, Sundry debtors L.E.60,000, Machinery L.E.65,000, Bills Payable L.E.32,000, Bills Receivable L.E.32,000, Creditors L.E.16,000. During the year, Adel introduced further capital of L.E.20,000 and his drawings were L.E.8,000 per month.

Depreciate Machinery by 5% and create a Provision for Bad and Doubtful Debts at 5%.

**Required:** From the above information, prepare a statement showing the profit or loss resulting for the year ended December 31, 2013 and a statement of affairs.

---

**Question Three (30 marks):**
Given below is the receipts and payments account of a club for the year ending 31st of December 2013:

<table>
<thead>
<tr>
<th>Balance b/d 1/1/13:</th>
<th>10,250</th>
<th>Salaries</th>
<th>6,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subscriptions:</td>
<td></td>
<td>Expenses</td>
<td>750</td>
</tr>
<tr>
<td>2012</td>
<td>400</td>
<td>Drama expenses</td>
<td>4,500</td>
</tr>
<tr>
<td>2013</td>
<td>20,500</td>
<td>Newspapers</td>
<td>1,500</td>
</tr>
<tr>
<td>2014</td>
<td>600</td>
<td>Local taxes</td>
<td>400</td>
</tr>
<tr>
<td>Donations</td>
<td>5,400</td>
<td>Investments</td>
<td>20,000</td>
</tr>
<tr>
<td>Sale of drama tickets</td>
<td>9,500</td>
<td>Charity</td>
<td>3,500</td>
</tr>
<tr>
<td>Sale of waste paper</td>
<td>450</td>
<td>Electric charges</td>
<td>1,450</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Balance c/d 31/12/13:</td>
<td>9,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>47,100</td>
</tr>
</tbody>
</table>

**Required:** Prepare an Income and Expenditure Account, and a Balance Sheet for the year to 31 December 2013 after taking the following information into consideration:

(a) There are 500 members each paying an annual subscription of L.E.50, and L.E.500 being in arrears for 2012.

(b) Local taxes amounting L.E.400 per annum have been paid up to 31st of March, 2014 and L.E.500 for salaries is outstanding.

(c) Buildings stand in the books at L.E.50,000.

(d) 6% interest has accrued on investments for five months.

---

**Best Wishes**********

\[\text{ALI ABDELKARIM RAWY}\]

\[\text{A. A. Rawy}\]

\[\text{2}\]
Question One: Choose the right answer from A and B in each of the following (A means True and B means False. Write the answer in a table including the number of statement and the letter of your answer. (20 Marks)

1. Max Weber analyzed bureaucracy as the most logical and rational structure for small organizations.  
   a) true  b) false
2. In bureaucratic organizations appointment to positions is based on technical expertise.  
   a) true  b) false
3. Administrative management focuses on worker and machine relationships.  
   a) true  b) false
4. Based on scientific management organizational productivity can be increased by increasing the efficiency of production processes.  
   a) true  b) false
5. External environment is the name of all controllable forces outside an organization's boundaries.  
   a) true  b) false
6. Today, jobs require more physical dexterity and less mental effort.  
   a) true  b) false
7. Money is classified as part of the outputs of organizations.  
   a) True  b) False
8. The major focus of performance management is on ensuring high commitment and lots of hard work not on achieving results.  
   a) True  b) False
   a) true  b) false
10. There is no relationship between OD and OL.  
    a) true  b) false

Question Two: Choose the right answer from A, B, C and D: Write the answer in a table including the number of statement and the letter of your answer (45 Marks)

1. .......... is based on the idea that employees are creative and need to have their potential.  
   a) Scientific management theory b) Systems theory c) X theory d) Y theory
2. .......... is known as the "Father of Scientific Management".  
   a) F.W. Taylor  b) Max Weber  c) Henri Fayol  d) Elton Mayo
3. According to the human relation (behavioral) school, managers should not try to (micro-manage) the organization. What is meant by micro-manage:
   a) concern of both internal and external factors  b) concern of external factors
   c) concern of internal factors concern of human factors  d) concern of human factors
4. ..........relies on a rational set of structuring guidelines, such as rules and procedures, hierarchy, and a clear division of labor.
   a) Bureaucratic management  b) Scientific management  
   c) Administrative management  d) None of the above
5. .......... emphasizes the flow of information in the operation of the organization.  
   a) Bureaucratic management  b) Administrative management  c) Scientific management  d) None of the above
6. Which of the following characteristics is NOT related to bureaucratic management?
a) Highly formal system of rules b) Short-term career commitment c) Division of labor d) Impersonality

7. One of .......... technics was to create functional foremen.
   a) Frederick Taylor  b) Elton Mayo  c) Henri Fayol  d) Frank Gilbert

8. ................ is the discipline of unearthing our internal pictures of the world and the way it
   works, bringing them to the surface, and holding them up to rigorous scrutiny.
   a) Personal Mastery b) Managing Mental Models c) Team Learning d) none of the above

9. When an organization changes its overall strategy for success, adds or removes a major section or
   practice, it is applying.......... 
   a) organizational adaptation b) organizational learning 
   c) organizational change d) performance appraisal

10. The discipline that acknowledges that organizations are complex systems made of
    interrelationships which must be carefully examined and understood to uncover opportunities,
    problems, and possibilities within them is.......... 
    a) Mental models b) Building shared vision c) Team learning d) Systems thinking

11. ..........refer(s) to prioritizing the domain's preferred results 
    a) Weighting Results b) Performance Appraisal 
    c) Specifying how well a preferred result d) none of the above

12. .............. integrates the disciplines of thinking, planning, acting, and learning creating a
    comprehensive set of theories and practices. 
    a) Leadership b) Quality Judgment c) a or b d) None of the above

13. If people in organization are not approaching their tasks or the organization effectively, then......
    a) people have the wrong mindset  b) the organization has the wrong mindset
c) people and organization have the wrong mindset d) neither people nor organization have the
    wrong mindset 

14. ........... Specify how well a preferred result should be achieved by the domain.
    a) Measurements b) Preferred Goals c) Rewards d) Standards

15. ......... is used to associate multiple possible causes with a single effect.
    a) Flowchart  b) check sheet  c) Scatter diagram  d) fish bone diagram

<table>
<thead>
<tr>
<th>Question Three: Write short notes in each of the following</th>
<th>(35 marks)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Kotter's steps of successful change.</td>
<td></td>
</tr>
<tr>
<td>2. Crisis management process models.</td>
<td></td>
</tr>
<tr>
<td>3. Dealing with resistance of TQM as a change.</td>
<td></td>
</tr>
<tr>
<td>4. The focus of performance management.</td>
<td></td>
</tr>
</tbody>
</table>

---------------------------------------------------------- End of Questions ------------------------------------------

With my best wishes

Dr. Alaa TagElDin Mohamed
Answer the following questions:

Question One
Determine whether each one of the following statements is true or false

1- Apartment rental payments usually are due at the beginning of the month, so the annuity is called an ordinary annuity.

2- An investment project with a project profitability index of -0.02 has an internal rate of return that is larger than the discount rate.

3- The present value of a cash flow will never be greater than the future dollar amount of the cash flow.

4- If the internal rate of return of an investment in equipment is equal to the discount rate; then the payback period of the investment will be equal to the useful life of the equipment.

5- Neu Company is considering the purchase of an investment that has a positive net present value based on a discount rate of 12%. The internal rate of return would be greater than zero.

6- When discounted cash flow methods of capital budgeting are used, the working capital required for a project is ordinarily counted as a cash inflow at the beginning of the project and as a cash outflow at the end of the project.

7- When considering a number of investment projects, the project that has the best payback period will also always have the highest net present value.

8- Future costs that do not differ between the alternatives in a decision are avoidable costs.

9- Future costs that are the same for all alternatives are considered as irrelevant costs.

10- In a decision to drop a product, the product should be charged for rent in proportion to the space it occupies even if the space has no alternative use and the rental payment is unavoidable.

Question Two (30 Marks)
Solve each of the following present value exercises independently:

(Ignore income taxes.)

1- LPH, Inc. earns 12% return on its investments. The company is considering the installation of an air purification system in one of its factories. The system costs $74,000 now, but will save $12,000 per year in terms of lower medical insurance premiums and reduced machine maintenance costs caused by dust in the air. The system will have useful life of 12 years. Should the company install the system?
2. Al-Ahram Digital Services has made an investment in video and recording equipment that costs $106,700. The equipment is expected to generate cash inflows of $20,000 per year. How many years will the equipment have to be used to provide the company with a 10% rate of return on its investment?

3- Suppose that you have inherited a piece of land that contains a large number of wooden trees. To be able to cut these trees and sell them you incur some costs in terms of preparing the roads and the costs of renting cutting equipment in addition to labor costs. As you wait, the trees will be larger and the expected returns from them will be higher. But at the same time, costs will also be higher. But the growth in trees will be with a decreasing rate each year specially after reaching a specific age. Suppose that the net cash inflows (return – costs) from cutting the trees at the end of the next five years as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Net cash inflows</th>
</tr>
</thead>
<tbody>
<tr>
<td>Now</td>
<td>$50,000</td>
</tr>
<tr>
<td>1</td>
<td>64,400</td>
</tr>
<tr>
<td>2</td>
<td>77,500</td>
</tr>
<tr>
<td>3</td>
<td>89,400</td>
</tr>
<tr>
<td>4</td>
<td>100,000</td>
</tr>
<tr>
<td>5</td>
<td>109,400</td>
</tr>
</tbody>
</table>

If you know that the required return on investment is 10%. At which year should the trees be cut and sold?

Question Three
The Midtown Cafeteria employs five people to operate antiquated dishwashing equipment. The cost of wages for these people and for maintenance of the equipment is $85,000 per year. Management is considering the purchase of a single, highly automated dishwashing machine that would cost $144,000 and have a useful life of 12 years. The company agreed with the supplier of the new machine to pay $70,000 now. The remaining amount will be paid on three instalments as follows: $30,000; $24,000; and $20,000 to be paid at the end of the first, second and third years respectively. This machine would require the services of only three people to operate at a cost of $48,000 per year. A maintenance contract on the machine would cost an additional $2,000 per year. New water jets would be needed on the machine in six years at a total cost of $15,000.

The old equipment is fully depreciated but it will have $10,000 salvage value if the new dishwashing machine is purchased. The new machine will have a salvage value of $9,000 at the end of its 12-year useful life. For tax purposes, the company computes depreciation deductions assuming zero salvage value and uses straight-line depreciation. Management requires a 14% after-tax return on all equipment purchases. The company’s tax rate is 30%.

Required:
1. Determine the before-tax net annual cost savings that the new dishwashing machine will provide.
2. Using the data from (1) above and other data from the exercise, compute the new dishwashing machine’s net present value. Would you recommend that it be purchased?
3- Without doing any calculations, would your decision be changed if the company requires a 12% after-tax return? Justify your answer?
Question Four
AST, Inc. manufactures subassembly parts needed for its final product. One critical part, part no. 101, is required in assembling the final product. The company produces 20,000 units of the product each period. The cost of manufacturing part no. 101 is presented below:

<table>
<thead>
<tr>
<th>Description</th>
<th>Per-unit cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct materials</td>
<td>$7</td>
</tr>
<tr>
<td>Direct Labor</td>
<td>5</td>
</tr>
<tr>
<td>Variable Manufacturing Overhead</td>
<td>4</td>
</tr>
<tr>
<td>Fixed Manufacturing Overhead Allocated</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>$19</td>
</tr>
</tbody>
</table>

An outside supplier offered to sell 20,000 units of part 101 for $17 per unit.

Required:
1- Should AST, Inc. make or buy the part? Assume that the part-manufacturing facilities will remain idle even if the company buys the part?
2- Assume that if part 101 is bought from the outside supplier, the manufacturing facilities of that part can be rented out to another company for $35,000 per period. Should AST, Inc. make or buy the part?

NPV of Single amount

<table>
<thead>
<tr>
<th>Period</th>
<th>1%</th>
<th>2%</th>
<th>3%</th>
<th>4%</th>
<th>5%</th>
<th>6%</th>
<th>10%</th>
<th>12%</th>
<th>14.00%</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
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<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>1</td>
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<td>0.98</td>
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<td>0.962</td>
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<td>0.943</td>
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<td>0.893</td>
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<td>0.943</td>
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<td>0.89</td>
<td>0.826</td>
<td>0.797</td>
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<td>0.889</td>
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<td>0.823</td>
<td>0.792</td>
<td>0.683</td>
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<td>0.951</td>
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<td>0.35</td>
<td>0.287</td>
<td>0.237</td>
</tr>
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<td>12</td>
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<td>0.701</td>
<td>0.625</td>
<td>0.557</td>
<td>0.497</td>
<td>0.319</td>
<td>0.257</td>
<td>0.208</td>
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### NPV of Ordinary Annuity

<table>
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<th>Periods</th>
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<th>9.00%</th>
<th>10%</th>
<th>11%</th>
<th>12%</th>
<th>13%</th>
<th>14%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.943</td>
<td>0.935</td>
<td>0.926</td>
<td>0.917</td>
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<td>0.901</td>
<td>0.893</td>
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</tr>
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<td>1.759</td>
<td>1.736</td>
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<td>1.668</td>
<td>1.647</td>
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<td>3.312</td>
<td>3.24</td>
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<td>5.146</td>
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<td>7.191</td>
<td>6.811</td>
<td>6.462</td>
<td>6.142</td>
</tr>
</tbody>
</table>
Answer the following questions

Question no. (1)  
Mark 10

Place Tick (✓) or an error (x) in front of the following phrases

1 - any resource that uses fully in obtaining the optimal solution in a linear programming problem be his shadow price equal to zero.
2 - When the optimal solution to the problem of linear programming be marginal yield any productive activity equal to the marginal cost of computed by shadow prices.
3 - When approaching index Rothcield of zero, the elasticity of demand for the production of individual firm to be less than the elasticity of demand for the industry as a whole.
4 - When a company determines what price to sell equivalent to the marginal cost of production, the record Lerner is equal to zero.
5 - Shadow price for any measured increase resource revenue that occur in response to the change that occurs in the amount of the resource.
6 - When the Lerner index up to 0.43 in the U.S. paper industry, the percentage that must be raised by the paper industry price Markup should be 1.35.
7 - In case the price competition in the long term will always be lower than the price in the short term.
8 - In case of using the two production stations, the minimization of production costs require equal to the marginal cost of the total stations together with marginal revenue.
9 - In case of monopolistic discrimination sell larger quantities in the market with the biggest price elasticity.
10 - rely on local data without taking into account imports increases the coefficient of market concentration.

Question no. (2)  
Mark 15

"There are many defects of the consenteration standards may by illustrated by the different nature of the industry itself." Explain it

Question no. (3)  
Mark 50

Firstly : - Complete the following table:

<table>
<thead>
<tr>
<th>Optimal percentage added to the marginal cost</th>
<th>Price elasticity of demand</th>
</tr>
</thead>
<tbody>
<tr>
<td>% 250</td>
<td>-----</td>
</tr>
<tr>
<td>% 125</td>
<td>-----</td>
</tr>
<tr>
<td>-----</td>
<td>2.5</td>
</tr>
<tr>
<td>-----</td>
<td>1.2</td>
</tr>
<tr>
<td>% 5</td>
<td>-----</td>
</tr>
</tbody>
</table>

Secondly : -

In one of the industries that operate under full competition conditions were the demand and supply functions as follows

\[ P = 248 - 0.2Q \]
\[ P = 48 + 0.3Q \]

As a function of the total costs amounted industry

\[ C = 900 + 8Q + 4Q^2 \]
Required:

(A) in the short term
1 - Calculate the supply function at the level of single firm
2 - Compute the firm's share of production
3 - Compute the number of firms operating in the industry
4 - Calculate the company's profit
5 - show that graphically

(B) in the long term
1 - Calculate the price prevailing in the long run
2 - Compute the firm's share of the product
3 - Compute the number of firms that serve the market
4 - Calculate the company's profit
5 - show that graphically

Thirdly: -
Assuming the monopolist sells its production in two markets and demand functions was a monopolist in the markets as follows
\[ Q_1 = 2400 - 20P_1 \]
\[ Q_2 = 80 - 5P_2 \]
The value function the marginal cost of production \( MC_T = 8 + 0.12Q_T \)

Required:

1 - Calculate the optimal quantity which produced and sell by a monopolist in both markets
2 - Calculate the prices in the two markets
3 - Calculate the total revenue in the case of price discrimination
4 - Calculate the total revenue in the case of integration of the two markets
5 - Show that graphically

---

Question no. (4)

One of the companies have different amounts of resources as follows

<table>
<thead>
<tr>
<th>Materials (M)</th>
<th>Labor (L)</th>
<th>Capital (K)</th>
</tr>
</thead>
<tbody>
<tr>
<td>12000</td>
<td>9600</td>
<td>600</td>
</tr>
</tbody>
</table>

The company plans to produce two types of products (X, Y) where you need unity (X) To one unit of capital (K), 8 Units of Labor (L), 16 Unit of Materials (M). While the unit production of the product Y You need to 12 Unit of Labor (L), As well as 12 Unit of Materials (M). If the unit (X) Generate revenue equivalent to 120 LE and unity of item Y Generate revenue equivalent to 60 LE

Required:

1 - the formulation of a linear programming problem graphically and algebraically
2 - Calculate the optimal product mix that maximizes revenue
3 - If the amount of resources available to the company so that the 615 (K), 1000 (L), 12084 (M) Calculate Shadow prices of resources
4 - determine the company's decision of refusal or acceptance for the production of a new product (Z) Generating unit 125 LE and unit production requires them to 1 (K), 18 (M), 20 (L)

Good luck.....

Dr. Gamal I.Hassan

\[ G.I. \text{ Hassan} \]
Answer the following questions

**Question One:**

Choose correct answer from the following alternatives, and then re-write the chosen letter in capital character to your booklet in the same order.

1. ............ are expenditures related to avoiding or reducing failed practices.
   (a) Appraisal costs.
   (b) Prevention costs.
   (c) Failure costs.

2. The customer service and outdoor selling are different ............
   a) positions titles
   b) jobs titles
   c) Both (a) and (b)

3. Placement decision in SMEs is in charge of ............
   (a) The owner
   (b) unit manager
   (c) either (a) or (b)

4. ............ is the person who is in charge of reviewing the job analysis questionnaire.
   (a) job supervisor
   (b) job holder
   (c) Either (a) or (b)

5. The ...... interviews have been also known as panel interview.
   (a) Board
   (b) Group
   (c) Neither (a) nor (b)

6. Grouping Jobs into similar jobs is considered ............ job classifications.
   (a) Horizontal
   (b) Vertical
   (c) Occupation

7. ............ has been considered the common appraiser.
   (a) immediate supervisor
   (b) peers
   (c) subordinated

8. The pre-employment inquiry guide is used in ............
   (a) Follow up interviews.
   (b) Preliminary interviews.
   (c) Either (a) or (b).

9. ............ measure applicants' mental skills including verbal ability, numerical ability, perception speed ability, spatial ability, and reasoning ability.
   (a) aptitude tests
   (b) Psychomotor tests
   (c) Job knowledge and Proficiency tests

10. ............ is recruiting activities of employees on college and universities.
    (a) job advertising
    (b) job posing and bedding
    (c) campus recruiting
**Question Two:**

Indicate whether each of the following statements is true (T) or false (F), then re-write the chosen letter (T or F) to your booklet in the same order.

1) Appraisal costs are usually more than twice of the prevention costs.
2) HR requirements are the result of both job analysis and design functions.
3) Task is one or more sequenced activities that constitute necessary step in the performance of work.
4) Duty without responsibilities are mere a task.
5) Occupation is either vertical or horizontal aggregation of jobs.
6) Time motion is a proper data collection technique when addressing office work.
7) The questionnaire used to analyze executive jobs is longer than that used for managerial jobs.
8) Socio-technical approach calls for wider scope and higher depth.
9) The faculty dean should be placed in the upper right hand quadrant in job classification matrix.
10) Downsizing is a proper HRP strategy when HR requirements go above HR inventory.

**Question Three:**

Match the following HRM terminologies in group A with their counterparts in group B (you just need to write- the suitable number form group B in front of group A terminology)

<table>
<thead>
<tr>
<th>Group A</th>
<th>Group B</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. HR needs</td>
<td>1. Few, repetitive tasks</td>
</tr>
<tr>
<td>2. Job analysis questionnaires</td>
<td>2. Used to describe an employee’s level of performance for single trait overtime.</td>
</tr>
<tr>
<td>3. Performance appraisal helps</td>
<td>3. Emerge when HR requirements exceed HR inventory.</td>
</tr>
<tr>
<td>4. Graphic rating method</td>
<td>4. PAQ &amp; MPDQ</td>
</tr>
<tr>
<td>5. Campus recruiting</td>
<td>5. In identifying employee strengths and weaknesses.</td>
</tr>
<tr>
<td>6. Application form provides</td>
<td>6. Basic information about applicants’ qualifications in relation to the content of currently available vacancies</td>
</tr>
<tr>
<td>7. Preliminary interviews are</td>
<td>7. A method of external recruitment</td>
</tr>
<tr>
<td>8. Reference checking form is...</td>
<td>8. Asking “Why did you apply for this job instead of other jobs available?”</td>
</tr>
<tr>
<td>9. Narrow scope means</td>
<td>9. Classified to personal, school, and past-employment categories</td>
</tr>
<tr>
<td>10. Bias is</td>
<td>10. Uses quantified scale with specific narrative examples of good and poor performance.</td>
</tr>
<tr>
<td></td>
<td>11. The tendency to allow individual differences to affect the appraisal ratings employees receive.</td>
</tr>
</tbody>
</table>

**End of the questions.**

*Good luck.......*  

*Tarek M. Ali*
Answer the Following questions:

Q1 (30 points):
1. The following box-plots show monthly sales revenue figures ($ thousands) for a discount office supply company with locations in three different regions of Cairo, (Northeast, Southeast, and West).

![Box-plot of Northeast, Southeast, West](image)

a. Which region has the highest median sales revenue?
b. Which region has the lowest median sales revenue?
c. Which region has the most variable sales revenue values? Explain.
2. Data were collected on the hourly wage ($) for two types of marketing managers: (1) advertising/promotion managers and (2) sales managers. The results were used to create the following histograms.

![Histogram of Advertising/Promotion Hourly, Sales Hourly](image)

a. Describe the hourly wage distribution for advertising/promotion managers.
b. Describe the hourly wage distribution for sales managers.
c. Compare the hourly wages for the two types of marketing managers based on the histograms.

3. The advertising campaign for a high fiber cereal wants to claim that high fiber cereals are lower in calories. In order to research this claim, they obtain nutritional information for 77 breakfast cereals including the amount of fiber (in grams) and the number of calories per serving. The data resulted in the following scatter plot.

![Scatter plot showing relationship between fiber and calories.]

a. Do you think there is a clear pattern? Describe the association between fiber and calories.
b. Comment on any unusual data point or points in the data set. Explain.
c. Do you think a model could accurately predict the number of calories in a serving of cereal that has 22 grams of fiber? Explain.

4. The following stem-and-leaf chart reports the number of books borrowed by day at the library.

<table>
<thead>
<tr>
<th>Stem</th>
<th>Leaf</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>6 8</td>
</tr>
<tr>
<td>13</td>
<td>1 2 3</td>
</tr>
<tr>
<td>14</td>
<td>6 8 8</td>
</tr>
<tr>
<td>15</td>
<td>5 8 9 9</td>
</tr>
<tr>
<td>16</td>
<td>3 5 6 6 9 9</td>
</tr>
<tr>
<td>17</td>
<td>2 4 5 8</td>
</tr>
<tr>
<td>18</td>
<td>2 6 8 5</td>
</tr>
<tr>
<td>19</td>
<td>1 3</td>
</tr>
<tr>
<td>20</td>
<td>0 3 4 6</td>
</tr>
<tr>
<td>21</td>
<td>2 2 3 7 8 9</td>
</tr>
<tr>
<td>22</td>
<td>7 8 9 9</td>
</tr>
<tr>
<td>23</td>
<td>0 0 1</td>
</tr>
<tr>
<td>24</td>
<td>7 8</td>
</tr>
<tr>
<td>25</td>
<td>1 3</td>
</tr>
<tr>
<td>26</td>
<td></td>
</tr>
<tr>
<td>27</td>
<td></td>
</tr>
</tbody>
</table>

a) How many days were studied?  b) How many observations in the fifth class?  
c) List the actual values in the forth class.  d) Does the chart show any outliers?  
e) Develop a box plot for and summarize your finding in a brief report.  
f) Which type of sampling used to get these observations?

Q2 (30 points):
1. A sample of 30 year fixed mortgage rates at 12 randomly chosen credit unions yields
a mean rate of 6.65% and a sample standard deviation of 0.38%. A sample of 30 year
fixed mortgage rates at 16 randomly selected banks yields a mean rate of 7.05% and a
sample standard deviation of 0.22%. Are the mean rates different between credit unions
and banks? Relevant output is shown below. Which of the following is true?

Two-Sample T-Test and CI

<table>
<thead>
<tr>
<th>Sample</th>
<th>N</th>
<th>Mean</th>
<th>StDev</th>
<th>SE Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>12</td>
<td>6.65</td>
<td>0.390</td>
<td>0.11</td>
</tr>
<tr>
<td>2</td>
<td>16</td>
<td>7.05</td>
<td>0.220</td>
<td>0.055</td>
</tr>
</tbody>
</table>

Difference = mu (1) - mu (2)
Estimate for difference: -0.400
95% CI for difference: (-0.666, -0.134)
T-Test of difference = 0 (vs. not =): T-Value = -3.19  P-Value = 0.006  DF = 16

a) What is the point estimate of μ₁ - μ₂?
b) Find a 95% confidence interval for μ₁ - μ₂.
c) Test at the 5% significance level if the two population means are different. Comment.

2. From a sample of size 15 getting from a normal population, we obtained:

Test of μ₁ = 15 vs. μ₂ not = 15

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>Mean</th>
<th>StDev</th>
<th>SE Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>CI</td>
<td>15</td>
<td>15.533</td>
<td>?</td>
<td>0.716</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Variable</th>
<th>95.0% CI</th>
<th>T</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>CI</td>
<td>(13.997, 17.070)</td>
<td>?</td>
<td>0.469</td>
</tr>
</tbody>
</table>

a) Complete the missing values.
b) Construct H₀ and H₁.
c) From the above outputs, what is your decision?

Q3 (40 points):

1. In determining the best companies to work for, a number of variables are considered,
including size, average annual pay, and turnover rate, etc. Moreover, employee surveys
are conducted in order to assess aspects of the organization's culture, such as trust and
openness to change. In an attempt to determine what affects turnover rate, a sample of 33
companies was randomly selected and data collected on the average annual bonus and
turnover rate (%). In addition, a questionnaire was administered to the employees of each
cOMPANY to arrive at a trust index (measured on a scale of 0 – 100). Below are the
multiple regression results.

**Dependent Variable is Turnover Rate**

<table>
<thead>
<tr>
<th>Predictor</th>
<th>Coef</th>
<th>SE Coef</th>
<th>T</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>12.1005</td>
<td>0.7826</td>
<td>15.46</td>
<td>0.000</td>
</tr>
<tr>
<td>Trust Index</td>
<td>-0.07149</td>
<td>0.01966</td>
<td>-3.64</td>
<td>0.001</td>
</tr>
<tr>
<td>Average Bonus</td>
<td>-0.0007216</td>
<td>0.0001481</td>
<td>-4.87</td>
<td>0.000</td>
</tr>
</tbody>
</table>

R-Sq = 79.6%  R-Sq(adj) = 78.3%

**Analysis of Variance**

<table>
<thead>
<tr>
<th>Source</th>
<th>DF</th>
<th>SS</th>
<th>MS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>2</td>
<td>262.73</td>
<td>131.36</td>
</tr>
<tr>
<td>Residual Error</td>
<td>30</td>
<td>67.27</td>
<td>2.24</td>
</tr>
<tr>
<td>Total</td>
<td>32</td>
<td>330.00</td>
<td></td>
</tr>
</tbody>
</table>
a. Write out the estimated regression equation.
b. Is the regression equation significant overall? Explain.
c. How much of the variability in Turnover Rate is explained by the regression equation?
d. State the hypotheses for testing the regression coefficient of Trust Index. Based on the results, what do you conclude?
e. State the hypotheses for testing the regression coefficient of Average Annual Bonus. Based on the results, what do you conclude?
f. Predict the turnover rate for a company with a trust index score of 70 and an average annual bonus of $6500.
g. Comment on whether the conditions for multiple regression are satisfied based on the plots shown below.

