Q1: Compare the different aspects between electroplating process and anodizing process? Give all details and drawings!.. (20 Marks)

Q2: In terms of new techniques expansion, magnetron sputtering is the mostly used PVD process as compared with evaporation PVD process. What reasons behind this wide expansion? Explain both process and draw a schematic for each referring to the most impacted parts that control the coating procedure. ..... (20 Marks)

Q3: Explain with schematics the following processes:

1- Spin coating.
2- Case hardening and hard facing coatings.
3- Explosive cladding ........ (20 Marks)

Q4: Thermal spraying coating includes different techniques. Give the reason behind these differences. Set 6 of these techniques explaining the details of producing bulk spray in each technique. Drawings are preferable! ....... (20 Marks)

Q5: Coating layers with composition gradient are highly dependent on the coating process. Set some coating processes that characterized by the composition gradient and explain two of them in general. .... (20 Marks)

Q6: A) Give the main objectives of electroforming and mention the possible principles that guide the process? ....... (10 Marks)

B) Binder imparts some important properties. What are these properties? What are other properties where binder has the strongest influences on? ....... (10 Marks)

...........................GOOD LUCK........................