

Student Id : _____

IE 473 Material Handling Systems

Name Last Name : ANSWER SHEET

QUIZ #2

Signature : _____

1. (each one 3 pts.) Fill in the following blanks with no penalty for wrong answers:

- a. A unit load can be defined simply as the unit to be moved or handled at one time.
- b. Ecology principle is to use material handling equipment and procedures to minimize adverse effects on the environment.
- 30 c. The theoretical ideal system is a perfect system having zero cost, perfect quality, no safety hazards, no wasted space, and no management inefficiencies.
- d. The combination of material characteristics and move or flow requirements is referred to as material flow.
- e. A chart that can be extremely useful when investigating each move is the material handling planning chart.
- f. Conveyors are used when material is to be moved frequently between specific points.
- g. An AS/R system can be defined as "a combination of equipment and controls which handles, stores, and retrieves materials with precision, accuracy, and speed under a defined degree of automation".
- h. Containerization is the assembling of items in a box or a bin.
- i. Several productivity ratios are used as indicators of the performance of a system to trace inefficiencies.
- j. "Who?" refers to the person responsible for material handling as well as the labor required for such a task.

60 2. (each one 6 pts.) Indicate whether the statement is "False" and try to correct the statement to get the full grade, with 2pts penalty for wrong answers:

- a. Material handling is one of the major components of manufacturing systems.

F _____

- b. Storage operations are not material handling operations.

F They are m/h operations.

c. To increase the efficiency of material flow by ensuring the availability of materials, "when?" and "where?" they are needed is one of the major objectives of MH system design.

F

d. There is minimal human intervention used for deriving and operating the equipment, and most of the functions are performed by computers in mechanized material handling systems.

F This is not a mechanized but automated material handling system.

e. Unitization is the assembling and securing of individual items on a platform that can be moved by a truck or a crane.

F It is Palletization since there is platform

f. Costs due to packaging and damaged materials are not included into material handling costs.

F Packaging and damaged materials costs are also included in M/H.

g. Conveyors are used for moving materials continuously over a fixed path.

F

h. Plant layout and material handling have the common objective of cost minimization.

F

i. Belt conveyor is a material handling equipment that can be operated over large areas with a flexible path.

F It could be forklift truck not a conveyor.

j. Box is a platform on which material can be stacked in unit loads and handled by lifting equipment such as the fork-lift truck.

F Not a box, it should be ~~platform~~ pallet from the definition.

k. The degree of mechanization can influence the cost of material handling.

F

l. In designing material handling systems, the layout should be known in advance, so first layout design then material handling system design studies should be performed.

F They should be thoroughly studied.

m. Use gravity to move material whenever practical.

F

n. The principles of material handling are compatible with each other.

F

o. According to *ideal^{ideal} system design*, install the ultimate ideal system.

F It is not the ultimate ideal system, it is the recommended system.

p. The equipment selection problem, in theory, is simple, namely, reduce the set of alternative approaches to those that are feasible based on the material and the move.

F _____

q. A bridge crane consists of a single upright which may be fixed or on a track having a cantilever boom.

F Not a bridge crane, it is tower crane.

r. The unit load is an integral part of the material handling system and a simultaneous determination should be made.

F _____

s. Mechanization principle is to use methods and equipment that can perform a variety of tasks under a variety of operating conditions.

F This is not mechanization, it is flexibility principle.

t. In designing new or improved material handling systems, the six-phased engineering design process should be used.

F _____

3. (each one 6 pts.) Answer the following multiple choice type of questions, with 2pts penalty for wrong answers:

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a. Which one of the following material handling equipment is used for moving materials continuously over a fixed path?

truck conveyor crane hoist

b. Which one of the following degree of mechanization refers to using power instead of physical effort used for driving the equipment?

mechanized automated manual fully automated

c. Which one of the following is assembling of items in a box or a bin?

palletization unitization containerization customization

d. Which one of the following material handling principle provides suitable methods and equipment for safe handling?

system flow simplification utilization safety

e. Which one of the following question is associated with understanding the type of material to be handled?

who? what? why? which?

f. Which one of the following system is a cost-effective system that will work now without obstacles to its successful implementation?

- theoretical ideal system ultimate ideal system
 recommended system technologically workable ideal system

g. Which one of the following is a valid objective of material handling system design?

- reduce costs reduce damage decrease reliability increase productivity

h. Which one of the following chart is used to investigate each move in analyzing MH systems?

- Gantt material handling planning flow process relationship

i. Which one of the following is not material handling cost?

- damage cost transportation cost unit material cost packaging cost

j. Which one of the following characteristic is not related with a good material-handling system design?

- economical safe no backtracking idle machines

4. [25pts] Give examples in the context of idealized system design:

Current system:

Recommended system:

Technologically workable ideal system:

Ultimate ideal system:

Theoretical ideal system:
