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UNIVERSITI TUN HUSSEIN ONN MALAYSIA

**FINAL EXAMINATION
SEMESTER II
SESSION 2021/2022**

COURSE NAME : ENGINEERING MANAGEMENT
COURSE CODE : BEE 30103
PROGRAMME CODE : BEJ / BEV
EXAMINATION DATE : JULY 2022
DURATION : 3 HOURS
INSTRUCTION

1. ANSWER ALL QUESTIONS
2. THIS FINAL EXAMINATION IS AN **ONLINE** ASSESSMENT AND CONDUCTED VIA **CLOSED BOOK**.
3. STUDENTS ARE **PROHIBITED** TO CONSULT THEIR OWN MATERIAL OR ANY EXTERNAL RESOURCES DURING THE EXAMINATION CONDUCTED VIA CLOSED BOOK

THIS QUESTION PAPER CONSISTS OF **THIRTEEN (13)** PAGES

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PART A

There is a total of FIFTY (50) multiple choice questions. Each question is given one mark.

- Q1** Engineering is:
- a. An art applying its creativity in various applications
 - b. Mathematical and science knowledge applied for mankind and nature
 - c. Both art and science
 - d. A way to develop ideas for only economic benefit
- Q2** An operations manager is not likely to be involved in;
- a. The design of products and services to satisfy customer's wants and needs
 - b. The quality of products and services to satisfy customer's wants and needs
 - c. The identification of customers' wants and needs
 - d. Work scheduling to meet the due dates promised to customers
- Q3** According to the Accrediting Board for Engineering and Technology (ABET), difference between Engineering (Eng.) and Engineering Technology (Eng. Tech.) is:
- a. Eng. includes similar mathematics and complex analysis to Eng. Tech.
 - b. Both cover same topics but knowledge is more applied in Eng. Tech.
 - c. Eng. Tech. depends more on rigorous design, development and mathematics
 - d. All of the above
- Q4** Choose the most suitable answer that explains an engineering manager:
- a. Management of technical functions
 - b. Management of marketing functions
 - c. Has great capability towards planning, resolving the uncertainties, evaluate risks and motivate technical personnel.
 - d. All of the above
- Q5** Strategic planning:
- a. Higher managers spend more time on execution than planning
 - b. SWOT (Strengths, Weaknesses, Opportunities, and Threats) analysis is one of the tools used for planning
 - c. Is an effort to produce secondary decisions that guide an organization
 - d. All of the above

- Q6** According to Maslow, some needs grow stronger when unsatisfied. Maslow called these:
- Being needs
 - Deficiency needs
 - Growth needs
 - Primary needs
- Q7** Which statement is TRUE about financial control?
- Provide basic information for the control of cash and credit which are essential for company survival
 - Balance sheet, income statement, and cash flow are major types
 - Engineers need to know about financial controls because their continued employment
 - All of the above
- Q8** Liabilities are:
- The firm owes
 - Consisted of previous liabilities that must be paid without any time limit
 - Ratio between asset equity
 - All of the above
- Q9** If the total current assets, inventory, and current liabilities are RM1,360,000, RM680,000 and RM500,000 respectively, find the current ratio.
- 0.74%
 - 1.36%
 - 2.72%
 - None of the above
- Q10** If the total current assets, inventory, cost of goods sold, and current liabilities are RM1,360,000, RM680,000, RM, 2,000,000 and RM500,000 respectively, find the inventory turnover.
- 2.94%
 - 0.34%
 - 1%
 - None of the above

- Q11** What does the acronym SMART stand for?
- a. Suitable, measurable, actionable, rewarded and timely
 - b. Specific, measurable, actionable, resourced and timely
 - c. Standardized, measurable, achievable, rewarded, and timely
 - d. Specific, measurable, achievable, rewarded and timely
- Q12** What time-frame do strategic plans relate to?
- a. Long-term
 - b. Medium-term
 - c. Short-term
 - d. Unspecified time
- Q13** 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
- Q14** The purpose of strategic planning is to find ways in which the company can best:
- a. Overcome losses.
 - b. Use its strengths to take advantage of attractive opportunities in the environment.
 - c. Avoid paying taxes.
 - d. Avoid the expense of costly research and development while still getting the benefits.
- Q15** When defining strategic management, the most important thing to remember is that it is:
- a. Mainly the province of senior managers
 - b. A living evolving process
 - c. More conceptual than practical
 - d. A way of determining responsibilities
- Q16** Which of the following is NOT TRUE about Work Breakdown Structure?
- a. Scope creep prevention
 - b. Measured in time
 - c. Starts with required deliverables
 - d. Core of motivating function

