**Test Bank 1**
**Chapters 1-8**

Short Answer

1. How would you distinguish between engineering management and management in general?
   A: *Engineering management is the art of planning, organizing, leading, and controlling activities that have a technological component. Management in general could manage activities in all types of organizations. (p. 15)*

2. Give an example of the Abilene Paradox, other than the ones given in class. Write your example in paragraph form stating the Abilene Paradox and how your example conforms to this paradigm. State this so that someone outside of class may understand what we are talking about.
   *A: Abilene Paradox is the failing to manage agreement effectively. Answer depends on the student and their experience. (p. 41)*

3. What have we learned from classical management thinking? Give 3 items
   A: *Several answers are appropriate here including:*
   *Scientific: Emphasizes proper selecting and training of workers and using standards.*

   *Administrative: organized with a rigid hierarchy of authority and strict divisions of labor.*

   *Behavioral: Hierarchy of Human Needs; how they need to be addressed for effective management.*

4. What was a positive value of Max Weber's model of "bureaucracy"?
   *A: Weber developed a model for a rational and efficient large organization. The answer could include a number of points. (p. 37)*

5. Comments have been made as to the positive and negative aspects of Frederick Taylor's teachings. Give 2 positive comments on the teachings and discuss.
   A: *His methods helped businesses increase their profits and increase the pay for their employees.*
   *With studying the motions, the work was optimized which yielded much greater production and profit, this allowed better rates to be paid to employees, this helped the employees and the willingness to work. (pp. 31-32)*

6. A strategy is a statement about the way to achieve objectives. Why is it important to have alternate strategies?
   A: *There are many ways to achieve a given objective. Also, while discussing alternative strategies, one may be better than the originally proposed strategy. The diversity in alternative strategies could lead to a more adaptable way of reaching the initial objective.*

7. What changes in an organization structure might you expect as a result of the information revolution?
A: *Answer depends on the student and their experience.*
*Flatter – The organizational structure will not have as many layers as previously needed. The layers of management who were necessary to compile the number and provide to upper management are no longer needed because much of that process is automated.*
*Wider (geographically) – Because of the internet, video conferencing, low cost teleconferencing, and email, a manager can now remotely manage an entire team of people who may be on the other side of the globe. I have managed personnel from Germany for two years. With the use of video conferencing, I felt as if we worked in the same facility.*
*Fewer – The structure of the organization as a whole will be composed of fewer personnel. This will be driven by the previous change (flatter) and also by the fact that even fewer unskilled labors will be necessary as much of the prepping and counting and menial tasks are completely automated, requiring fewer employees.*
*More technical – The employees who are employed need to have some familiarity with computers, and many need to be very proficient.*

8. Can multinational companies overcome the need for co-location of team members when the teams must be created with people who come from greatly separated geographical locations? If your answer is yes, how can they accomplish this? If your answer is no, support your answer.
A: *Answer depends on the student and their experience. Could include:*
*Initial face to face team meeting*
*Team should plan together*
*Team have meetings at alternating sites.*
*Team have ways to communicate regularly*

9. Give a company's mission that you found on the web.
A: *Answer depends on the student and their experience*

10. What is a difference in a Vision and a Mission for a company?
*A: A vision is more of a long term goal whereas a mission is more immediate and focused particularly on the business aspect.*

11. Some companies require that employees who receive training at the company's expense enter into a contractual agreement to stay with the company a number of years or repay the company if they leave. Is this unduly restrictive, or is it justifiable? Why?
A: *Answer depends on the student and their experience. One answer:*
*The company pays for schooling, which amounts to a large portion for most people, but requires a number of months of employment from the last date of class that they paid for. Why would a company want to invest money in an employee and then not be sure that they reap the rewards of the invested money? The flip side of this situation is that if companies do not require such an obligation after financing*

*training, an employee could take training at the company's expense, and then use it to improve their resume to apply for another job at another company. It really is just a matter of a company protecting its investments.*

