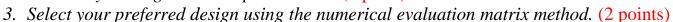


Test #5 - Section XBG

Design a submarine.

For the design problem statement given above, you are required to-

- 1. Generate a design space using the morph chart concept. (3 points)
- 2. From your design space generated above, identify four potential design alternatives, by shading the appropriate cells or by writing them in separate lines. (1 point)





Answer

	Answer	Mean						
	Function / Feature	1	2	3	4	5		
Chart"	Providing Ventilation	Oxygen tanks	Ventilation slots	Ventilation channels connected to the surface				
	Diving into the water	Tanks filled with water@@	heavy body by gold	heavy body by metal	heavy body by silver			
Design space "Morph	declaring about its place	Whistling sound @@	Light signals @	Sound of a bell@				
1- Desig	Allows monitoring what is going on outside	Speculum @ @	Glass windows resists water pressure @ @					
	Moving on and under the water.	Water engines	Paddle @@					

2- Identify four potential design alternatives

- 1- Oxygen tanks, heavy body by gold, Whistling sound, Speculum, Paddle
 2- Ventilation slots, heavy body by silver, Light signals, Glass windows resists water pressure, Water engines
- 3- Exygen tanks, heavy body by metal, Whistling sound, Speculum, Water engines.
- 4- Oxygen tanks, Tanks filled with water, Sound of a bell, Glass windows resists water pressure, Paddle

	Design Constraints and Objectives		Design Alternatives				
.	Design Constraints and Objectives	1	2	3	4		
Matrix	C1:the cost less than 300,000	X	X				
Evaluation Matrix	C2:Prevent the entry of water						
valu	C3: Diving						
1 E							
Numerical	O1:Easy to drive			50	30		
3- Nun	O2:Monitor far places			60	20		
. •	O3: Diving to very deep distance			40	60		
	150	110					

The best alternatives is number 3

Congratulations.