Best wishes!!!
Prof. Abdel-Raouf Abdel-Rahman
Answer the Following Questions

Question one  20 Mark
(A) Explain why different industries have different characterisists and and how these characterisists affect the decisions manager will make.
(B) Compare by details between the competitive and monopolistic firm from which pollowing points:
1- Short and long - run equilibrium condition.
2- Economic profit.
3- Market efficiency.

Second Question :-  20 Mark
(A) For each item determine whether the statement is basically True or false.
1- Marginal analysis more general
2- All incremental concepts need be marginal concepts
3- Opportunity cost may be either implicit or explicit
4- The opportunity cost of a given amount of money must be zero
5- When the Rothschild index is close to zero the elasticity of demand for an individual firm's product is much less than the elasticity of the market demand
6- When a firm set its price equal to the marginal cost of production the lerner index is zero
7- It's necessary for the firm to be able to price-discriminate the obviously must possess some market power
8- Shadow price of a resource is measured as the increase in the value of the objective function associated with change in the resource
9- Shadow price play crucial role in evaluating current activities.
10- Shadow price measures the improvement in the objective that results from relaxing the constraint or conversely the declining in the objective from tightening the constraint

(B) Discuss by shortly the following basic economic concepts in managerial Economics.
1- Complements in production
2- Strategic Barriers
3- The shutdown rule
4- The markup factor
5- Total Marginal Revenue
Third Question:

(A) Yusif company is one of the firm in particular industry operating in perfect competition market. The total cost for this firm \( C = 36 + 8Q + Q^2 \). The dominant price equal \( P = 28 \) in short run, the total demand function to this industry.

\[ Q = 356 - 2P \]

1- Compute the equilibrium quantity’s firm to maximize profit in short run, and compute its profit.

2- Compute the total demand on the industrial level and number of firms which are services in the market.

3- Suppose the Demand function change to \( Q = 400 - 2P \) compute the price and number of firms in the market at long run.

(B) Suppose the monopolistic firm produce one only product and desire maximize profit by use price discrimination at two markets. Suppose the demand function for these two markets where to be \( Q_1 = 1000 - 2p_1 \) and \( Q_2 = 500 - 5p_2 \).

Suppose the firm’s marginal cost function:

\[ MC = 20 - 0.05Q + 0.0001Q^2 \]

1- Determine the profit maximize level of output.

2- Determine the quantity and price to charge in two markets.

3- Compare the total revenue when the manager decide to sell in the two markets by single price and the total revenue when decide to sell by two price.

(C) Ibrahim company produce two complement product. The manager has forecasts of the demand functions for the two products:

\[ Q_x = 285000 - 1000p_x \]
\[ Q_y = 150000 - 2000p_y \]

The marginal cost function estimated to be:

\[ MC = 10 + 0.002Q \]

- Compute the production level which maximize the profit from \( x \) and \( y \) product and compute this profit.

Fourth Question:

El Imaan company producing two different kind from the same product (\( X, Y \)). The profit from product (\( X \)) 800 LE. and 400 LE from product \( y \).

To produce one unit from (\( X \)) the company need one unit from (\( T \)) resource, and 8 unit from (\( L \)) resource. and 12 unit from (\( M \)) resource.

But to produce one unit from (\( Y \)) the company need to 12 (\( L \)) and 8 (\( M \)).

The company have the following quantities from the inputs.

\[ T = 500 \]
\[ M = 7680 \]
\[ L = 9600 \]

1- By using above information calculate the optimal combination from (\( X \) and \( y \)) to maximize profit.

2- Calculate shadow price for the all input by suppose the company have increase the input (\( T \)) from 500 to 520. and increase the input (\( L \)) from 9600 to 9680. and increase the input (\( M \)) from 7680 to 7760.

3- Evaluate the new product (\( R \)) that the firm is contemplating producing and sale, if each unit of this new product has expected contribution 660 LE, and contains one unit from (\( T \)), 20 unit from (\( L \)) and 16 unit from (\( M \)).

Good luck.....

Dr. Gamal I.Hassan
Question One: Choose the right answer from A and B in each of the following (A means True and B means False. (30 marks):

1. One of Fredrick Taylor’s ideas was to initiate a time study rate system.  
   a) True  
   b) False

2. A weakness of functional structure of organizations is the tendency to duplicate activities among divisions.  
   a) True  
   b) False

3. Most CEO’s time is allocated to the functions of directing and controlling.  
   a) True  
   b) False

4. Bureaucratic management relies on a rational set of structuring guidelines such as rules and procedures, hierarchy and clear division of labor.  
   a) True  
   b) False

5. Initiating organizational change refers to a manager’s entrepreneur role.  
   a) True  
   b) False

   a) True  
   b) False

7. Operational plans have longer time frames and narrower scopes than tactical plans.  
   a) True  
   b) False

8. Technical skills are concerned with a manager’s ability to apply specific methods and techniques.  
   a) True  
   b) False

9. When a manager of an organization sets a goal for each division to be in the top two in the industry, she or he is mainly engaged in organizing.  
   a) True  
   b) False

10. Management that emphasizes rules, procedures and division of labor is called administrative management.  
    a) true  
    b) false

11. The person most closely associated with bureaucratic management is Frederick Taylor.  
    a) true  
    b) false

12. In disseminating organizational information, the manager is acting in the role of spokesperson.  
    a) true  
    b) false

13. The manager's monitor role involves receiving and collecting information.  
    a) true  
    b) false

14. The managerial roles and the requirements of these roles can be played at different times by the same manager and to different degrees depending on the level and function of management.  
    a) true  
    b) false

15. Informal organization can be seen and represented in the organizational structure showing job titles and relationships between departments.  
    a) True  
    b) False

Question Two: Choose the right answer from A, B, C and D. (30 marks):

1. Efficiency in bureaucratic management comes from all of the following except....  
   a) specialized functions  
   b) use of legal authority  
   c) use of written rules  
   d) promotion is based on social standing

2. ........ is the receiver’s response to the attempt by the sender to send the message.  
   a) Feedback  
   b) Decode  
   c) Transforming  
   d) Encode

3. When managers define future performance goals to translate this abstract vision to reality they are practicing the function of....  
   a) planning  
   b) organizing  
   c) controlling  
   d) social responsibility
4. When a manager answers the question: have I fully considered the harmful effects of my decision and how to avoid them? He or she is applying the criteria...
   a) transparency  b) effect  c) fairness  d) none of the above.

5. Working effectively with a team to resolve conflicts describes a…….
   a) human skill  b) technical skill  c) conceptual skill  d) none of the above.

6. Susan represents the organization and periodically takes clients to lunch to reward them for being good customers. Her action exhibits what role of management?
   a) Monitor  b) Spokes person  c) Leader  d) None of the above

7. When sales manager for an organization constantly seeks customer support because they can affect the company's success, what managerial role is he playing?
   a) Human  b) Liaison  c) Spokes person  d) Monitor

8. Conceptual skills are concerned with a manager's ability to ……
   a) apply specific methods and techniques.  c) lead and motivate employees.
   b) solve problems creatively.  d) none of the above.

9. …………… involves the guiding, leading and overseeing of employees to achieve organizational goals.
   a) Planning  b) controlling  c) organizing  d) directing

10. When sales manager for an organization constantly seeks customer support because they can affect the company's success. What managerial role is he playing?
    a) Decisional  c) Liaison  b) Spokes person  d) Monitor

11. A regional vice president lets local store managers operate each store as if it were a separate business. In this effort to better coordinate company human and material resources, the VP was seeking to improve what managerial function? 
    a) Controlling  b) Directing  c) Organizing  d) Planning

12. …………… is more flexible, more adaptable to a participative form of management, and less concerned with a clearly defined structure.
    a) Functional structure  b) Formal structure  c) Organic structure  d) Bureaucratic structure

13. ……… occurs when errors are detected and corrected in ways that involve the modification of an organization's underlying norms, policies and objectives.
    a) OD  b) OC  c) Single-loop learning  d) Double-loop learning

14. ……… is an effort planned, organizational wide, and managed from the top to increase organizational effectiveness and health through the planned interventions in the organization's process using behavioral science knowledge.
    a) OD  b) OL  c) OP  d) none of the above

15. The focus of performance management in organizations is the performance of ……
    a) employees  b) programs  c) departments  d) all of the above

Question Three: Write short notes in each of the following. (40 marks):

1. Types of control.
2. Crisis management process model.
3. TQM

With my best wishes  

Dr Alaa Tag Eldin Mohamed
South Valley University  |  Human Resource Management  |  June 2012
---|---|---
Faculty of Commerce  |  English Section: 3rd year  |  3 hours

Answer the following questions:

**Question 1:** tick each of the following statements as True or false (24%)

<table>
<thead>
<tr>
<th>Statement</th>
<th>True</th>
<th>False</th>
</tr>
</thead>
<tbody>
<tr>
<td>1- Domestic goals of equal employee opportunity may conflict with international laws</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2- Improper selection causes the HRM department to fail</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3- The organization selects the employees and the applicants select the organization</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4- Training and development are two terms that give the same meaning.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5- Performance appraisal is the process by which organizations evaluate the individuals not the job.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6- Performance standards are used to evaluate performance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7- Incentive system is based on seniority not performance or hours worked</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8- All the recruitment and selection programmes are based on manpower planning.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9- The main purpose of HRM is to improve the production in the organizations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10- Proactive HRM acts after problems arises</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11- Cafeteria benefits are programs that allow employees to select benefits and services that match their needs.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12- Empowering employees means that they have good working conditions.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Question 2:** select the correct answer for each of the following: (22%)

1- Which of the following is NOT a reason for performance appraisal?
   a. to motivate individuals  
   b. to identify training and development needs  
   c. to identify employee strengths and weaknesses  
   d. to establish new standards of performance

2- One manager tends to rate all subordinates as average or better. Technically speaking, this is referred to as:
   a. the halo effect  
   b. leniency error  
   c. similarity error  
   d. central tendency

3- To evaluate a training program, HRM should do the following steps except:
   a. Collecting data for evaluation.  
   b. Presenting the results of the evaluation.  
   c. Identifying subject-matter evaluation.  
   d. Preparing and designing the program.

4- How important is human resource management to an organization?
   a. HRM is important only for large companies.  
   b. HRM is important only for small organizations.  
   c. HRM is important only for social and public sector companies.
b. HRM is important only for manufacturing sector organizations.

d. HRM is important for all organizations that want to get and keep good people.

5. Factors that affect the role of Human resource management include all of the following except:
   a. The nature of business
   b. The extent to which top management is convinced of the value of HRM specialists.
   c. The nature of organization structure.
   d. Training and development function.

6. An example of internal recruiting method is:
   a. Referrals by present employees
   b. College placement offices
   c. Professional association placement services.
   d. External sources.

7. The selection process ends with:
   a. The physical examination.
   b. The evaluation interview.
   c. Conditional job offer.
   d. Job offer.

8. After preparing and designing the training program, the next step will be:
   a. Analyzing and interpreting data.
   b. Assigning roles.
   c. Implementing the program.
   d. Evaluating the program.

9. A lecturer has been appointed to work in a technical industrial college. What type of salary system used to compensate him?
   a. piecework
   b. commission
   c. Scanlon way
   d. incremental scale

10. Work-related benefits include all that listed except:
    a. pension schemes
    b. subsidized meals
    c. cars
    d. sabbaticals

11. Piecework is a payment system where the worker is:
    a. Paid overtime for any hours worked beyond 25 per week.
    b. Rewarded for good conduct.
    c. Is paid a minimum of £4.20 per hour.
    d. Is paid for what he or she achieves.

12. What is not a benefit?
   a. Insurance
   b. Legal benefits
   c. Vacation pay
   d. Training

**Question 3: (28%)**

a- For the following jobs select the suitable training method(s) and explain why?
   1- Bus Driver 2- An engineer 3- A plumber 4- Manual Worker

b. For the following jobs select the suitable source of recruitment (internal/external) and explain why? You are required to identify the method(s) of recruitment used in each case?
   1- Secretary 2- A marketing manger for an international company branch
   3- Employees from different specialties to be employed by a new company
   4- A professor to be recruited by a distinguished university in Dubai.

**Question 4: Write short notes on 3 only of the following (24%)**

(a) Employment tests  (b) Objective of compensation management
(c) Uses of performance appraisals  (d) The need for manpower planning.
Answer the following questions:

Question One (30 marks):
Samara of Aswan consigned 50 cases of goods costing L.E.6,000 each to Adel of Assiut. Samara paid expenses in connection with the consignment of L.E.20,000.

Adel sold 30 cases at a price of L.E.8,000 each and incurred the following expenses: Landing Charges L.E.3,000, Packing expenses L.E.6,000, and salespersons expenses of L.E.3,000.

It is found that 2 cases have been lost in transit and 3 cases are still in transit. Adel is entitled to a commission of 10% on gross sales.

Required: Prepare: (a) Consignment account in books of Samara and (b) Samara's account in the books of Adel.

Question Two (30 marks):
Mohamed began his business on January 1, 2011 and chose 31 December as his annual accounting date. A meeting with him revealed the following information:

1. He started the business with a cash of L.E.50,000 and a car of L.E.50,000, which will last for a further three years and has a residual value of L.E.10,000.

2. His assets and liabilities on December 31, 2011 were: cash of L.E.15,000, stock of goods L.E.25,000, he owed of L.E.9,000 to his suppliers and was owed L.E.4,000 by his customers. Prepaid rent L.E.2,000 and outstanding electric bill L.E.1,000.

3. Mohamed introduced new investment during the year to 31/12/2011 of L.E.10,000 and drew L.E.1,500 per week for personal use. On July 1, 2011, he borrowed L.E.10,000 (10% interest) and no interest had yet been paid.

Required: Prepare a statement of affairs as at 31 December 2011 and a statement showing Mohamed's profit or loss for the year ended on that date.