12. What are four items to remember when putting your resume together?
    A: *There are many items including: resume not longer than two pages (for typical age students – one page), correct grammar and spelling, well-organized, honest, attractively printed, heading, work experience, education. (p. 119)*

13. Do you think that engineering leaders of today are leaning more toward the servant leadership? Why? 2 reasons.
    A: *Answer depends on the student and their experience. Servant leadership is a practical philosophy which supports people who choose to serve first, and then lead as a way of expanding service to individuals and institutions. (p.148)*

14. In considering leaders, name a leader and 3 of the qualities discussed that this person has.
    A: *Answer depends on the student. Some qualities are: integrity, humanism, self-discipline, enthusiasm, ability to inspire. (p. 141)*

15. Why is planning said to have "primacy" among the managerial functions?
    A: *Planning is the most important function of management since without it the other functions have little meaning. (p. 50)*

16. If as a manager of an engineering company you ask that engineers become more familiar with financial reports, what would you tell them are the benefits? Give 3.
    A: *There are many benefits for engineers to become more familiar with financial reports. (1) Engineers can make well-informed and wise decisions that can save a company a lot of money if they were to read the financial reports. For example, an engineer could choose a product/resource that is cheaper in price if he were to know that the company has a tight budget, and thus not hugely affect company profits. (2) Engineers can be major contributors to bidding for future work if they read the financial reports. For example, when a company's financial representatives input financial information to bidding proposals, they can consult the engineers and ask them what type of resources are already in inventory, what will be needed and at what price, estimated amount of hours on particular tasks and much more. (3) Engineers can reap benefits on a personal benefit if they were to read the financial reports. For example, engineers in a company are also stockholders. They can decide how many stock shares they want to buy and sell based on reading the company's balance sheet and income statement. They can control their company-provided 401K and employee stock purchase after reading the results of the balance sheet and income statement.*

17. Usually we address the Scientific Method for solving problems, why is the engineering problem solving method better for engineers?
*Answer depends on the student. (p. 79)*

| ***Scientific Method*** | ***Engineering Problem Solving Approach*** |
|---|---|
| ∞ *Define the problem* | ∞ *Define the problem* |
| ∞ *Collect data* | ∞ *Collect and analyze the data* |
| ∞ *Develop hypotheses* | ∞ *Search for solutions* |
| ∞ *Test hypotheses* | ∞ *Evaluate alternatives* |
| ∞ *Analyze results* | ∞ *Select solution/ evaluate the impact* |
| ∞ *Draw conclusion* | |

18. Distinguish between traditional line authority and staff authority. Give an example within your university. (or in your company)
A: *Line authority is superior-subordinate relationship and staff authority is advisory in nature. (p. 106) Remaining answer depends on the student.*

19. Delphi Technique
A. List 4 characteristics of the Delphi technique.
A: *1) No subject interaction*
*2) Allows members to continually revise previous statements*
*3) Allows freely expressed opinions*
*4) Prevents a group leader from making final decisions*

B. Give an example of a situation to use the Delphi technique.
A: *It could be used when determining if a new product will be profitable for a company to begin production. Answer depends on the student and their experience.*

20. Herzberg specifically classed *salary* as a hygiene factor, not a motivator. How does salary fit in with Maslow's hierarchy? Discuss how these two statements relate.
A: *Maslow classifies salary at the lowest level of physiological needs. (p. 155, 158) Remaining answer depends on the student.*

**Quantitative Problems**

1. Based on the expected value, which of the investment options listed below is the best choice, if my choice is to make money. The states of the economy are given with their probability of occurrence. Also given is the amount of money to be made in each state (given in thousands of dollars)

| **States of nature**<br><br>**Alternatives** | **.4**<br><br>**Solid Growth** | **.3**<br><br>**Recession** | **.3**<br><br>**Inflation** | ***Expected Value*** |
|---|---|---|---|---|
| **Bonds** | **12** | **6** | **3** | |
| **Stocks** | **15** | **-2** | **4** | |
| **Certificates of Deposits** | **4.5** | **4.5** | **4.5** | |

