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UNIVERSITI TUN HUSSEIN ONN MALAYSIA

**FINAL EXAMINATION
SEMESTER II
SESSION 2011/2012**

COURSE NAME : ENGINEERING MANAGEMENT
COURSE CODE : BEE 30103 / BEX 42603 / BPK 4023
PROGRAMME : BEH / BEE
EXAMINATION DATE : JUNE 2012
DURATION : 2 HOURS 30 MINUTES
INSTRUCTION : 1) ANSWER ALL QUESTIONS
2) STUDENT **ARE NOT ALLOWED TO**
BRING OUT THE QUESTION PAPER

THIS PAPER CONSISTS OF **SIXTEENTH** (16) PAGES

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PART A (60 marks)

This part consists of **SIXTY** (60) objective questions. You must answer **ALL** of the questions.

Q1 The key elements in the management process are;

- a. plan, direct, update, lead, and supervise
- b. accounting/finance, marketing, operations, and management
- c. organize, plan, control, staff, and manage
- d. plan, organize, staff, lead, and control
- e. plan, lead, organize, manage, and control

Answer: _____

Q2 An operations manager is not likely to be involved in;

- a. the design of products and services to satisfy customers' wants and needs
- b. the quality of products and services to satisfy customers' wants and needs
- c. the identification of customers' wants and needs
- d. work scheduling to meet the due dates promised to customers
- e. forecasting sales

Answer: _____

Q3 Which of the following is an element of the marketing?

- a. pricing
- b. staffing
- c. planning
- d. controlling
- e. leading

Answer: _____

Q4 The fundamental purpose for the existence of any organization is described by its;

- a. policies
- b. mission
- c. procedures
- d. strategy
- e. tactics

Answer: _____

Q5 A strategy is a(n)

- a. set of opportunities in the marketplace
- b. broad statement of purpose
- c. simulation used to test various product line options
- d. plan for cost reduction
- e. action plan to achieve the mission

Answer: _____

Q6 Cost minimization is an appropriate strategy in which stage of the product life cycle?

- a. introduction
- b. growth
- c. maturity
- d. decline
- e. retirement

Answer: _____

Q7 Forecasts used for new product planning, capital expenditures, facility location or expansion, and R&D typically utilize a;

- a. short-range time horizon
- b. medium-range time horizon
- c. long-range time horizon
- d. naive method, because there is no data history
- e. all of the above

Answer: _____

Q8 Which of the following is **true**?

- a. Corporate mission is shaped by functional strategies
- b. Corporate strategy is shaped by functional strategies
- c. Functional strategies are shaped by corporate strategy
- d. External conditions are shaped by corporate mission
- e. None of the above

Answer: _____

Q9 Which of the following uses three types of participants: decision makers, staff personnel, and respondents?

- a. executive opinions
- b. sales force composites
- c. the Delphi method
- d. consumer surveys
- e. time series analysis

Answer: _____

Q10 A forecast with a time horizon of about 3 months to 3 years is typically called a;

- a. long-range forecast
- b. medium-range forecast
- c. short-range forecast
- d. weather forecast
- e. strategic forecast

Answer: _____

Q11 The acronym SWOT stands for;

- a. Special Weapons for Operations Timeliness
- b. Services, Worldwide Optimization, and Transport
- c. Strengths Worldwide Overcome Threats
- d. Strengths, Weaknesses, Opportunities, and Threats
- e. None of the above

Answer: _____

Q12 Standardization is an appropriate strategy in which stage of the product life cycle?

- a. introduction
- b. growth
- c. maturity
- d. decline
- e. retirement

Answer: _____

Q13 Which of the following is **not** a characteristic of simple moving averages?

- a. it smoothes random variations in the data
- b. it has minimal data storage requirements
- c. it weights each historical value equally
- d. it smoothes real variations in the data
- e. it is a quantitative method

Answer: _____

Q14 The dimensions, tolerances, materials, and finishes of a component are typically shown on a(n);

- a. assembly chart
- b. engineering drawing
- c. bill of material
- d. assembly drawing
- e. route sheet

Answer: _____

Q15 The information that is documented in a bill of materials are;

- a. the tolerances for each component
- b. the cost of the product
- c. the components, their description, and the quantity of each required to make one unit of a product
- d. the existing inventory level for the product
- e. all of the above

Answer: _____

Q16 Which of the following scenarios illustrates a moment that exceeds the customer's expectations?