- Q17** Following are types of collaboration **EXCEPT**:
- a. Strategic alliances
 - b. Strategic co-funding
 - c. Strategic networking
 - d. Movements
- Q18** Which of the following describes the importance of collaboration in workplace?
- a. Find out what others are doing
 - b. Submit a proposal
 - c. Answer questions
 - d. All of the above
- Q19** In an industry, Cause-and-effect diagram identifies source of variations that grouped into few categories **EXCEPT**
- a. Model
 - b. Material
 - c. Human
 - d. Methods
- Q20** Pareto Chart is **NOT** a tool for highlighting the most important factors that is the reason for major cause of _____.
- a. Problem
 - b. Uncertainty
 - c. Failure
 - d. Incompletion
- Q21** Which of the following scenarios illustrates a moment that exceeds the customer's expectation?
- a. A flight attendant who response shortly after being called
 - b. A hair-dresser who cuts your hair at the right length
 - c. An online purchase was received the next day after placing the order
 - d. A refund was given after one week of complaint
- Q22** Who is responsible for Total Quality Management in a project?
- a. Quality Engineer
 - b. Project Manager
 - c. Operator
 - d. All of the above



Q23 It improves equipment changeover time. It works on a principle of reducing changeover time to within ten minutes:

- a. Just in Time
- b. Single minute exchange of dies
- c. Kanban
- d. Poke Yoke

Q24 There are **FIVE (5)** processes in Lean concept. Which of the following is in the right sequence?

- a. Seek continuous improvement → Establish pull based on customer demand → Create flow to the customer → Map the value stream → Identify you customers and their values
- b. Identify you customers and their values → Seek continuous improvement → → Map the value stream → Create flow to the customer → Establish pull based on customer demand
- c. Identify you customers and their values → Map the value stream → Create flow to the customer → Establish pull based on customer demand → Seek continuous improvement
- d. None of the above

Q25 What of the following are dimensions of service quality?

- I. Completeness
 - II. Price
 - III. Consistency
 - IV. Courtesy
- a. I and II
 - b. I, II, and III
 - c. I, III and IV
 - d. I, II, IV

Q26 Total Quality Management emphasizes;

- a. The responsibility of the Quality Control staffs 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

- Q27** To entitle a product to be exported to a well-developed country which emphasizing in Sustainable Development Goal, the well-developed country will usually demand for?
- ISO 9000 certification
 - ISO 14000 certification
 - ISO 9001:2015 certification
 - ISO 18001:2007
- Q28** What is the major factor in determining the competitiveness of a product present and future?
- Convenience
 - Price
 - Quality
 - Availability
- Q29** DMAIC improves a system through the following management except:
- The shortest path for delivery of goods
 - Improve the process
 - Shortened the processing time
 - Increase the value of good
- Q30** A factory was found with over processing and defects in the production. Which concept of management is suitable to be applied to address this issue?
- Control Quality
 - Plan Quality Management
 - Lean Six Sigma
 - Total Quality Management
- Q31** What is the function of Project?
- Managing the project application only
 - Only responsible for the technical aspects of the project
 - Managing the people, processes and the technical aspects of the project
 - All mentioned above
- Q32** In managing the project, the skills that Project Manager should have is/are
- Team Building & Motivating
 - Distancing
 - Time Consuming Managerial
 - Criticizing team members

- Q33** What are the (**FIVE**) core project variables in Project Management?
- Scope, Quality, Resources, Time & Cost
 - Quality, Time, Cost, People & Scope
 - ISO, Time, Cost, People & Quality
 - Plan, Resources, Time, Cost & Scope
- Q34** The activity to establish the overall project's scopes, objectives and task activities is called project success or failure is determined by the outcome of the project variables, including:
- Initiating
 - Executing
 - Planning
 - Controlling
- Q35** Choose the correct cycle of the implementation model in Execution Process/Stage
- Manage Change – Track Progress – Update the plan – Perform task
 - Update the plan - Manage Change – Track Progress – Perform task
 - Perform task - Update the plan - Manage Change – Track Progress
 - Perform task - Track Progress - Manage Change – Update the plan
- Q36** What is Risk Management
- The ability to manage risk
 - The approach to control risk
 - The process of identifying, assessing and controlling risk
 - None of the above
- Q37** Critical Path (CP) in Project Management is a method for modelling projects where all the necessary input factors are considered within the optimal timeline for completing it (to get an output). One of the following is not the input factors for CP:
- Time estimates
 - Task dependencies
 - Milestone
 - Customer
- Q38** Managing marketing efforts involve (**FOUR**) steps in the following order
- Planning, Analysis, Implementation & Control
 - Analysis, Planning, Implementation & Control
 - Control, Implementation, Planning & Analysis
 - Planning, Implementation, Analysis & Control

Q39 What are the P's factors in Marketing Management?

