

Register No.: Name:

SAINTGITS COLLEGE OF ENGINEERING (AUTONOMOUS)

(AFFILIATED TO APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY, THIRUVANANTHAPURAM)

FIFTH SEMESTER B.TECH DEGREE EXAMINATION (R,S), DECEMBER 2023

COMMON TO EC,EE

(2020 SCHEME)

Course Code: 20HUT310

Course Name: Management for Engineers

Max. Marks: 100

Duration: 3 Hours

Use of statistical table is permitted

PART A

(Answer all questions. Each question carries 3 marks)

1. Management is a science, art and profession. Substantiate the statement.
2. Identify and elaborate at least six characteristics of management.
3. State three advantages and three barriers of delegation of authority.
4. Illustrate and describe the two types of organizational structures.
5. Explain any six types of decisions.
6. Describe the six factors that affect productivity.
7. Explain the following: (a) Dummy activity (b) Merge event (c) Burst event.
8. State and illustrate at least six rules for constructing a project network.
9. Illustrate with the help of a block diagram, the elements of an operating system and state the two objectives of operations management.
10. Patent, copyright and trademark are different types of intellectual property rights. Examine the statement.

PART B

(Answer one full question from each module, each question carries 14marks)

MODULE I

11. a) Explain the functions of management. (10)
b) Paraphrase at least eight responsibilities of a professional manager. (4)

OR

12. a) Explain at least ten principles of administrative management. (10)
b) Enumerate and explain the four important concepts that set apart the systems approach to management from the other management theories. (4)

MODULE II

13. a) Explain any three motivational theories. (9)
b) Illustrate and explain the managerial grid. (5)

OR

14. a) Summarize the ten different types of planning. (10)
 b) Differentiate between strategic and tactical decisions. (4)

MODULE III

15. a) A newspaper boy is speculating the sale of a special edition of a sports magazine to his regular newspaper customers. He believes he will be able to sell about 9 to 12 copies everyday based on his understanding of his customers. Magazines can be purchased at a cost of 12 rupees each and sold for a price of 20 rupees each. Magazines that are not sold may be returned to the publisher for a refund of 50%. How many copies must he order in order to get maximum profit? Compute using EMV and EOL. (10)

| | | | | |
|--------------------|------|------|------|------|
| No. of copies sold | 9 | 10 | 11 | 12 |
| Probability | 0.10 | 0.20 | 0.30 | 0.40 |

- b) The producer of an apple crates company produces 270 crates per 100 logs with his current equipment. He currently purchases 100 logs per day and each log requires 3 labor hours to process. He believes that he can hire a professional buyer who can buy better quality logs at the same cost. If this is the case, his production increases to 290 crates per 100 logs. His labor hours will increase by 8 hours per day. What will be the impact on productivity (measured in crates per labor-hour) if the buyer is hired? What is the growth in productivity in this case? (4)

OR

16. a) The forest management uses controlled fires to reduce fire hazards and to stimulate new forest growth. Management has the option to postpone or plan a burning. In a specific forest tract, if burning is postponed, a general administrative cost of Rs. 250 is incurred. If a controlled burning is planned, there is a 50% chance that good weather will prevail and burning will cost Rs. 3200. The results of the burning may be either successful with probability 0.6 or marginal with probability 0.4. Successful execution will result in an estimated benefit of Rs. 6000, and marginal execution will provide only Rs. 3000 in benefits. If the weather is poor, burning will be cancelled incurring a cost of Rs. 1200 and no benefit. (10)
 i) Develop a decision tree for the problem.
 (ii) Analyze the decision tree and determine the optimal course of action.
- b) A chemical manufacturer has three options for the existing plant, namely, expand the present plant, build a new plant or subcontract extra production. The future decision is based on the demand for (4)

the chemicals manufactured in the plant. The demand may be high, moderate or low. The payoff table in dollars is given below.

| Alternatives | High | Moderate | Low |
|----------------|------|----------|------|
| Existing Plant | 500 | 250 | -250 |
| Expand Plant | 700 | 300 | -400 |
| Subcontract | 300 | 150 | -100 |

State the alternatives that will be selected according to (a) Optimistic approach, (b) Pessimistic approach, (c) Equal probability approach and (d) Savage principle.

MODULE IV

17. Consider the project network with data given in the following table: (14)

| Activity | Predecessor (s) | Time | | |
|----------|--------------------|------------|-------------|-------------|
| | | Optimistic | Most Likely | Pessimistic |
| A | - | 4 | 6 | 8 |
| B | A | 5 | 7 | 15 |
| C | A | 4 | 8 | 12 |
| D | B | 15 | 20 | 25 |
| E | B | 10 | 18 | 26 |
| F | C | 8 | 9 | 16 |
| G | E | 4 | 8 | 12 |
| H | D, F | 1 | 2 | 3 |
| I | G, H | 6 | 7 | 8 |

- (i) Construct an arrow diagram for the above data. Determine the critical path and expected project completion time.
- (ii) Determine the probability that the project would be completed in 55 days.

OR

18. a) The table given below summarizes the time-cost information (in rupees) for the activities A-F. The owner wants to finish the project in 110 days. Find the minimum possible cost for the project so as to finish it in 110 days.

| Activity | Preceding Activity | Normal Duration (days) | Crash Duration (days) | Normal Cost | Crash Cost |
|----------|--------------------|------------------------|-----------------------|-------------|------------|
| A | - | 120 | 100 | 12000 | 14000 |
| B | - | 20 | 15 | 1800 | 2800 |
| C | B | 40 | 30 | 16000 | 22000 |
| D | C | 30 | 20 | 1400 | 2000 |
| E | D, F | 50 | 40 | 3600 | 4800 |
| F | B | 60 | 45 | 14000 | 18000 |

(10)

- b) State Fulkerson's three rules for numbering events. Give one difference between an activity and an event in a project network.

(4)

MODULE V

19. a) Elaborate on the various market research techniques. (7)
- b) Discuss the different types of markets as well as the various kinds of market segmentation. (7)

OR

20. a) Discuss the various phases in the process of staffing. (8)
- b) Define Corporate Social Responsibility. Enumerate the various forms in which a socially committed manager is responsible towards his society. (6)