- a. an express mail service that guarantees overnight delivery
- b. a flight attendant that responds shortly after being called
- c. a hairdresser that cuts your hair at the right length
- d. a professor that contacts people in several companies to find you a job
- e. all of the above

Answer: _____

Q17 "Quality is defined by the customer" is;

- a. an unrealistic definition of quality
- b. a user-based definition of quality
- c. a manufacturing-based definition of quality
- d. a product-based definition of quality
- e. the definition proposed by the American Society for Quality Control

Answer: _____

Q18 Which of the following is **not** one of the major categories of costs associated with quality?

- a. prevention costs
- b. appraisal costs
- c. internal failures
- d. external failures
- e. none of the above, they are all major categories of costs associated with quality

Answer: _____

Q19 "Kaizen" is a Japanese term meaning;

- a. foolproof mechanism
- b. Just-in-time (JIT)
- c. a fishbone diagram
- d. setting standards
- e. continuous improvement

Answer: _____

Q20 Pareto charts are used to;

- a. identify inspection points in a process
- b. organize errors, problems or defects
- c. outline production schedules
- d. show an assembly sequence
- e. provide guidelines for quality training

Answer: _____

Q21 ISO 9000 seeks standardization in terms of;

- a. products
- b. production procedures
- c. suppliers' specifications
- d. procedures to manage quality
- e. environmental management

Answer: _____

Q22 Which of following statement is **true** regarding control charts?

- a. Values above the upper and lower control limits indicate points out of adjustment.
- b. Control charts are built so that new data can be quickly compared to past performance data.
- c. Control charts graphically present data.
- d. Control charts plot data over time.
- e. All of the above are true.

Answer: _____

Q23 Project success or failure is determined by the outcome of the project variables, including;

- a. resource
- b. scope
- c. time
- d. quality
- e. all of the above

Answer: _____

Q24 An assembly line is an example of a;

- a. product focused process
- b. customized process
- c. repetitive process
- d. specialized process
- e. all of the above

Answer: _____

Q25 Which of the following is **true** about ISO 14000 certification?

- a. it is a prerequisite for ISO 9000 certification
- b. it indicates a higher level of adherence to standards than ISO 9000
- c. it is only sought by companies exporting their goods
- d. it deals with environmental management
- e. it provides solution for energy issues

Answer: _____

Q26 _____ is concerned with the acquisition, financing, and management of assets with some overall goal in mind.

- a. Financial management
- b. Profit Maximization
- c. Agency theory
- d. Social responsibility
- e. Asset management

Answer: _____

Q27 Which of the following is **true** regarding organization design?

- a. Tall organizations are expensive and need more managers
- b. Multiple levels can increase communication and decision time
- c. Wide spans leave managers with inadequate times to supervise activities
- d. Organization design is a grouping of activities to obtain objectives
- e. All of the above are true.

Answer: _____

Q28 Among the elements that make products more friendly to the environment are;

- a. using less materials
- b. more recycled materials
- c. using less energy
- d. ability to recycle product
- e. all of the above

Answer: _____

Q29 Budgeting, paying the bills, and collection of funds are activities associated with the;

- a. management function
- b. control function
- c. finance/accounting function
- d. production/operations function
- e. staffing function

Answer: _____

Q30 Total Quality Management emphasizes;

- a. the responsibility of the Quality Control staff to identify and solve all quality-related problems
- b. a commitment to quality that goes beyond internal company issues to suppliers and customers
- c. a system where strong managers are the only decision makers
- d. a process where mostly statisticians get involved
- e. how resources are transformed into quality goods and services

Answer: _____

Q31 Which of the following is most likely to affect the location decision of a service firm rather than a manufacturing firm?

- a. energy and utility costs
- b. attitude toward unions
- c. parking and access
- d. cost of shipping finished goods
- e. labour costs

Answer: _____

Q32 What is the critical path in the CPM method?