Question Three (40 marks):
The treasurer of Al-Wady Club has produced the following receipts and payments account for the year to 31 December 2009:

<table>
<thead>
<tr>
<th>Balance b/d 1/1/09</th>
<th>Restaurant purchases</th>
<th>Clubhouse repairs &amp; Insure</th>
<th>Affiliation to Football Un.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash 120</td>
<td>107,390</td>
<td>11,400</td>
<td>1,000</td>
</tr>
<tr>
<td>Bank 4,190</td>
<td>4,310</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

A. A. Rawy
<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subscriptions Received</td>
<td>51,220</td>
<td>Ground men’s wages</td>
<td>10,400</td>
</tr>
<tr>
<td>Life Membership</td>
<td>5,000</td>
<td>Restaurant Staff wages</td>
<td>36,690</td>
</tr>
<tr>
<td>Donations received</td>
<td>22,000</td>
<td>Dinner catering costs</td>
<td>5,000</td>
</tr>
<tr>
<td>Restaurant takings</td>
<td>155,420</td>
<td>Bank charges</td>
<td>1,130</td>
</tr>
<tr>
<td>Sale of dinner tickets</td>
<td>7,200</td>
<td>Charitable donations</td>
<td>9,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>New shirts/S for 1st team</td>
<td>17,500</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Printing &amp; Stationery</td>
<td>3,210</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Balance c/d 31/12:</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cash</td>
<td>270</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Bank</td>
<td>42,160</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>42,430</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>245,150</td>
</tr>
</tbody>
</table>

The following information is also available:

(a) In addition to cash and bank balances, the only assets and liabilities of the club are as follows:

<table>
<thead>
<tr>
<th>Description</th>
<th>31/12/2008</th>
<th>31/12/2009</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clubhouse (cost)</td>
<td>250,000</td>
<td>250,000</td>
</tr>
<tr>
<td>Restaurant Stock</td>
<td>7,130</td>
<td>8,120</td>
</tr>
<tr>
<td>Subscriptions in advance</td>
<td>2,200</td>
<td>2,500</td>
</tr>
<tr>
<td>Owed to drinks’ factory</td>
<td>12,180</td>
<td>10,040</td>
</tr>
<tr>
<td>Outstanding subscriptions</td>
<td>3,500</td>
<td>2,900</td>
</tr>
</tbody>
</table>

The clubhouse is being depreciated at 10% per annum on cost. This process began on 1 January 2005.

(b) The cost of the new shirts and shorts was L.E.5,000 on 31/12/2009.

(c) One-half of the clubhouse repairs/insurance and depreciation is to be regarded as an expense of operating the restaurant.

(d) Life membership of the club can be obtained by paying a fee of L.E.2,500. Such fees are allocated to the income and expenditure account over a 5-year period. On 1 January 2009, the balance on the life membership account was L.E.8,500. This figure related to 7 life members.

(e) It was decided on 1 July 2009 that a special fund should be established for the purchase of a new clubhouse. The sum of L.E.30,000 was to be transferred to this special fund from the General Fund. Furthermore, L.E.10,000 of the donations received during the year were intended for the special fund.

(f) Restaurant net loss was L.E.3,730 for the year to 31/12/2009.

**Required:** Prepare an Income and Expenditure Account, and a Balance Sheet for the year to 31 December 2009.

Best Wishes******

Ali Abdelkarim Rawy

2 A.A. Rawy
The First Question:

A-
1- Management at The Daily Grind wants to install espresso bar in its restaurant.
2- The espresso bar:
   - Costs $140,000 and has a 10-year life.
   - Will generate net annual cash inflows of $35,000.
3- Management requires a payback period of 5 years or less on all investments.

What is the payback period for the espresso bar?

B-
1- Management at The Daily Grind wants to install espresso bar in its restaurant.
2- The espresso bar:
   - Costs $140,000 and has a 10-year life.
   - Will generate incremental revenues of $100,000 and incremental expenses of $65,000 including depreciation.
3- Management requires a simple rate of return on all investments.

What is the simple rate of return on this investment project?

The Second Question:

Mohamed Company has been offered a five year contract to provide component parts for a large manufacturer.

Cost and revenue information:

<table>
<thead>
<tr>
<th>Cost</th>
<th>$160,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost of special equipment</td>
<td></td>
</tr>
<tr>
<td>Working capital required</td>
<td>100,000</td>
</tr>
<tr>
<td>Relining of equipment (end of year 3)</td>
<td>30,000</td>
</tr>
<tr>
<td>Salvage value of equipment (end of year 5)</td>
<td>5,000</td>
</tr>
</tbody>
</table>

Annual cash revenues and costs:

| Sales revenue from parts          | 750,000  |
| Cost of parts sold                | 400,000  |
| Salaries, shipping, etc.          | 270,000  |

At the end of the year 5, the working capital will be released for use elsewhere. Mohamed Company uses a discount rate of 10%.

Discount Rate 10%

<table>
<thead>
<tr>
<th>Now</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.909</td>
<td>0.827</td>
<td>0.751</td>
<td>0.683</td>
<td>0.621</td>
</tr>
</tbody>
</table>

Required: Calculate the net present value and then decide should the company take the offered or not?

The Third Question:

Royal Company is preparing budgeted for the quarter.

1- The selling price is $10 per unit. Budgeted sales for the next five months are:

<table>
<thead>
<tr>
<th>April</th>
<th>May</th>
<th>June</th>
<th>July</th>
<th>August</th>
</tr>
</thead>
<tbody>
<tr>
<td>20,000 units</td>
<td>50,000</td>
<td>30,000</td>
<td>25,000</td>
<td>15,000</td>
</tr>
</tbody>
</table>

2- Royal Company wants ending inventory to be equal 20% of the following month’s budgeted sales in units. On March 31, 4,000 units were on hand.
3- At Royal Company, 5 pounds of material are required per unit. Management wants materials on hand at the end of each month equal 10% of the following month’s production. On March 31, 13,000 pounds of material are on hand. The material cost is $0.40 per pound.

4- At Royal, each unit of production requires 0.05 hours of direct labor. The company has a “no layoff” policy, so all employees will be paid for 40 hours of work each week, in exchange, workers agreed to a wage rate of $10 per hour regardless of the hours worked (no overtime pay). For the next three months, the direct labor workforce will be paid for a minimum of $1,500 hours per month.

5- Royal Company uses a variable manufacturing overhead rate of $1 per unit. Fixed manufacturing overhead costs total $50,000 per month and include $20,000 of noncash costs.

**Required:**
Prepare the following budgets for the 3 months (April, May and June) and the quarter
(1) Sales Budget. (2) Production Budget.
(3) Direct Material Usage Budget. (4) Direct Material purchase Budget.
(5) Direct labor budget. (6) Factory overhead Budget.
(7) Income Budget.

**The Fourth Question:**
Following is the information about the cash budget for ABC firm during the months Jan., Feb., and March. 2011.
1- Sales in units Jan. 2,000, Feb. 4,000, and March 5,000 units.
2- Expected sale price per unit $100.
3- Beginning balance on Jan. 1st 2011:
   Cash $25,000, accounts receivable $40,000, accounts payable $5,000, beginning inventory of the product 160 units.
4- The firm collects 80% of the month sales in the same month and collects the remaining amount in the following months.
5- The ending inventory of finished product represents 10% of the month sales.
6- Each unit of the finished product requires 3 kilos of direct material at a price of $10 / kilo. The ABC Co. pays 90% of the cost of direct material for any month in the same month and the remaining amount in the following month.
7- Each unit of the finished product requires 5 hours direct labor at a wage rate $5 paid fully during month.
8- Factory overhead cost include variable cost $4 / unit + $5,000 fixed cost (all depreciation) paid fully.
9- Selling and administrative cost all fixed $30,000 per month including 15,000 depreciation cost, paid fully.
**Required:** prepare cash budget for Feb. 2011.

With My Best Wishes
The First Question (15 Marks):
You as a managerial accountant have to evaluate a capital budget using the net present value model and you have the following information:

1- The initial investment $800,000 paid as follows: $400,000 in the beginning, $250,000 after one year, $150,000 after two years.

2- The investment will yield future cash flow from the second year and for 5 years as follows respectively: $200,000, 180,000, 250,000, 120,000, 160,000.

3- The investment could be sold at the end of its useful life time by $70,000.

Required: Using discount rate 12%, Do you accept the investment or reject it?

<table>
<thead>
<tr>
<th>Year</th>
<th>Discount Rate 12%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year 1</td>
<td>0.893</td>
</tr>
<tr>
<td>Year 2</td>
<td>0.797</td>
</tr>
<tr>
<td>Year 3</td>
<td>0.712</td>
</tr>
<tr>
<td>Year 4</td>
<td>0.636</td>
</tr>
<tr>
<td>Year 5</td>
<td>0.567</td>
</tr>
<tr>
<td>Year 6</td>
<td>0.507</td>
</tr>
</tbody>
</table>

The Second Question: (15 Marks)
Sinai Corporation consists of 3 branches A, B, and C. The records show the following alternatives as follows:

<table>
<thead>
<tr>
<th>Branches</th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alternative/Units</td>
<td>50,000</td>
<td>40,000</td>
<td>20,000</td>
</tr>
</tbody>
</table>

Given that:
1- Selling price per unit is $100.
2- Variable cost per unit is $60.
3- Total fixed cost is $3,000,000.
4- The financial policy of the corporation is to allocate the total fixed cost the entire corporation among the branches equally. The top management thinks about canceling branch (C) because it generates continuous loss.

Required: What is your technical opinion concerning canceling or keeping the branch (C)?

The Third Question: (40 Marks)
Salma Co-operation manufacture and sell two products in 2010. Salma's budget department gathered the following data to prepare budgets for 2011.

<table>
<thead>
<tr>
<th>Products</th>
<th>Sales (units)</th>
<th>Price Per Unit ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>60,000</td>
<td>165</td>
</tr>
<tr>
<td>2</td>
<td>40,000</td>
<td>250</td>
</tr>
</tbody>
</table>
Inventories in units

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>20,000</td>
<td>25,000</td>
</tr>
<tr>
<td>2</td>
<td>8,000</td>
<td>9,000</td>
</tr>
</tbody>
</table>

The following direct materials (units) are used in the two products

<table>
<thead>
<tr>
<th>Direct Material</th>
<th>Product 1</th>
<th>Product 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>B</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>C</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Direct Material</th>
<th>Anticipated Purchased Price ($)</th>
<th>Expected Inventories Jan. 1, 2011 (units)</th>
<th>Target Inventories Dec. 31, 2011 (units)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>12</td>
<td>32000</td>
<td>36000</td>
</tr>
<tr>
<td>B</td>
<td>5</td>
<td>29000</td>
<td>32000</td>
</tr>
<tr>
<td>C</td>
<td>3</td>
<td>6000</td>
<td>7000</td>
</tr>
</tbody>
</table>

Projected direct manufacturing labor requirements and rates for 2011 are as follows:

<table>
<thead>
<tr>
<th>Products</th>
<th>Hours Per Unit</th>
<th>Rate Per Hour ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>12</td>
</tr>
<tr>
<td>2</td>
<td>3</td>
<td>16</td>
</tr>
</tbody>
</table>

Manufacturing overhead is allocated at the rate of $20 per hour direct labor.

Required:
Prepare the following budgets
(1) Sales Budget.
(2) Production Budget.
(3) Direct Material Usage Budget.
(4) Direct Material purchase Budget.
(5) Direct labor budget.
(6) Factory overhead Budget.
(7) Income Budget.

The Fourth Question (30 Marks):
Following is the information about the cash budget for FBI firm during the months January, February, March 2011.

1- Sales in units Jan. 2,000, Feb. 3,000 and March 4,000 units.

2- Expected sale price per unit $200.

3- Beginning balance on Jan 1st 2011:
Cash $50,000 – Accounts receivable $80,000 – Accounts payable $10,000 – Beginning inventory of the product 160 units.

4- The firm collects 75% of the month sales in the same month and collects the remaining amount in the following month.

5- The ending inventory of finished product represent 10% of the month sales.
6- Each unit of the finished product requires 3 kilos of direct material at price of $ 20/Kilo. The FBI co. maintains fixed inventory level of direct material at 3,000 kilos. The FBI co. pays 80% of the cost of direct material for any month in the same month and the remaining amount in the following month.

7- Each unit of the product requires 5 hours direct labor at a wage rate $ 10 paid fully during month.

8- Factory overhead cost include variable $ 8 / unit + $ 20,000 fixed (all depreciation).

9- Selling and administrative cost all fixed $ 30,000 per month including $ 24,000 depreciation cost.

Required :
1- Prepare cash budget for January, February and March.
2- In January, if the firm maintain fixed cash balance = $ 100,000 – How much the firm can invest or need to borrow?

Good Luck
First Question:
1- "There are many barriers that blocks entry of new firms into particular market" Discuss
2- Suppose the particular industry operate under both pure compition and pure monopoly. Compare between two markets with respect to: basic price, the industry demand curve, the short run and long run equilibrium position, economic profit, and consumer surplus.

Second Question:
1- The green company produces chemicals in a perfectly competitive market. The current market price is $36. the firm's total cost is $c = 64 + 6Q + Q^2$
2- Determine the firm's profit-maximizing output. compute its profit.
3- Suppose the total industry demand as $Q_d = 360 - 5P$. determine the total market demand at this current price, and if the all firms costs are typical in the market, compute how many firms will serve the market
3- Suppose the same total industry demand continue in long run, compute the price, total product, and number of firms will serve the market in the long run.

Third Question
(A) A firm has two separate markets for its product. suppose the demand function in each market as following $Q_1 = 1200 - 20p$, $Q_2 = 400 - 5p$, where $Q_t = Q_1 + Q_2$. Suppose also the marginal cost is $Mc = 28+0.04Q_t$

- Determine the price and optimal quantity in each market in order to maximize total revenue, calculate also the total revenue in the separate markets.
- Calculate the total revenue when non-price discrimination.

(B) Suppose the chem. Tech corporation produces refined chemicals and two of these chemicals are complements in production. The manager has forecasts of the demand function for the two products $Q_1 = 120 000 - 1000 p$, $Q_2 = 100 000 -2500 p$.
The marginal cost function for refining the raw chemical input is estimated to be $Mc= 10+0.0022Q$

- Determine the profit maximizing level of output.
- Calculate the total revenue and the price for each product.
**Answer the following questions:**

**Question One (30 marks):**

Mahmoud El-Khatib consigned 1,000 Television Sets costing L.E.900 each to Mostafa El-Nager in Sudan, his agent on 1st July 2009. El-Khatib incurred the following expenditure on sending the consignment: Carriage L.E.650, Freight L.E.7,000 and, Insurance L.E.3,250

El-Nager received the delivery of 950 TV sets. An Account Sales dated 30 November 2009 showed that 750 sets were sold for L.E.900,000 and El-Nager incurred L.E.3,000 for carriage and L.E.7,500 for the custom duty at the time of taking the delivery. El-Nager was entitled to a commission of 6% on the sales effected by him. He incurred expenses amounting to L.E.2,500 for repairing the damaged TV sets remaining in the stock.