A: *Expected value of bonds – 7.5, stocks – 6.6, certificates of deposits – 4.5. Answer is Bonds.*

2. WP Machine shop makes deluxe and regular skis on a weekly schedule for the area skiing enthusiasts. They also supply both regular and deluxe skis to local sporting goods stores. A deluxe pair of skis requires 40 minutes for roughing and 20 minutes for finishing, whereas a regular pair of skis requires 20 minutes for roughing and 27 minutes for finishing. With only 1,000 minutes for roughing and 800 minutes of finishing time available per week and a profit realization of 4 Euros and 3 Euros for the deluxe and regular, respectively, what weekly mix of the two types of skis should be produced to meet the contract's requirement and maximize profits.

**Do Not Solve!!!**

- ∞ What is the problem?

Give (in mathematical terms):

- ∞ Decision Variables -
- ∞ Objective Function -
- ∞ Constraints –

*A:* ***Problem*** *– How many pairs of deluxe and regular skis to produce in a week.*
***Decision Variables*** *– Let X = number of pairs of regular skis to produce in a week, Let Y= number of pairs of deluxe skis to produce in a week.*
***Objective function*** *– Maximize* $P = 4Y + 3X$
***Constraints*** *–* $20x + 40y \leq 1000$
$27x + 20y \leq 800$
$x, y \leq 0$

3. Super Electronics, Inc. is a specialist in the emerging field of microcomputers. The firm currently produces two products: a personal computer with the label GE-1000 and a small computer with the label GE-2000. The company has set up two modern production assembly lines. The assembly time requirements, the production capacities of assembly lines, and the unit profit for the two products are as follows:

| | Production GE-1000 Hours/unit | Production GE-2000 Hours/unit | Production Capacity Hours/week |
|---|---|---|---|
| Assembly line 1 | 4 | 2 | 80 |
| Assembly line 2 | 1 | 3 | 60 |
| Unit profit | $150 | $250 | |

The management of Galaxy Electronics is attempting to determine the best possible weekly production schedule for GE-1000 and GE-2000 to maximize total profit.
**Do Not Solve!!!**
What is the problem?

Give (in mathematical terms):
Decision Variables -
Objective Function -
Constraints –

A: ***Problem*** *– How many each of products GE-1000 and GE-2000 to produce in a week.*
***Decision Variables*** *– Let X = number GE-1000 to produce in a week,*
*Let Y= number of GE-2000 to produce in a week.*
***Objective function*** *– Maximize P = 150X + 250Y*
***Constraints*** *–* $4x + 2Y \leq 80$
$x + 3y \leq 60$
$x, y \leq 0$

4. The Blue Manufacturing Company has had sales for the years 2006through 2009 have been $48,000, $64,000, $67,000, and $83,000, respectively.

a. What sales would you predict for 2010 using a weighted moving average with weights of 0.50 for the immediate preceding year and 0.30, 0.15, and 0.05 for the three years before that?
A: 73,900

b. What sales would you predict for 2010 using a simple four-year moving average?
A: 65,500

c. Are the answers in a and b the only predictions to use? Why?
A: *No, there's the whole spectrum of qualitative forecasting methods and a few other quantitative methods that can be used.*

5. The Bozo Sales Company has had sales for the years 2004 through 2007 have been $50,000, $64,000, $67,000, and $80,000, respectively.

*a.* What sales would you predict for 2008 using a weighted moving average with weights of 0.40 for the immediate preceding year and 0.30, 0.20, and 0.10 for the three years before that?
*A: 64900*

*b.* What sales would you predict for 2008 using a simple four-year moving average?
*A: 65250*

*c.* Are the answers in a and b the only predictions to use? Why?
*A: No, there's the whole spectrum of qualitative forecasting methods and a few other quantitative methods that can be used.*