- I. Path with longest duration
- II. Path with least resistance
- III. Path with shortest duration
- IV. Path with least slack
- V. Riskiest path in the project

- a. I and II
- b. I and III
- c. I and IV
- d. III and IV
- e. II and III

Answer: _____

Q33 The work order is to;

- a. show, in schematic form, how the product is assembled
- b. list the operations, including assembly and inspection, necessary to produce the component with the material specified in the bill of material
- c. provide detailed instructions on how to perform a given task
- d. give the instruction to make a given quantity of a particular item, usually to a given schedule
- e. show the management functional of the work

Answer: _____

Q34 Typical differences between goods and services do **not** include;

- a. cost per unit
- b. ability to inventory items
- c. timing of production and consumption
- d. customer interaction
- e. knowledge content

Answer: _____

Q35 Which of the following is **not** an operations decision?

- a. maintenance
- b. price
- c. layout design
- d. quality
- e. inventory

Answer: _____

Q36 The top hierarchy of the Maslow's theory of needs is;

- a. physiological needs
- b. safety and security needs
- c. esteem needs
- d. self-actualization needs
- e. affectionate needs

Answer: _____

Q37 Which of the following is **not** true regarding income statement?

- a. profit and loss statement data
- b. shows money flows through business over specific period of time
- c. shows revenue of the organization
- d. shows the investments and budgeting information
- e. used for business report

Answer: _____

Q38 The controller's responsibilities are primarily _____ in nature, while the treasurer's responsibilities are primarily related to _____.

- a. operational; financial management
- b. financial management; accounting
- c. accounting; financial management
- d. financial management; operations
- e. operational; accounting

Answer: _____

Q39 The elements of managing technology comprises of;

- I. research
- II. design
- III. marketing
- IV. production planning
- V. project management

- a. I, II and IV
- b. I, III and IV
- c. II, III and IV
- d. III and IV
- e. all of the above

Answer: _____

Q40 The market price of a share of common stock is determined by:

- a. the board of directors of the firm
- b. the stock exchange on which the stock is listed
- c. the president of the company
- d. individuals buying and selling the stock
- e. the financial advisor of the company

Answer: _____

Q41 Primary functions of all organizations emphasize on;

- a. operations, marketing, and human resources
- b. marketing, human resources, and finance/accounting
- c. sales, quality control, and operations
- d. marketing, operations, and finance/accounting
- e. research and development, finance/accounting, and purchasing

Answer: _____

Q42 The marketing function's main concern is with;

- a. producing goods or providing services
- b. procuring materials, supplies, and equipment
- c. building and maintaining a positive image
- d. securing monetary resources
- e. generating the demand for the organization's products or services

Answer: _____

Q43 Among the elements that make products more friendly to the environment are;

- a. using less materials
- b. more recycled materials
- c. using less energy
- d. ability to recycle product
- e. all of the above

Answer: _____

Q44 Three commonly used productivity variables are;

- a. quality, external elements, and precise units of measure
- b. labour, capital, and management
- c. technology, raw materials, and labour
- d. education, diet, and social overhead
- e. quality, efficiency, and low cost

Answer: _____

Q45 The fundamental purpose of an organization's mission statement is to;

- a. create a good human relations climate in the organization
- b. define the organization's purpose in society
- c. define the operational structure of the organization
- d. generate good public relations for the organization
- e. define the functional areas required by the organization

Answer: _____

Q46 _____ would likely cause a change in market opportunities based upon levels of income and wealth.

- a. Economic change
- b. Technological change
- c. Political change
- d. Legal change
- e. Demographic change

Answer: _____

Q47 According to the manufacturing-based definition of quality,

- a. quality is the degree of excellence at an acceptable price and the control of variability at an acceptable cost
- b. quality depends on how well the product fits patterns of consumer preferences
- c. even though quality cannot be defined, you know what it is
- d. quality is the degree to which a specific product conforms to standards
- e. quality is to meet the consumer satisfaction

Answer: _____

Q48 The purposes of maintenance are;

- I. maximize performance of production equipment efficiently
- II. prevent breakdown or failures
- III. minimize production loss from failures
- IV. increase reliability of the operating systems

- a. I, II and IV
- b. II, III and IV
- c. I, III, and IV
- d. I, II and III
- e. all of the above

Answer: _____

Q49 A repair work that is necessary when process to be out of order is called _____.

- a. preventive maintenance
- b. predictive maintenance
- c. corrective maintenance
- d. equipment maintenance
- e. critical maintenance

Answer: _____

Q50 Which of the following is **not** an element for maintenance management consideration?