- a. Price
- b. Promotion
- c. Product
- d. All mentioned above

Q40

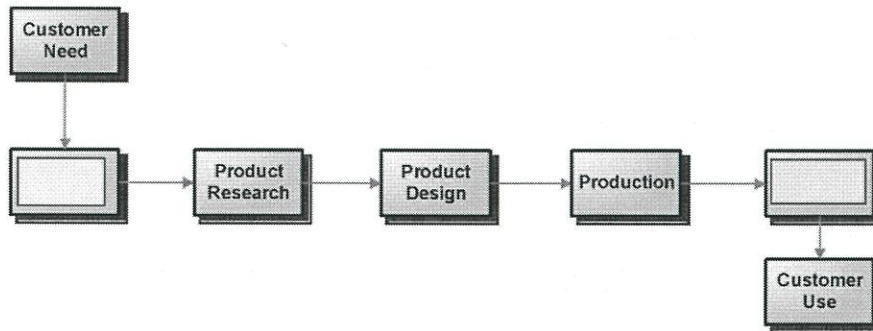


Figure Q40

Figure Q40 above shows the product cycle flow. Fill the blank with the correct activity.?

- a. Evaluation & Product Planning
- b. Product Planning & Evaluation
- c. Product Objective & Testing
- d. Product Development & Analysis

Q41 The more an operation relies on suppliers of materials and services, the more liable it is to experience:

- a. Facilities errors
- b. Supplier errors
- c. People errors
- d. None of the above

Q42 Corrective or Breakdown maintenance is the _____ maintenance.

- a. Post, action
- b. Post, reaction
- c. Pre, action
- d. Pre, reaction

- Q43** 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
- Q44** 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
- Q45** Which condition monitoring technology is **NOT** used to identify problems with bearings?
- a. Vibration analysis,
 - b. Shock pulse method,
 - c. Thermography,
 - d. Acoustic leakage monitoring.
- Q46** Reliability is the performance of the system or an equipment is to work _____ for a given _____ when used under _____ Conditions.
- a. satisfactorily, period of time, specified operating
 - b. continuously, break of time, stress
 - c. intermittently, time, faulty
 - d. complete, task, demand
- Q47** 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. All of the above



- Q48** The 'bathtub' curve indicates failure probability. Which stage is **NOT** normally associated with the bathtub curve?
- a. 'Normal-life' where few failures occur.
 - b. 'Pulling the plug' where production is halted due to unacceptable level of failures.
 - c. 'Wear-out' where failure increases due to age.
 - d. 'Infant-mortality' where failures occur early.
- Q49** If a machine operator fails to clean or lubricate his or her machine in the prescribed manner and it fails, this is an example of:
- a. A violation
 - b. An error
 - c. A mistake
 - d. A misjudgment
- Q50** 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

PART B

Answer **ALL** questions.

- Q1** (a) Elaborate **THREE (3)** skills that need to become a successful and effective manager and describe how the relative need for them might vary with the level of management.

(6 marks)

- (b) From the management roles provided by Mintzberg, choose **FOUR (4)** that you consider the most important for the top managers, and justify your selection.

(4 marks)

- Q2** You are a manager in an industry that produces electrical goods. However, the covid-19 pandemic has had an economic impact globally, including your factory. As a manager, you are trying to maintain the number of employees without lowering their basic salary. Therefore, you need to think about saving on other parts. Based on your observations, there is a waste of electricity consumption in your factory, which contributes to the high cost of electricity. Therefore, by using Ishikawa diagram, you and your team are required to:

- (a) Find the root-cause of the **waste of electricity consumption** in your factory.

(6 marks)

- (b) List the advantages and disadvantages of using Ishikawa diagram

(4 marks)

- Q3** You are a general manager of a dairy company. You received customer complaint about the milk turned stale within short period of time after the carton is opened. This problem could be due to many reasons from the manufacturing process to the delivery process.

- (a) Suggest a management concept to deal with this problem.

(1 mark)

- (b) Based on the management concept you have suggested, explain the phases that you will employ to overcome the problem of stale milk delivery.

(9 marks)

Q4 A project consists of (**ELEVEN**) activities, A to K. The duration (in days), and the activities preceding each of them shown in **Table Q4**.

Table Q4

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

i. Construct a PERT network diagram for the project. Assuming that the slack time for each activity is 1 (ONE) day, state the early start, late start, early finish and late finish in the diagram.

(9 marks)

ii. Find the critical path in the network diagram

(1 mark)

Q5 (a) Maintenance may be classified into FOUR (4) categories. Describe it in detail and explain type of maintenance

(6 marks)

(b) Explain the advantages and disadvantages of preventive maintenance.

(4 marks)

- END OF QUESTIONS-