

**UNIVERSITI KUALA LUMPUR
MALAYSIAN INSTITUTE OF INDUSTRIAL TECHNOLOGY**

**FINAL EXAMINATION
JANUARY 2016 SEMESTER**

COURSE CODE : JFB 20603
COURSE TITLE : FACILITIES PLANNING AND DESIGN
PROGRAMME LEVEL : BACHELOR
DATE : 24 MAY 2016
TIME : 9.00 AM – 12.00 PM
DURATION : 3 HOURS

INSTRUCTIONS TO CANDIDATES

- 1. Please read the instructions given in the question paper CAREFULLY.**
- 2. This question paper is printed on both sides of the paper.**
- 3. This question paper consists of ONE (1) section.**
- 4. Choose FOUR (4) questions only.**
- 5. Please write your answers on the answer booklet provided.**
- 6. Please answer all questions in English only.**

THERE ARE 4 PAGES OF QUESTIONS EXCLUDING THIS PAGE.

Total: 100 marks

INSTRUCTION: Choose FOUR (4) questions only

Please use the answer booklet provided

Question 1

- (a) In the Guideline and Regulation of Building Planning established by Standard and Cost Committee, Economic Planning Unit, Prime Minister Department, the approach in designing office has changed to open planning concept. Explain reasons that make this concept preferred by the Government of Malaysia.
(10 marks)
- (b) A car component company makes seven different types of products. There are five equal-sized departments involved. Given the following product routings and production forecasts as in Table 1, construct a from-to chart for the facility.
(15 marks)

Table 1: Monthly production

Product	Processing Sequence	Weekly Production
A	12345	1000
B	12325421	800
C	1235	500
D	123451	2000
E	124	3000
F	13524	2500
G	12	1000

Question 2

- (a) Assume you are to plan facilities for football stadium. There are issues may have a long-range impact on the strategic facilities plan. Discuss the issues that may arise in the planning of football stadium facilities.
(10 marks)
- (b) Given the information in the following table, identify the input required to satisfy a demand of 100,000 units.
(15 marks)

Table 2: Monthly production

Process	Defect Rate	Rework Rate
1	5%	75%
2	7%	50%
3	9%	80%

Question 3

- (a) Explain each categories of flow system, materials management system, material flow system and physical distribution system. Use sketch if necessary.

(10 marks)

- (b) Determine the cooling load of a facility having the following characteristics if the inside design temperature is 77° F and the outside design temperature is 95° F?

- 500' x 100'
- 18' tall
- Five nos. of 4' x 8' glass windows [$U_w = 0.39 \text{ Btu}/(\text{hr})(\text{ft}^2)(^\circ\text{F})$]
- Two glass doors measuring 3' x 8' [$U_F = 0.63 \text{ Btu}/(\text{hr})(\text{ft}^2)(^\circ\text{F})$]
- 1" metal insulated roof with an insulated ceiling [$U_R = 0.201 \text{ Btu}/(\text{hr})(\text{ft}^2)(^\circ\text{F})$]
- Uninsulated slab floor [$U_F = 0.81 \text{ Btu}/(\text{hr})(\text{ft}^2)(^\circ\text{F})$]

(15 marks)

Question 4

- (a) Discuss the main purpose of installing sprinkler system and identify the design elements required to having it in the building?

(10 marks)

- b) Table 3 below shows the most popular product in warehouse. Illustrate the products that need to be aligned along main aisle between receiving point and shipping point.

(15 marks)

Table 3: Monthly production

Product	Quantity per receipt (pallets)	Trips to Receive	Average Customer Order Size (pallets)	Trips to Ship
A	500	400	1.0	150
B	1700	100	0.4	400
C	2800	1000	2.0	900
D	1300	1200	0.7	1200
E	1500	750	0.1	500
F	1500	400	3.0	1000
G	2700	500	4.0	500
H	3000	2500	0.5	1700
I	4500	3000	1.0	3200
J	2000	1000	2.0	1700

Question 5

(a) Explain the factors that need to be considered in determining the specification for a parking lots.

(10 marks)

(b) You are to determine the movement of product in warehouse. Given two options flow patterns as shown in Figure 1. The distance from A to B is 30 units, B to C is 50 units and C to D is 60 units. The routing of the product is A-C-B-D. For (ii), the distance from A to C and B to D (and reverse directions) are given by the hypotenuse of a triangle formed by the departments. Show the calculation of the travel distance of both flow patterns. Justify your preferred layout.

(15 marks)

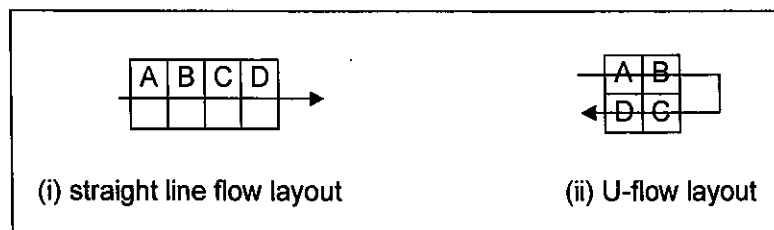


Figure 1: Flow patterns

END OF EXAMINATION PAPER