- a. Size of maintenance staff
- b. Work orders
- c. Work scheduling
- d. Repair parts inventory
- e. None of the above are false

Answer: _____

Q51 Engineering problem solving is more applied and is different from the scientific method. Which of the following is **not** an engineering problem solving approach?

- a. Define the problem
- b. Collect data
- c. Search for solutions
- d. Develop hypothesis
- e. Evaluate alternatives

Answer: _____

Q52 Which of the following is **not** true regarding McGregor's Theory X and Theory Y?

- a. Theory X is concern on human behaviour
- b. Theory Y relies on self-control and self direction
- c. The knowledge worker simply does not produce under Theory X
- d. Theory Y state that the motivator element represent by the hygiene factors
- e. None of the above

Answer: _____

Q53 One purpose of short-range forecasts is to determine

- a. production planning
- b. inventory budgets
- c. research and development plans
- d. facility location
- e. job assignments

Answer: _____

Q54 Which of the following changes does **not** result in strategy changes?

- a. change in the company's financial situation
- b. a company's adoption of new technology
- c. change in the product life cycle
- d. change in the competitive environment
- e. change in job scheduling techniques

Answer: _____

Q55 The focal point of financial management in a firm is;

- a. the number and types of products or services provided by the firm
- b. the minimization of the amount of taxes paid by the firm
- c. the creation of value for shareholders
- d. the dollars profits earned by the firm
- e. the marketing and sales of the firm

Answer: _____

Q56 Which of the following represent reasons for globalizing operations?

- a. reduce costs
- b. improve supply-chain
- c. attract new markets
- d. attract and retain global talent
- e. all of the above are valid

Answer: _____

Q57 Which of the following shows the reason why engineers are needed in management?

- I. They are logical, methodical and objective
- II. They make unemotional decisions based on facts
- III. They have a conceptual skill
- IV. They have skill in organizing and directing people
- V. They understand the technology that is driving the business

- a. I, II and III
- b. I, II and V
- c. I, II, III and IV
- d. I, II, III and V
- e. all of the above

Answer: _____

Q58 The generic contents in a statement of work for project management comprises of;

- I. project
- II. risk plans
- III. deliverables
- IV. quality control
- V. customer and support

- a. I, II, III and IV
- b. I, II, III and V
- c. I, III, IV and V
- d. I, III and V only
- e. all of the above

Answer: _____

Q59 In the “Bathtub Curve” reliability model, the hazard elements versus time comprise of;

- I. infant mortality
- II. constant failure rate
- III. maintenance period
- IV. breakdown period
- V. wear out period

- a. I, II and III
- b. I, II and IV
- c. I, II and V
- d. I, III and V
- e. I, IV and V

Answer: _____

Q60 _____ are required at least annually for any publicly held organization and are performed by independent accounting firms.

- a. Internal audits
- b. Accounting audits
- c. External audits
- d. Financial audits
- e. Resource audits

Answer: _____

PART B (40 marks)

This part consists of **THREE** (3) questions. You must answer **ALL** of the questions.

Q1 A potter is making cups and plates. It takes her 6 minutes to make a cup and 3 minutes to make a plate. Each cup uses 0.2 kg of clay and each plate uses 0.3 kg of clay. She has 20 hours available for making the cups and plates and has 25 kg of clay on hand. She makes a profit of \$2 on each cup and \$1.50 on each plate.

- (a) Express the objective function (profit) in mathematical method. (2 marks)
- (b) Find the constraints that the potter has. (4 marks)
- (c) Find the feasible region of maximize profit using the graphical method. (9 marks)

Q2 Discuss how the management functions of planning, organizing, leading, and controlling relate to research and development. (10 marks)

- Q3** A project consists of eleven activities, A to K. The duration (in days), and the activities preceding each of them show in **Table Q2**.

Table Q2

| Preceding activities | activities | Duration (days) |
|----------------------|------------|-----------------|
| C, F, J | A | 7 |
| E | B | 6 |
| - | C | 9 |
| B, H | D | 7 |
| C, J | E | 3 |
| - | F | 8 |
| A, I | G | 4 |
| J | H | 9 |
| E, F | I | 9 |
| - | J | 7 |
| B, H, I | K | 5 |

- (a) Construct an activity network diagram for the project. The early start, late start, early finish and late finish for each activity must be stated. (11 marks)
- (b) Find the critical path in this activity network. (2 marks)
- (c) Calculate the duration of completion time of the project (2 marks)