Name: **Enrolment No:**	

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, May 2022

Course: Facility Planning and Material Handling **Semester: VI**
Program: B.Tech (Automotive Design Engineering) Time: 3 hours
Course Code: MECH3016P Max. Marks: 100
Instructions : Attempt all the questions

SECTION A
(5Qx4M=20Marks)

S. No.		Marks	CO
Q 1	Describe the engineering factors and economic factors in connection with material handling problem.	**5**	**CO1**
Q.2	Compare urban and rural areas in connection with selection of site for industry	**5**	**CO2**
Q.3	Define a flow pattern? How they are classified? State and sketch the characteristics of any four types of flow pattern.	**5**	**CO3**
Q.4	Explain in brief of material handling: 1) Mono rails 2) Principle of unit load 3) Slides and clutches	**5**	**CO2**

SECTION B

(4Qx10M= 40 Marks)

Q.5	Describe the measures taken by Govt. to encourage the entrepreneurs to start industries in backward areas.	**10**	**CO3**
Q.6	Descrive various inventory control and management models with their applications .	**10**	**CO3**
Q.7	Prepare a flow chart for overhauling the engine of an automobile.	**10**	**CO3**
Q.8	Differentiate between MTBF and MTTF with suitable examples.	**10**	**CO2**
Q.9	Discuss the safety requirements in material handling.	**10**	**CO3**

SECTION-C

(2Qx20M=40 Marks)

Q 10	Situation: The Jones Company operates a centrally located storeroom in their manufacturing complex. Every afternoon each craft foreman (Tin Shop, Electric	**20**	**CO4**

	Shop, Iron Workers, etc.) writes a requisition for common use items that will be required for the next day's work. These common use items include nuts, bolts, screws, washers, flashlight batteries, and gloves. All specialty items are ordered separately. During the night shift, storeroom personnel fill the orders of items requested by the craft foreman. Each morning, one or two workers from each department go to the storeroom with a four-wheel platform truck to pick up the filled order. Question: Although studies have never been performed to determine the amount of time craftsmen spend waiting for supplies, it is the thoughts of the management that idle craft manpower is a problem resulting from this procedure. How can time spent traveling to and from the described storeroom be reduced, thus, eliminating or decreasing crafts' personnel travel time		
Q.11	Situation: The White Manufacturing Company produces a spring-loaded replacement spike for power rakes. Because of the small size of this item, they are packaged in separate small containers that are in turn packed into a larger carton (24 count) for shipping. The packing operation for this unit is on the third floor of a multi-story building. Upon completion of the packing operation the shipping cartons are placed on semi-live skids and taken to the second floor using an elevator. The same elevator is also used to move other materials to various floors in the plant for processing. On the second floor packages are sorted according to trucking line. After sorting, all packages are placed on a semi-live skid and moved to the first floor via the same elevator. On the first floor, the packages are stored awaiting shipment (pick up by the assigned truck line). Question: Disregarding labor requirements, how can the movement of packages be improved?	**20**	**CO4**
	OR		
Q.12	A manager is trying to determine the best layout of her office . The following information has been collected on the average number of trips per day by various types of person from and their own offices. It is also known that executive are paid $ 200 per day, staff people are paid $ 110 per day, and secretaries are paid $ 70 per day. The manager would like to minimize the cost of lost time due to trips between various locations in the office.	**20**	**CO4**

Monthly book loads

Department	2	3	4	5	6
1	500	0	200	100	0
2		0	0	0	0
3			50	150	0
4				0	100
5					0

Current Layout

1	2	3
6	4	4