El-Khatib made a claim with the insurance company which was admitted at L.E.35,000.

**Required:**

Show the Consignment Account, Mostafa El-Nager’s Account, and Abnormal Loss Account in the books of Mahmoud El-Khatib.

---

**Question Two (35 marks):**

Farid prepares accounts to 31 December each year. He does not maintain full double-entry records but he does keep a cashbook. The following information is available:

1. Farid’s sales are mainly cash sales. He pays certain expenses out of his takings and then banks most of the remainder at the end of each week, retaining only a small cash float. The expenses paid out of takings during the year to 31 December 2010 were as follows:
   a. Wages of L.E.3,500 per week (including L.E.2,000 per week for Farid himself).
   b. Sundry expenses totalling L.E.11,200 for the year. All other payments were made by business cheque.

2. A summary of Farid’s bank account for the year to 31 December 2010 is as follows:

   - Cash at bank as at 1/1/2010: L.E.18,300
   - Bank overdraft as at 31/12/2010: L.E.10,300
   - Receipts during the year:
     - Takings paid into the bank: 482,200
     - Credit customers’ cheques paid into the bank: 117,600
Sale of motor car 37,000
Payments during the year:
Suppliers of goods bought on credit terms 378,800
Purchase of new motor car 158,000
Rent, rates and insurance 75,900
Heating and lighting 16,300
Motor expenses 36,400
{3} The motor car sold during the year was bought for L.E.123,000 in April 2007. Farid calculates depreciation at 25% yearly using the straight line method, with a full charge in the year of acquisition and none in the year of disposal.
{4} The following information is also available: Capital as at 31/12/2009 L.E.35,450, Gross profit for the year L.E.435,500, gain on disposal of motor car L.E.6,250, rent, rates and insurance expenses to 31/12/2010 L.E.74,100, heating and lighting expenses to 31/12/2010 L.E.16,700
{5} Apart from (in addition) motor car and cash at bank, Farid’s assets and liabilities are:

<table>
<thead>
<tr>
<th>31/12/2009</th>
<th>31/12/2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stock of goods for resale, at cost L.E.113,700</td>
<td>125,400</td>
</tr>
<tr>
<td>Trade debtors</td>
<td>9,600</td>
</tr>
<tr>
<td>Prepaid rent, rates and insurance</td>
<td>9,500</td>
</tr>
<tr>
<td>Cash in hand</td>
<td>1,200</td>
</tr>
<tr>
<td>Trade creditors</td>
<td>145,400</td>
</tr>
<tr>
<td>Accrued heating and lighting</td>
<td>2,200</td>
</tr>
</tbody>
</table>

**Required:**
Prepare Farid’s profit and loss account for the year to 31 December 2010 and a balance sheet as at that date.

**Question Three (35 marks):**
The treasurer of Al-Wady Club has produced the following receipts and payments account for the year to 31 December 2009:

<table>
<thead>
<tr>
<th>Balance b/d 1/1/09:</th>
<th>Restaurant purchases</th>
<th>107,390</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash</td>
<td>120</td>
<td>Clubhouse repairs &amp; Insure</td>
</tr>
<tr>
<td>Bank 4,190</td>
<td>4,310</td>
<td>Affiliation to Football Un.</td>
</tr>
<tr>
<td>Subscriptions Received</td>
<td>51,220</td>
<td>Ground men’s wages</td>
</tr>
<tr>
<td>Life Membership</td>
<td>5,000</td>
<td>Restaurant Staff wages</td>
</tr>
<tr>
<td>Donations received</td>
<td>22,000</td>
<td>Dinner catering costs</td>
</tr>
<tr>
<td>Restaurant takings</td>
<td>155,420</td>
<td>Bank charges</td>
</tr>
<tr>
<td>Sale of dinner tickets 7,200</td>
<td>Charitable donations</td>
<td>9,000</td>
</tr>
<tr>
<td></td>
<td>New shirts/S for 1st team</td>
<td>17,500</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>---------------------------</td>
<td>--------</td>
</tr>
<tr>
<td></td>
<td>Printing &amp; Stationery</td>
<td>3,210</td>
</tr>
<tr>
<td><strong>Balance c/d 31/12:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cash</td>
<td>270</td>
<td></td>
</tr>
<tr>
<td>Bank</td>
<td>42,160</td>
<td>42,430</td>
</tr>
<tr>
<td><strong>245,150</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The following information is also available:

(a) In addition to cash and bank balances, the only assets and liabilities of the club are as follows:

<table>
<thead>
<tr>
<th></th>
<th>31/12/2008</th>
<th>31/12/2009</th>
</tr>
</thead>
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<td>Restaurant Stock</td>
<td>7,130</td>
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<td>Subscriptions in advance</td>
<td>2,200</td>
<td>2,500</td>
</tr>
<tr>
<td>Owed to drinks’ factory</td>
<td>12,180</td>
<td>10,040</td>
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<td>Outstanding subscriptions</td>
<td>3,500</td>
<td>2,900</td>
</tr>
</tbody>
</table>

The clubhouse is being depreciated at 10% per annum on cost. This process began on 1 January 2005.

(b) The cost of the new shirts and shorts was L.E.5,000 on 31/12/2009.

(c) One-half of the clubhouse repairs/insurance and depreciation is to be regarded as an expense of operating the restaurant.

(d) Life membership of the club can be obtained by paying a fee of L.E.2,500. Such fees are allocated to the income and expenditure account over a 5-year period. On 1 January 2009, the balance on the life membership account was L.E.8,500. This figure related to 7 life members.

(e) It was decided on 1 July 2009 that a special fund should be established for the purchase of a new clubhouse. The sum of L.E.30,000 was to be transferred to this special fund from the General Fund. Furthermore, L.E.10,000 of the donations received during the year were intended for the special fund.

(f) Restaurant net loss was L.E.3,730 for the year to 31/12/2009.

**Required:**  
Prepare an Income and Expenditure Account, and a Balance Sheet for the year to 31 December 2009.

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Best Wishes

**ALI ABDELKARIM RAWY**

A. A. Rawy
Question One: Choose the right answer from A and B in each of the following (A means True and B means False): (50 Marks)

1. A weakness of divisional structure of organization is the tendency to duplicate activities among divisions. a) True  b) False
2. Initiating organizational change refers to a manager's figurehead role. a) True b) False
3. The primary form of mechanistic structure is bureaucratic organization. a) True b) False
4. Operational plans have shorter time frames and narrower scopes than tactical plans.
   a) True  b) False
5. Power is the ability to exert influence in the organization beyond authority, which is derived from position. a) True b) False
6. Conceptual skills are concerned with a manager's ability to apply specific methods and techniques. a) True  b) False
7. When a manager of an organization sets a goal for each division to be in the top two in the industry, she or he is mainly engaged in organizing. a) True b) False
8. Management that emphasizes rules, procedures and division of labor is called administrative management. a) true  b) false
9. In disseminating organizational information, the manager is acting in the role of spokesperson.
   a) true  b) false
10. Supervisory management is less focused and more long-term than higher management functions. a) true  b) false
11. The internal environment refers to an organization's controllable variables. a) true  b) false
12. The marketing manager is located at the top level of the managerial hierarchy. a) true b) false
13. The manager's monitor role involves receiving and collecting information. a) true b) false
14. Managerial skills are classified as conceptual, human and technical. a) true b) false
15. Conceptual skills are used most by top managers. a) true b) false

Question Two Choose the right answer from A, B, C and D: (45 Marks)

1. When a manager answers the question: Am I happy to make my decision public - especially to the people affected by it? He or she is applying the criteria...
   a) Transparency b) Effect c) Fairness d) none of the above.
2. When an organization CEO sets a goal for each division to be in the top two in the industry, she or he is mainly engaged in what managerial function.
   a) controlling  c) organizing  b) planning  d) directing
3. Which of the following job titles is NOT an example of a middle manager?
   a) Finance director  b) Plant manager  c) Section chief  d) Regional marketing manager
4. When conducting a Stakeholder Analysis, we should consider:
   a) The stakeholders' position on the reform issue and the level of influence (power) the stakeholders hold.
   b) The level of interest the stakeholders have in the specific reform.
   c) The group/coalition to which stakeholders belong or can reasonably be associated with.
   d) All of the above.
5. Working effectively with a team to resolve conflicts describes a........
   a) human skill  b) technical skill  c) conceptual skill  d) none of the above.
6. Which of the following sets of managerial roles classify Mintzberg's ten most common roles of managers?
   a) Controlling, planning, and directing   b) Figurehead, monitor, and spokesperson
   c) Entrepreneurial, decisional, and logistical   d) Interpersonal, informational, and decisional.

7. Planning is a dynamic decision-making function that focuses on:
   a) past performance   c) zero base budgeting
   b) future performance   d) stock market performance

8. Mohammed periodically takes clients to Dinner to reward them for being good customers. His action exhibits what role of management?
   a) Decisional   c) Figurehead   b) Entrepreneur   d) Leader

9. Technical skills involve the ability to:
   a) solve complex problems.
   b) lead, motivate, and work with others.
   c) apply scientific methods, processes, and techniques.
   d) understand the interrelated parts of the organization.

10. Conceptual skills are concerned with a manager's ability to:
    a) apply specific methods and techniques.
    b) view the organization as a whole.
    c) lead and motivate employees.
    d) send and receive information.

11. The structure of organization in its official state is called the organization's:
    a) informal structure.
    b) formal structure.
    c) levels of management.
    d) hierarchy of authority.

12. ..........is the process of developing and analyzing the organization's mission, overall goals, general strategies, and allocating resources.
    a) Long term planning
    b) Tactical planning
    c) Operational planning
    d) Strategic Planning.

13. .......... involves the guiding, leading and overseeing of employees to achieve organizational goals.
    a) Planning
    b) controlling
    c) organizing
    d) directing

14. When sales manager for an organization constantly seeks customer support because they can affect the company's success. He knows that unhappy customers may switch to a competitor. What managerial role is he playing?
    a) Decisional
    b) Liaison
    c) Spokes person
    d) Monitor

15. Ahmed promotes team decision making and welcomes employee free expression without fear of embarrassment. What skills is he primarily using?
    a) Conceptual
    b) Interpersonal
    c) Functional
    d) Technical

**Question two: Write short notes in each of the following (25 marks):**

1. Types of control.
2. Steps of organizing process.
3. Organization as an open system.

---

*End of Questions*

*With my best wishes*

*Dr. Alaa Tag Eldin Mohamed*
Answer the following questions:

**Question 1:** Tick each of the following statements as true or false (24%)

<table>
<thead>
<tr>
<th>Statement</th>
<th>True</th>
<th>False</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Proactive HRM acts after problems arises.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. All the recruitment and selection programmes are based on manpower planning.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. It is ethical to hire an unqualified friend.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. The best training method for manual employees is simulation.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Human resource management is important only for private and public sector organizations.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. The wage trend line helps determine the wage rates for key jobs.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Domestic goals of equal employee opportunity may conflict with international laws.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. HRM has a dual responsibility in organizations.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. The organization selects the employees and the applicants select the organization.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Assuming the applicant accepts the job, the hiring process makes the end of the selection process.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. The program content considers only the learning objectives of training.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Absenteeism is one of the training evaluation criteria.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Question 2:** Select the correct answer for each of the following: (24%)

1. Workforce planning involves all of the following except
   (a) organizing the training of staff.
   (b) forecasting future personnel requirements.
   (c) examining production plans in a factory.
   (d) preparing and maintaining personnel records.

2. Piecework is a payment system where the worker is
   (a) paid overtime for any hours worked beyond 25 per week
   (b) rewarded for good conduct.
   (c) is paid a minimum of £4.20 per hour.
   (d) is paid for what he or she achieves.

3. An advantage of recruitment from outside the company is
   (a) that it is cheaper than internal recruitment.
   (b) that there is no need to advertise the vacancy.
   (c) that it brings in new experience and skills to the firm.
   (d) that it avoids jealousy within the firm.
4. In recent years autonomous working groups have come to play an important part in many businesses. What are their essential features?
(a) The group reports directly to the senior management above them in the hierarchy of the firm.
(b) The creation of teams which have a high level of autonomy and control over their immediate working environment.
(c) The bringing together of various individuals who have a common interest in solving certain problems.
(d) A group of experts brought into research new ways of producing a product.

5. Ineffective planning of workforce would be highlighted by
(a) Recruitment and selection problems.
(b) The need to outsource some of the production.
(c) A need to offer retraining to current employees.
(d) An opportunity to increase the use of mechanization

6. Which of the following will influence the method of recruitment and selection used by a company?
(a) The state of the economy.
(b) The size of the organization.
(c) The type of training programmes used by the company.
(d) The possible expansion of Egypt business in Europe.

7. Which of the following is an accurate definition of recruitment?
(a) The process of attempting to fill gaps that exist in the skills of the current labor force.
(b) The system of following someone around and noting how they perform their duties.
(c) The process by which companies fill the need to find new employees.
(d) A statement that enshrines the fundamental objectives of the company.

8. Supply and demand forecasts, combined, provide all of the following for human resource managers except:
(a) highlighting areas where overstaffing might currently exist.
(b) highlighting areas where overstaffing might exist in the future.
(c) pinpointing anticipated budget changes in recruiting and maintenance.
(d) keeping abreast of the opportunities to stockpile good people for anticipated needs.

9. Training needs may be assessed by answering the questions that are listed except:
(a) What, historically, has worked well in this organization?
(b) What are the organization’s goals?
(c) What behaviors are necessary to complete assigned tasks?
(d) What tasks are needed to achieve the organizational goals?
10. All of the following are typical responsibilities of the human resource management professional except:
(a) Training employees to function effectively within the organization.
(b) Hiring the best qualified candidates.
(c) Establishing working conditions that are conducive to retaining the best workers.
(d) Reducing the cost of production.

11. Non financial incentives include all of the following except:
(a) Consultation
(b) Recognition
(c) Bonus
(d) Job rotation

12. An example of internal recruiting method is:
(a) Referrals by present employees
(b) College placement offices
(c) Professional association placement services
(d) External sources

**Question 3:**

1. **For each of the following training situation, identify the suitable training method and why?** (18%)
   a- a new driver
   b- an unskilled worker
   c- plumber
   d- an inexperienced manager
   e- banker
   f- an engineer

2. **For each of the following situations, identify the suitable recruiting method and explain why?** (9%)
   a. Two more salespersons are needed: one to help local customers and to open a sales office in Dubai.
   b. The only chemist is retiring and must be replaced with a highly skilled individual.
   c. A secretary moved to another department in the company.

**Question 4: Write short notes on five only of the following :** (25%)
1. Importance of human resource planning.
2. Objectives of compensation management.
3. Employee relations practices
4. Rating scales as one of performance appraisal methods.
5. Factor comparison as one of job evaluation methods.
6. Selection interview.

Good luck.
Question One: choose the right answer from a) true and b) false in each of the following (15 marks):
1. Crisis may be cased by a sudden, single event; however it may also be the result of a general trend that itself leads to a break. a) true  b) false
2. In disseminating organizational information, the supervisor is acting in the role of spokesperson. a) true  b) false
3. Supervisory management is less focused and more long-term than higher management roles. a) true  b) false
4. Management that emphasizes rules, procedures and division of labor is called administrative management. a) true  b) false
5. The symptoms, are circumstances or conditions that indicate the existence of the problem. a) true  b) false
6. Empowerment means that manager provides an atmosphere by letting workers make decisions and inspiring people to boost productivity. a) true  b) false
7. The internal environment refers to an organization's controllable variables. a) true  b) false
8. Decisions are made by consensus when solutions are acceptable to the majority in the group. a) true b) false
9. Corrections that result from the decision evaluation can be introduced for different steps in the decision-making process. a) true b) false
10. All levels of management need the same level of technical skills to manage their area of specialty. a) true b) false
11. A manager can be a leader, but a leader is not necessary a manager. a) true  b) false
12. Theory X is the view that individual and organizational goals can be integrated. a) true b) false
13. According to system principles we can break up the system and only have to deal with its parts or with various topics apart from other topics. a) true b) false
14. When considering the ethical decision making effect means to answer the question: am I happy to make my decision public - especially to the people affected by it? a) true b) false
15. The roles of negotiator and resource allocator are closely related. a) true b) false.

Question Two: Choose the right answer from a, b, c, and d in each of the following: (40 marks)
1. An organization which relies on rules and has a set hierarchy of authority is using what type of management?
   a) Bureaucratic  b) Contingency  c) Administrative  d) Scientific
2. For his fast-food restaurant, Salem recruits labor with different skills for different jobs. This approach is characteristic of
   a) rationality  b) impersonality  c) division of labor  d) hierarchical structure.
3. An organization having a well-defined structure in which each person knows where he or she stands in relation to everyone else is a characteristic of
   a) network design.  b) division of labor.  c) charismatic authority.  d) hierarchical structure.
4. The pioneer of scientific management was
   a) Elton Mayo  b) Frederick Taylor  c) Henri Fayol  d) Mary Parket Follett
5. An important emerging skill for future managers is ...
   a) computer literacy  b) media management  c) international politics  d) human resources
6. When an organization chief executive officer sets a goal for each division to be in the top two in the industry, he or she is mainly engaged in what managerial function.
   a) TQM  b) planning  c) organizing  d) directing
7. A regional vice president lets local store managers operate each store as if it were a separate business. In this effort to better coordinate company human and material resources, the VP was seeking to improve what managerial function?
   a) Controlling  b) Directing  c) Organizing  d) Planning
8. Which of the following sets of managerial roles classify Mintzberg's ten most common roles of managers?
   a) Controlling, planning, and directing   c) Figurehead, monitor, and spokesperson
   b) Entrepreneurial, decisional, and logistical d) Interpersonal, informational, and decisional.
9. Which managerial role is the simplest and most basic?
   a) Decisional   b) Figurehead   c) Stakeholder   d) Spokesperson
10. Susan periodically takes clients to lunch to reward them for being good customers. Her action exhibits what role of management?
    a) Decisional   b) Entrepreneur   c) Figurehead   d) Leader
11. Corporate CEO Elmasry had a vision that helped rally employees. His vision represented what role of management?
    a) Leader   b) Futurist   c) Figurehead   d) Top manager
12. Diana manages a college bookstore. She feels that her greatest problem is related to employee motivation. This problem is related to her role as a
    a) figurehead   b) negotiator   c) monitor   d) leader
13. Ahmed promotes team decision making and welcomes employee free expression without fear of embarrassment. What skill is he primarily using?
    a) Conceptual   b) Functional   c) Interpersonal   d) Technical
14. Technical skills involve the ability to
   a) solve complex problems.
   b) lead, motivate, and work with others.
   c) apply scientific methods, processes, and techniques.
   d) understand the interrelated parts of the organization
15. Conceptual skills are concerned with a manager's ability to
   a) apply specific methods and techniques. c) lead and motivate employees.
   b) view the organization as a whole. d) send and receive information.
16. The characteristics of a work group, organization, specific market, or national population is called
    a) culture   b) individualism   c) collectivism   d) demographics
17. When conducting a SA, we should consider;
    a) The stakeholders’ position on the reform issue and the level of influence (power) the stakeholders hold.
    b) The level of interest the stakeholders have in the specific reform.
    c) The group/coalition to which stakeholders belong or can reasonably be associated with.
    d) All of the above.
18. Which of the following characteristics is NOT related to bureaucratic management?
    a) Short-term career commitment   b) Highly formal system of rules   c) Division of labor   d) Impersonality
19. Single-loop learning is related to the concept of
    a) first order learning. b) Team Learning. c) organizational development. d) organizational culture.
20. Sammy is the state sales manager for Stars Co. He constantly seeks customer support because they can affect the company's success. He knows that unhappy customers may switch to a competitor such as Moon Co. What managerial role is he playing?
    a) Stakeholder   b) Incumbent   c) Liaison   d) Monitor

**Question Three: (45 marks)**
1) Write in summary about the organization as an open system and list the main factors of its internal and external environment. (15 marks)
2) Summarize the concepts of TQM and how to deal with resistance of it. (15 marks)
3) Compare between Single-loop and double-loop learning. (15 marks)

End of Questions
With my best wishes
Dr. Alaa Tae El Din Mohamad
Answer the following questions:

**Question One (30 marks):** Mahmoud El-Khatib consigned 1,000 Television Sets costing L.E.900 each to Mostafa El-Nager in Sudan, his agent on 1st July 2009. El-Khatib incurred the following expenditure on sending the consignment: Carriage L.E.650, Freight L.E.7,000 and, Insurance L.E.3,250.

El-Nager received the delivery of 950 TV sets. An Account Sales dated 30 November 2009 showed that 750 sets were sold for L.E.900,000 and El-Nager incurred L.E.3,000 for carriage and L.E.7,500 for the custom duty at the time of taking the delivery. El-Nager was entitled to a commission of 6% on the sales effected by him. He incurred expenses amounting to L.E.2,500 for repairing the damaged TV sets remaining in the stock.

El-Khatib made a claim with the insurance company which was admitted at L.E.35,000.

**Required:**
1- Show the Consignment Account, Mostafa El-Nager’s Account, and Abnormal Loss Account in the books of Mahmoud El-Khatib.
2- Journal entries in the books of Mahmoud El-Khatib.

**Question Two (30 marks):**

The following Statement of Affairs had been prepared as on 31st December, 2008:

<table>
<thead>
<tr>
<th></th>
<th>20,750</th>
<th>Capital Account</th>
<th>280,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Machinery</td>
<td>49,400</td>
<td>Sundry Creditors</td>
<td>31,700</td>
</tr>
<tr>
<td>Stock in trade</td>
<td>96,730</td>
<td>Bill Payable</td>
<td>21,500</td>
</tr>
<tr>
<td>Book Debts</td>
<td>155,500</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cash in hand</td>
<td>10,820</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>333,200</td>
<td></td>
<td>333,200</td>
</tr>
</tbody>
</table>

On 31st December, 2009, it was learnt that she had introduced further capital of L.E.10,000 on 1/4/2009 and she had drawn L.E.15,800 on various dates during the year. It was also ascertained that the owner had taken L.E.750 worth of goods for her own use. Statements prepared on the same date disclosed that book debts were L.E.146,400, Creditors were L.E.20,390 and Bills Payable were L.E.17,750. The stock was valued at L.E.114,170 and the cash in hand amounted to L.E.9,170 on the same date.

**You are required to prepare:**
(a) Statement of Profit for the year 2009 and (b) a Statement of Affairs of Sarah as on 31/12/2009 taking into consideration the following:
- 5% Provision to be created on Book Debts.
- 7 1/2 % Depreciation to be written off on Machinery.
- Interest at 5% on the capital to be calculated.

Question Three (40 marks):
The treasurer of Al-Wady Club has produced the following receipts and payments account for the year to 31 December 2009:

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Balance b/d1/1/09:</td>
<td></td>
</tr>
<tr>
<td>Cash</td>
<td>120</td>
</tr>
<tr>
<td>Bank</td>
<td>4,190</td>
</tr>
<tr>
<td>Subscriptions Received</td>
<td>51,220</td>
</tr>
<tr>
<td>Life Membership</td>
<td>5,000</td>
</tr>
<tr>
<td>Donations received</td>
<td>22,000</td>
</tr>
<tr>
<td>Restaurant takings</td>
<td>155,420</td>
</tr>
<tr>
<td>Sale of dinner tickets</td>
<td>7,200</td>
</tr>
<tr>
<td>Restaurant purchases</td>
<td>107,390</td>
</tr>
<tr>
<td>Clubhouse repairs &amp; Insure</td>
<td>11,400</td>
</tr>
<tr>
<td>Affiliation to Football Un.</td>
<td>1,000</td>
</tr>
<tr>
<td>Ground men’s wages</td>
<td>10,400</td>
</tr>
<tr>
<td>Restaurant Staff wages</td>
<td>36,690</td>
</tr>
<tr>
<td>Dinner catering costs</td>
<td>5,000</td>
</tr>
<tr>
<td>Bank charges</td>
<td>1,130</td>
</tr>
<tr>
<td>Charitable donations</td>
<td>9,000</td>
</tr>
<tr>
<td>New shirts/S for 1st team</td>
<td>17,500</td>
</tr>
<tr>
<td>Printing &amp; Stationery</td>
<td>3,210</td>
</tr>
<tr>
<td>Balance c/d 31/12:</td>
<td></td>
</tr>
<tr>
<td>Cash</td>
<td>270</td>
</tr>
<tr>
<td>Bank</td>
<td>42,160</td>
</tr>
<tr>
<td></td>
<td>245,150</td>
</tr>
</tbody>
</table>

The following information is also available:

(a) In addition to cash and bank balances, the only assets and liabilities of the club are as follows:

<table>
<thead>
<tr>
<th>Description</th>
<th>31/12/2008</th>
<th>31/12/2009</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clubhouse (cost)</td>
<td>250,000</td>
<td>250,000</td>
</tr>
<tr>
<td>Restaurant Stock</td>
<td>7,130</td>
<td>8,120</td>
</tr>
<tr>
<td>Subscriptions in advance</td>
<td>2,200</td>
<td>2,500</td>
</tr>
<tr>
<td>Owed to drinks’ factory</td>
<td>12,180</td>
<td>10,040</td>
</tr>
<tr>
<td>Outstanding subscriptions</td>
<td>3,500</td>
<td>2,900</td>
</tr>
</tbody>
</table>

The clubhouse is being depreciated at 10% per annum on cost. This process began on 1 January 2005.

(b) The cost of the new shirts and shorts is to be written off immediately.

(c) One-half of the clubhouse repairs/insurance and depreciation is to be regarded as an expense of operating the restaurant.

(d) Life membership of the club can be obtained by paying a fee of L.E.2,500. Such fees are allocated to the income and expenditure account over a 5-year period. On 1 January 2009, the balance on the life membership account was L.E.8,500. This figure related to 7 life members.

(e) It was decided on 1 July 2009 that a special fund should be established for the purchase of a new clubhouse. The sum of L.E.30,000 was to be transferred to this special fund from the General Fund and L.E.10,000 of the donations received during this year were intended for the special fund.

Required: Prepare a Restaurant Trading and Profit and Loss Account for the year to 31 December 2009, an Income and Expenditure Account, and a Balance Sheet as at that date.

Best Wishes********

ALI ABDELKARIM RAWY

2
South Valley Univ., Accounting Evaluation, Faculty of Commerce. Time allowed: 3 hours English Section Third Year/May.

Answer the following questions:

Q1. The following data are related to a certain company, which includes two production centers C1 and C2. C1 is producing a product A which will be used by center C2, instead of purchasing the required quantity from the local market. The declared costs and market prices for product A is as follows:

<table>
<thead>
<tr>
<th>Price per unit</th>
<th>$15</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct materials for (1000 units)</td>
<td>$3000</td>
</tr>
<tr>
<td>Direct wages for the given quantity</td>
<td>5000</td>
</tr>
<tr>
<td>Variable overhead</td>
<td>1000</td>
</tr>
<tr>
<td>Backing per unit of A</td>
<td>0.2</td>
</tr>
<tr>
<td>Total fixed manufacturing costs</td>
<td>2000</td>
</tr>
<tr>
<td>Total advertising and other marketing expenses</td>
<td>500</td>
</tr>
<tr>
<td>Transportation expenses per unit</td>
<td>0.3</td>
</tr>
<tr>
<td>Other marketing expenses</td>
<td>300</td>
</tr>
<tr>
<td>Managerial expenses</td>
<td>200</td>
</tr>
</tbody>
</table>

Further information:

1- All marketing and managerial expenses are fixed except the transportation expenses.
2- The manager of center C1 has suggested a transfer price per unit equals to the selling price minus the variable marketing expense.
3- The manager of center C2 has suggested a transfer price equals to the total variable manufacturing costs plus 30% mark-up.
4- Due to the conflict views between C1 and C2, top management has suggested a third transfer price depending upon the total manufacturing costs plus 20% mark-up.

Required: Calculate the suggested three transfer prices.

Q2. A four new projects are in front of ascertaining company. Each project will be related to a certain internal department. Suppose that the company is following the principles of the internal capital rating and in view of the following data, it is required to evaluate the performance of thus four projects from the outside point of view and also according to the internal performance evaluation:

<table>
<thead>
<tr>
<th>Items</th>
<th>(A)</th>
<th>(B)</th>
<th>(C)</th>
<th>(D)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Investment spending</td>
<td>200000</td>
<td>200000</td>
<td>200000</td>
<td>200000</td>
</tr>
<tr>
<td>Productive life</td>
<td>6 years</td>
<td>6 years</td>
<td>6 years</td>
<td>6 years</td>
</tr>
<tr>
<td>Expired value</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Inflows:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Year (1)</td>
<td>78000</td>
<td>55000</td>
<td>35000</td>
<td>50000</td>
</tr>
<tr>
<td>Year (2)</td>
<td>70000</td>
<td>55000</td>
<td>40000</td>
<td>55000</td>
</tr>
<tr>
<td>Year (3)</td>
<td>67000</td>
<td>55000</td>
<td>440000</td>
<td>60000</td>
</tr>
<tr>
<td>Year (4)</td>
<td>60000</td>
<td>55000</td>
<td>560000</td>
<td>630000</td>
</tr>
<tr>
<td>Year (5)</td>
<td>50000</td>
<td>55000</td>
<td>60000</td>
<td>650000</td>
</tr>
<tr>
<td>Year (6)</td>
<td>40000</td>
<td>55000</td>
<td>80000</td>
<td>70000</td>
</tr>
</tbody>
</table>

Further information:
1- The costs of capital to be counted in a ratio of 16% .
2- Depreciation to be counted according to the straight line method.

**Q3.** Suppose that a two machines are under choice for new investment in ferrous of a certain company, where the two machines are doing the same job . The following data are related to those two machines :

<table>
<thead>
<tr>
<th>Items</th>
<th>Machine M₁</th>
<th>Machine M₂</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purchasing value</td>
<td>250000</td>
<td>200000</td>
</tr>
<tr>
<td>Replacement period</td>
<td>5 years</td>
<td>3 Years</td>
</tr>
<tr>
<td>Operating expenses</td>
<td>45000</td>
<td>32000</td>
</tr>
<tr>
<td>amount ally</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Discount rate</td>
<td>12%</td>
<td>12%</td>
</tr>
</tbody>
</table>

Required : Determine which machine to be chosen according to the following appointees:
1- The lowest common multihued method .
2- The equivalent method .

**Q4.** A hospital operates its own laundry processes were the laundry processed amounted to $ 120,000 K.g and this year it is forcasted to be 132,000 k.g. This growth in laundry is expected to continue at the same rate for the next seven years, as a result of this, It has two alternatives;
Alternative (1) : To purchase machine (A).
Alternative (2) : To rent machine (B).
And the following table will give us further description regarding the over mentioned two machines :

<table>
<thead>
<tr>
<th>Items</th>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual capacity in K.g</td>
<td>180.000</td>
<td>170.000</td>
</tr>
<tr>
<td>Material cost per K.g</td>
<td>2</td>
<td>1.8</td>
</tr>
<tr>
<td>Labor cost per K.g</td>
<td>3</td>
<td>3.4</td>
</tr>
<tr>
<td>Fixed annual costs</td>
<td>20.000</td>
<td>18.000</td>
</tr>
<tr>
<td>Annual rent</td>
<td>-</td>
<td>20.000</td>
</tr>
<tr>
<td>Useful life</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Capital cost</td>
<td>60.000</td>
<td>-</td>
</tr>
<tr>
<td>Annual depreciation</td>
<td>20.000</td>
<td>-</td>
</tr>
</tbody>
</table>

**Other available information :**
1- The hospital is able to call amount outside laundry if there is either a breakdown be $ 10 per K.g.
2- Machine (A) is purchased has to be paid immediately. Other cash flows can be assumed to accrue at the end of the year.
3- Machine (A) will have $10000 scrap value
4- The existing laundry equipment can be sold for $10,000.
5- Fixed costs are direct costs for operating the machine.
6- The hospital discount rate is 16%

**Required:**
Evaluate the two options using discount cash flows needs to recommend the prefer option and identify on the financial benefit.

**Q5. Indicate whether the following statements are true (T) or false (F):**
1. The purpose of performance measures is to set direction and to motivate managers.
2. A responsibility center for controlling revenues as well as costs is called a revenue center.
3. The term cost center is used indiscriminately to describe centers that may or may not be assigned responsibility for the capital investment.
4. A well-designed management control system ignores non-financial objectives and focuses on financial objectives to develop and report measures of performance.
5. Goal congruence exists when individuals aim at short-term goals and groups aim at long-term organizational goals.
6. Segments are responsibility centers for which a separate measure of revenues and costs is obtained.
7. Managers on all levels are held responsible for the total segment contribution.
8. The key to successful management control in any organization is proper training and motivation of employees, and consistent monitoring of objectives.
9. A management control system must evolve with changing times, or the organization risks not being able to manage its resources effectively or efficiently.
10. Segment autonomy means that the activities of segment managers are directed by top managers.
11. Decentralization is the delegation of freedom to make decisions.
12. Profit centers can exist only in a decentralized organization.
13. Transfer prices are the amounts charged by one segment of an organization for a product or service that it supplies to an outside firm.
14. The transfer price is a revenue to the segment producing the product or service, and it is a cost to the acquiring segment.
15. If there is a competitive market for the product or service being transferred internally, using the cost-based price as a transfer price will generally lead to the desired goal congruence and managerial effort.
16. Dysfunctional behavior is action taken in conflict with organizational goals.
17. Multinational companies use transfer prices to maximize world-wide income taxes and import duties.
18. The amount of income generated by the investment is a better test of profitability than the return on investment.
19. In measuring the performance of a division manager, stockholders' equity should not be used as the amount of invested capital.
20. Capital-budgeting decisions have significant financial effects beyond the current year.
21. Discounted-cash-flow models focus on a project's cash flows and cash outflows without regard to the time value of money.
22. The net present value model expresses all cash flows in monetary units measured at time zero.
23. The accounting-rate-of-return model shows the effects of an investment on an organization's financial statements.
24. The payback model measures profitability as well as how quickly investment dollars may be recovered.
25. Capital rationing means increasing the amount of capital borrowed.

Q6. The following information relates to three possible capital expenditure projects. Because of capital rationing only one project can be accepted.

<table>
<thead>
<tr>
<th>Project</th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial Cost</td>
<td>£200 000</td>
<td>£230 000</td>
<td>£180 000</td>
</tr>
<tr>
<td>Expected Life</td>
<td>5 year</td>
<td>5 Years</td>
<td>4 Years</td>
</tr>
<tr>
<td>Scrap value expected</td>
<td>£10000</td>
<td>£15000</td>
<td>£8000</td>
</tr>
<tr>
<td>Expected Cash inflows</td>
<td>(£)</td>
<td>(£)</td>
<td>(£)</td>
</tr>
<tr>
<td>End Year 1</td>
<td>80 000</td>
<td>100 000</td>
<td>55 000</td>
</tr>
<tr>
<td>2</td>
<td>70 000</td>
<td>70 000</td>
<td>65 000</td>
</tr>
<tr>
<td>3</td>
<td>65 000</td>
<td>50 000</td>
<td>95 000</td>
</tr>
<tr>
<td>4</td>
<td>60 000</td>
<td>50 000</td>
<td>100 000</td>
</tr>
<tr>
<td>5</td>
<td>55 000</td>
<td>50 000</td>
<td></td>
</tr>
</tbody>
</table>

The company estimates its cost of capital is 18%.... Calculate:

a. The payback period for each project.

b. The Accounting Rate of Return for each project.

c. The Net present value of each project.

d. Which project should be accepted – give reasons.
# Appendix A: Present value of £1 after n years = £1(1+k)^n

| Years before | 1% | 2% | 3% | 4% | 5% | 6% | 7% | 8% | 9% | 10% | 11% | 12% | 13% | 14% | 15% | 16% | 17% | 18% | 19% | 20% |
|--------------|----|----|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1            | 0.990 | 0.988 | 0.986 | 0.984 | 0.982 | 0.980 | 0.979 | 0.977 | 0.976 | 0.975 | 0.974 | 0.973 | 0.972 | 0.971 | 0.970 | 0.969 | 0.968 | 0.967 |
| 2            | 0.980 | 0.961 | 0.925 | 0.890 | 0.857 | 0.826 | 0.797 | 0.769 | 0.743 | 0.718 | 0.694 | 0.672 | 0.650 | 0.630 | 0.610 | 0.592 | 0.574 | 0.559 |
| 3            | 0.971 | 0.842 | 0.818 | 0.794 | 0.761 | 0.729 | 0.706 | 0.684 | 0.662 | 0.642 | 0.623 | 0.605 | 0.588 | 0.572 | 0.555 | 0.540 | 0.527 | 0.515 |
| 4            | 0.961 | 0.792 | 0.735 | 0.683 | 0.636 | 0.592 | 0.552 | 0.516 | 0.482 | 0.451 | 0.423 | 0.397 | 0.373 | 0.350 | 0.329 | 0.310 | 0.293 | 0.279 |
| 5            | 0.951 | 0.622 | 0.540 | 0.467 | 0.404 | 0.351 | 0.306 | 0.266 | 0.233 | 0.206 | 0.183 | 0.163 | 0.146 | 0.130 | 0.115 | 0.102 | 0.092 | 0.084 |
| 6            | 0.942 | 0.488 | 0.415 | 0.350 | 0.295 | 0.243 | 0.197 | 0.160 | 0.132 | 0.111 | 0.092 | 0.076 | 0.062 | 0.050 | 0.040 | 0.032 | 0.025 | 0.020 |
| 7            | 0.933 | 0.371 | 0.303 | 0.247 | 0.200 | 0.162 | 0.130 | 0.108 | 0.091 | 0.078 | 0.066 | 0.055 | 0.045 | 0.037 | 0.032 | 0.026 | 0.022 | 0.019 |
| 8            | 0.923 | 0.283 | 0.227 | 0.181 | 0.145 | 0.116 | 0.093 | 0.075 | 0.061 | 0.051 | 0.043 | 0.036 | 0.030 | 0.025 | 0.022 | 0.019 | 0.017 | 0.015 |
| 9            | 0.914 | 0.207 | 0.163 | 0.132 | 0.110 | 0.092 | 0.078 | 0.066 | 0.055 | 0.046 | 0.039 | 0.034 | 0.030 | 0.027 | 0.025 | 0.023 | 0.021 | 0.019 |
| 10           | 0.905 | 0.143 | 0.114 | 0.094 | 0.080 | 0.069 | 0.058 | 0.049 | 0.041 | 0.034 | 0.029 | 0.024 | 0.021 | 0.018 | 0.017 | 0.015 | 0.014 | 0.012 |
| 11           | 0.896 | 0.094 | 0.076 | 0.063 | 0.053 | 0.046 | 0.039 | 0.034 | 0.030 | 0.027 | 0.024 | 0.021 | 0.019 | 0.017 | 0.016 | 0.015 | 0.014 | 0.013 |
| 12           | 0.887 | 0.058 | 0.047 | 0.039 | 0.034 | 0.030 | 0.027 | 0.025 | 0.024 | 0.023 | 0.022 | 0.021 | 0.020 | 0.019 | 0.019 | 0.019 | 0.019 | 0.019 |
| 13           | 0.879 | 0.036 | 0.029 | 0.024 | 0.020 | 0.018 | 0.016 | 0.015 | 0.014 | 0.013 | 0.013 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 |
| 14           | 0.870 | 0.024 | 0.019 | 0.015 | 0.012 | 0.010 | 0.009 | 0.009 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 |
| 15           | 0.861 | 0.017 | 0.013 | 0.011 | 0.009 | 0.008 | 0.007 | 0.007 | 0.007 | 0.007 | 0.007 | 0.007 | 0.007 | 0.007 | 0.007 | 0.007 | 0.007 | 0.007 |
| 16           | 0.853 | 0.012 | 0.009 | 0.008 | 0.007 | 0.006 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 |
| 17           | 0.844 | 0.009 | 0.007 | 0.006 | 0.005 | 0.005 | 0.004 | 0.004 | 0.004 | 0.004 | 0.004 | 0.004 | 0.004 | 0.004 | 0.004 | 0.004 | 0.004 | 0.004 |
| 18           | 0.836 | 0.007 | 0.005 | 0.005 | 0.004 | 0.004 | 0.004 | 0.004 | 0.004 | 0.004 | 0.004 | 0.004 | 0.004 | 0.004 | 0.004 | 0.004 | 0.004 | 0.004 |
| 19           | 0.828 | 0.005 | 0.004 | 0.003 | 0.003 | 0.003 | 0.003 | 0.003 | 0.003 | 0.003 | 0.003 | 0.003 | 0.003 | 0.003 | 0.003 | 0.003 | 0.003 | 0.003 |
| 20           | 0.820 | 0.004 | 0.003 | 0.003 | 0.002 | 0.002 | 0.002 | 0.002 | 0.002 | 0.002 | 0.002 | 0.002 | 0.002 | 0.002 | 0.002 | 0.002 | 0.002 | 0.002 |
### Appendix B: Present value of an annuity of £1 received annually for n years

\[
\text{Present value} = \frac{1}{K} \left(1 - \frac{1}{(1+K)^n}\right)
\]

| Years hence | 1%  | 2%  | 4%  | 6%  | 8%  | 10% | 12%  | 14%  | 16%  | 18%  | 20%  | 22%  | 24%  | 26%  | 28%  | 30%  | 32%  | 34%  | 36%  | 38%  |
|-------------|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 1           | 0.990| 0.982| 0.962| 0.943| 0.926| 0.909| 0.893| 0.877| 0.862| 0.847| 0.833| 0.820| 0.806| 0.794| 0.781| 0.769| 0.754| 0.739|
| 2           | 1.970| 1.942| 1.886| 1.833| 1.783| 1.736| 1.690| 1.647| 1.605| 1.566| 1.528| 1.492| 1.447| 1.410| 1.392| 1.361| 1.329| 1.329|
| 3           | 2.941| 2.884| 2.773| 2.663| 2.557| 2.487| 2.402| 2.322| 2.246| 2.174| 2.106| 2.042| 1.981| 1.922| 1.863| 1.804| 1.746| 1.718|
Use MINITAB to answer the following questions: 6 Pages

Question (1):

(1.1) Briefly explain the meaning of each of the following MINITAB statements:

1. MTB > RMEAN C1 C2 C3
2. MTB > DELETE 4 C1 - C3
3. MTB > UNSTACK (C1 C2) (C3 C4) (C5 C6);
   SUBC> SUBSCRIPT C7.
4. MTB > CENTER C1 C2

(1.2) The following data show the number of employees (in thousands) and annual revenue (in millions of dollars) for a sample of 5 companies of two types (two of type A and three of type B).

<table>
<thead>
<tr>
<th>Company</th>
<th>A1</th>
<th>B1</th>
<th>A2</th>
<th>B2</th>
<th>B3</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Employees</td>
<td>70</td>
<td>60</td>
<td>50</td>
<td>80</td>
<td>40</td>
</tr>
<tr>
<td>Revenue ($ million)</td>
<td>50</td>
<td>20</td>
<td>15</td>
<td>40</td>
<td>10</td>
</tr>
</tbody>
</table>

Note: Consider each statement separately.
Please stick to the same sequence of statements.

1. Enter the data on Company, Employees, and Revenue in columns C1, C2, and C3, respectively. Create an indicator variable, C4, for the type of the company (Let 0 and 1 represent whether the company is of type A or B, respectively).
2. Verify that these data were entered correctly.
3. Sort the data of C2 in a descending order and put the reordered data in C5. Use Two different methods.
4. Count how many companies of types A and B are in the sample. Use three different methods.
5. Determine which company has the highest revenue?
6. Insert a new row after the fifth one; with the following data: B4 65 12 1.
7. Find the total number of employees for the companies A2, B1, and B2 combined together. Use Three different methods.
8. Determine which B-Company has the lowest number of employees.
9. Considering the two types A and B separately, how would you determine whether the A-Company with the highest number of employees has higher revenue than that of the B-Company with the highest number of employees.

Continued ⇒
(1.3) Consider the following data:

\[
26 \ 23 \ 46 \ 35 \ 39 \ 17 \ 30 \ 24 \ 14 \ 21 \\
21 \ 27 \ 34 \ 29 \ 24 \ 19 \ 30 \ 23 \ 29 \ 41
\]

Construct a histogram for these data with each class having a width of 6. Note that the smallest value is 14 and the largest value is 46.

Question (2):

(2.1) What would be the output for the value of K3 in the following MINITAB program?

(1) MTB > SET C1  (11) MTB > SET C6
(2) DATA > 0:10/2 3 1 4 2 5 4  (12) DATA > 3(2) 3(1)
(3) DATA > END  (13) DATA > END
(4) MTB > SET C2  (14) MTB > UNSTACK C5 C7 C8;
(5) DATA > 2(1 2)3  (15) SUBC > SUBSCRIPT C6.
(6) DATA > END  (16) MTB > LET K1 = C7(3) – C7(2)
(7) MTB > LET C3 = C1*C2  (17) MTB > LET K2 = C8(3) – (C8(1)+C8(2))
(8) MTB > COPY C3 C4;  (18) MTB > LET K3 = K1/K2
(9) SUBC > USE C2 = 2.  (19) MTB > PRINT K3
(10) MTB > PARSUM C4 C5  (20) MTB > END

(2.2) Data concerning the annual income ($1000) of full-time workers aged 25 years or older by the number of years of schooling completed, is given in the following table:

<table>
<thead>
<tr>
<th>Years of Schooling</th>
<th>8</th>
<th>10</th>
<th>12</th>
<th>14</th>
<th>16</th>
<th>19</th>
</tr>
</thead>
<tbody>
<tr>
<td>Income ($1000) Men</td>
<td>18</td>
<td>20</td>
<td>25</td>
<td>28</td>
<td>34</td>
<td>39</td>
</tr>
<tr>
<td></td>
<td>11</td>
<td>13</td>
<td>16</td>
<td>18</td>
<td>22</td>
<td>27</td>
</tr>
</tbody>
</table>

Note:
- For each of the following statements, enter the required data appropriately.
- Consider each statement separately.

(1) Find the following measures only for incomes of women:

(a) Variance  (b) Interquartile Range
(c) Coefficient of variation (CV)  (d) The coefficient of skewness (S1)

\[
CV = \frac{\text{Standard Deviation}}{\text{Mean}} \quad \text{(100)} \quad \text{and} \quad S1 = \frac{3(\text{Mean} - \text{Median})}{\text{Standard Deviation}}
\]

(2) Develop a scatter diagram for the relationship between years of schooling (C4) and incomes (C5), only for men. Let years of schooling be represented by the horizontal axis.

(3) Find the correlation matrix for years of schooling (C4), incomes of men (C5), and incomes of women (C6). There is no need to present the P-values.

Continued ⇒
(4) Determine the multiple regression equation with income (C3) as the dependent variable and years of schooling (C1) and gender (C2) as the independent variables (Let 0 and 1 indicate whether the worker is a man or a woman, respectively). Then, predict the income of a man who has:
(a) 18 years of schooling.
(b) 16 years of schooling.

(5) Find the regression equation with income (C3) as the dependent variable and years of schooling (C1) as the independent variable. Then, predict the income of a worker who has 15 years of schooling.

(6) Following is a portion of the MINITAB output for Parts (3) and (4).

**MINITAB OUTPUT FOR PARTS (3) and (4):**

**Correlations (Pearson):**

<table>
<thead>
<tr>
<th></th>
<th>C4</th>
<th>C5</th>
</tr>
</thead>
<tbody>
<tr>
<td>C4</td>
<td></td>
<td>0.994</td>
</tr>
<tr>
<td>C5</td>
<td>0.994</td>
<td></td>
</tr>
<tr>
<td>C6</td>
<td>0.994</td>
<td>0.996</td>
</tr>
</tbody>
</table>

**Regression Analysis:**

The regression equation is

\[ C3 = 4.54 + 1.73\, C1 - 9.50\, C2 \]

**Predictor** | **Coeff** | **StDev** | **T** | **P** |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>4.543</td>
<td>1.565</td>
<td>2.90</td>
<td>0.018</td>
</tr>
<tr>
<td>C1</td>
<td>1.7309</td>
<td>0.1106</td>
<td>15.65</td>
<td>0.000</td>
</tr>
<tr>
<td>C2</td>
<td>-9.5000</td>
<td>0.8118</td>
<td>-11.70</td>
<td>0.000</td>
</tr>
</tbody>
</table>

\[ S = 1.406 \quad \text{R-Sq} = 97.7\% \quad \text{R-Sq(adj)} = 97.2\% \]

**Predicted Values**

<table>
<thead>
<tr>
<th>Fit</th>
<th>StDev Fit</th>
<th>95.0% CI</th>
<th>95.0% PI</th>
</tr>
</thead>
<tbody>
<tr>
<td>35.699</td>
<td>0.784</td>
<td>(33.925; 37.474)</td>
<td>(32.057; 39.342)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fit</th>
<th>StDev Fit</th>
<th>95.0% CI</th>
<th>95.0% PI</th>
</tr>
</thead>
<tbody>
<tr>
<td>32.238</td>
<td>0.654</td>
<td>(30.758; 33.717)</td>
<td>(28.729; 35.746)</td>
</tr>
</tbody>
</table>

From the MINITAB printout shown above, determine the following:

(a) Which variable has the strongest linear relationship with years of schooling (C4); incomes of men (C5) or incomes of women (C6)?

(b) The multiple regression equation.

(c) The predicted income of a man who has 18 years of schooling.

(d) The error of estimating the income for a man with 16 years of schooling.

(e) The multiple correlation coefficient.

(f) Show how to use the multiple regression equation obtained above to predict the income for a woman with 11 years of schooling.

**Continued →**
Question (3):

(3.1) Suppose the random variable $x$ has a binomial distribution with $n = 5$ and $p = 0.2$, and $y$ possesses a Poisson distribution with a mean of $\lambda = 4$.

Find the following probabilities:

(1) $P(x = 3)$  (2) $P(x \leq 2)$  (3) $P(y > 0)$  (4) $P(y < 4)$

(3.2) Let $x$ be a continuous random variable which is normally distributed with a mean of 60 and a variance of 25.

Find the following:

(1) $P(x > 70)$  (2) $P(42 \leq x \leq 65)$

(3) The value of $x_0$ so that $P(x > x_0) = 0.1$.

(3.3) Consider the following MINITAB program:

```
MTB > SET C1
DATA > 0.5
DATA > END
MTB > CDF C1 C2;
SUBC > BINOMIAL 5 0.2.
MTB > PDF C1 C3;
MTB > BINOMIAL 5 0.2.
MTB > END
```

Given C2, write the necessary MINITAB statements that are required to determine C3.

Question (4):

The following information was obtained from two independent samples selected from two normally distributed populations with $\sigma_1 = 4$ and $\sigma_2 = 3$.

**Sample 1:** 27 31 25 33 21 35 30 26 25 31 33 30 28 31 32

**Sample 2:** 24 28 22 25 24 22 29 26 25 28 19 29

Let $\mu_1$ be the mean of population 1 and $\mu_2$ be the mean of population 2.

(1) Construct a 99% confidence interval to estimate $\mu_1$.

(2) Repeat Part (1) assuming that $\sigma_1$ is unknown.

(3) Perform the following test:

$H_0: \mu_2 = 25$ versus $H_1: \mu_2 > 25$. Use $\alpha = 0.01$.

(4) Make a 95% confidence interval for $\mu_1 - \mu_2$.

(5) Test if $\mu_1$ is different from $\mu_2$. Use $\alpha = 0.05$.

(6) The results of the MINITAB interval estimation and hypothesis testing procedures for Parts (2) to (5) are shown as follows: **Continued** ⇒
MINITAB OUTPUT FOR PARTS (2) to (5)

MINITAB OUTPUT FOR PART (2):

T Confidence Intervals

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>Mean</th>
<th>StDev</th>
<th>SE Mean</th>
<th>99.0 % CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>C1</td>
<td>13</td>
<td>28.85</td>
<td>3.95</td>
<td>1.10</td>
<td>(25.50; 32.20)</td>
</tr>
</tbody>
</table>

MINITAB OUTPUT FOR PART (3):

Z-Test

Test of mu = 25.000 vs mu > 25.000
The assumed sigma = 3.00

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>Mean</th>
<th>StDev</th>
<th>SE Mean</th>
<th>Z</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>C2</td>
<td>12</td>
<td>25.083</td>
<td>3.118</td>
<td>0.866</td>
<td>0.10</td>
<td>0.46</td>
</tr>
</tbody>
</table>

MINITAB OUTPUT FOR PARTS (4) AND (5):

Two Sample T-Test and Confidence Interval

Two sample T for C1 vs C2

<table>
<thead>
<tr>
<th>N</th>
<th>Mean</th>
<th>StDev</th>
<th>SE Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>C1</td>
<td>13</td>
<td>28.85</td>
<td>3.95</td>
</tr>
<tr>
<td>C2</td>
<td>12</td>
<td>25.08</td>
<td>3.12</td>
</tr>
</tbody>
</table>

95% CI for mu C1 - mu C2: (0.8; 6.71)
T-Test mu C1 = mu C2 (vs not =): T = 2.65 P = 0.015 DF = 22

From the MINITAB output shown above, answer the following:

(a) Determine the 99% confidence interval for \( \mu_1 \).
(b) What is the point estimate for \( \mu_1 \).
(c) Determine the value of \( S_2 \).
(d) Determine the value of the standard error of the mean of Sample (2).
(e) Using the 5% significance level, can you conclude that the population mean \( \mu_2 \) is greater than 25?
(f) Determine the lower limit of the 95% confidence interval of \( \mu_2 - \mu_1 \).
(g) Can you conclude that the two population means are different? Use two different methods. Let \( \alpha = 0.05 \).

Question (5):

(5.1) For \( n_1 = 400 \), \( x_1 = 300 \) and \( n_2 = 900 \), \( x_2 = 720 \).
Let \( P_1 \) be the proportion of Population 1 and \( P_2 \) be the proportion of Population 2.
(1) Construct a 95% confidence interval for \( P_2 \).
(2) Make the test: \( H_0: P_2 = 0.75 \) versus \( H_1: P_2 > 0.75 \), Use \( \alpha = 0.01 \).
(3) The MINITAB Computer output for Parts (1) and (2) follows.

Continued ⇒
MINITAB OUTPUT FOR PARTS (1) and (2)

Test and Confidence Interval for One Proportion

Test of p = 0.75 vs p > 0.75

<table>
<thead>
<tr>
<th>Sample</th>
<th>X</th>
<th>N</th>
<th>Sample p</th>
<th>95.0% CI</th>
<th>Z-Value</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>720</td>
<td>900</td>
<td>0.800000</td>
<td>(0.773867; 0.826133)</td>
<td>3.46</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Based on the results shown above, answer the following:

(a) What is the maximum error associated with the 95% confidence interval of the population proportion (P₂)?

(b) Determine the value of the test statistic.

(c) What is your decision about the test of Part (2)? Use α = 0.01.

(5.2) Consider the following MINITAB output for interval estimation and testing hypothesis about the difference between the proportions of the two populations given in Question (5.1).

Test and Confidence Interval for Two Proportions

<table>
<thead>
<tr>
<th>Sample</th>
<th>X</th>
<th>N</th>
<th>Sample p</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>300</td>
<td>400</td>
<td>0.750000</td>
</tr>
<tr>
<td>2</td>
<td>720</td>
<td>900</td>
<td>0.800000</td>
</tr>
</tbody>
</table>

Estimate for p(1) - p(2): -0.05
99% CI for p(1) - p(2): (-0.115495; 0.0154954)
Test for p(1) - p(2) = 0 (vs < 0): Z = -2.02  P-Value = 0.021

From the MINITAB output shown above, answer the following:

(a) What is the 95% confidence interval for P₁ - P₂?

(b) Determine the upper limit of the 95% confidence interval for the difference between the two population proportions P₂ - P₁. Then, find the width of this interval.

(c) What are the null and alternative hypotheses?

(d) Can you conclude that the population proportion (P₂) is greater than the population proportion (P₁)? Use α = 0.05.

Good Luck and Best Wishes ....
Abu-Bakr ...