Date of issue: 24/07/2014   Date of submission: 01/08/2014

Q-1	Explain supra & subsystems, key components?	
Q-2	Explain the Boundary & Interface complexity?	
Q-3	Explain the concepts of system coupling, stresses and entropy in a management system?	
Q-4	How structure and performance of work systems can lead to customer delight?	
Q-5	What do you mean Law of requisite variety?	

IES GROUP OF INSTITUTIONS BHOPAL
ASSINMENT UNIT-I-ME-502-Turbo Machine

Date of issue: 24/07/2014   Date of submission: 01/08/2014

Q-1	Define turbo machine and classify them on the basis of fluid movement through the machine.	
Q-2	Define the following for turbo machinery:- (i) Specific speed (ii) Stage efficiency (iii) Overall efficiency (iv) Degree of reaction	
Q-3	The following data refers a turbo machine inlet velocity of whirl = 16m/s, velocity of flow = 10m/s, blade speed = 33m/s, exit blade speed = 8m/s. discharge is radial with an absolute velocity of 16m/s. If water is the working fluid flowing at the rate of 1m^3/s. computes the following (i) Power in kw. (ii) Change in total pressure in bar (iii) Degree of reaction.	
Q-4	Derive the Euler-turbine equation.	
Q-5	Air flows steadily at the rate of 0.4kg/s through an air compressor entering at 6m/s with a pressure of 1 bar and a specific volume of 0.85m^3/kg and leaving at 4.5m/s with a pressure of 6.9 bar and a specific volume of 0.016m^3/kg. the internal energy of the air leaving in 83kj/kg greater than that of air entering. Cooling water jacket-surrounding the cylinder absorbs heat from the air at the rate of 59kg/s/ calculate the power required to derive the compressor and inlet and outlet pipe cross-sectional areas.	

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Q-1	Compare deflection and null type instrument.	
Q-2	Explain: (i)Static Error (ii) Accuracy and Precision (iii) Hystressis (iv) Linearily	()
Q-3	Distinguish between direct and indirect methods of instruments. Give examples.	
Q-4	Explain the term Precision Error and BIAS Error.	
Q-5	Analyse the following devices as a generalized measurement system: (i)Bourdon tube pressure gauge. (ii) Digital revolution counter.	

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1.	Define stress concentration factor.	
2.	Explain theories of failure.	
3.	Expalin the concept of design under dynamic loading, with failure criteria.	
4.	Explain soderber eqation, goodman's straight line, gerber parabola with diagram.	
5.	A m/c component is subjected to a flexural stress b/w 300mpa to -150 mpa. Determine the value of ultimate tensile strength using goodman and gerber criteria take σ_e=0.5mpa FOS=2.	

Date of issue: 24/07/2014   Date of submission: 01/08/2014

Q-1	Derive the equation of analytical method to find out displacement a velocity and acceleration of piston in steam engine.	
Q-2	How to find out the velocity, acceleration, displacement of the piston graphically. Explain with the diagram in brief.	
Q-3	Differentiate between flywheel and governor.	
Q-4	Write short notes on: (a)coefficient of fluctuation of energy. (b)fluctuation of speed. (c)coefficient of fluctuation of speed.	
Q-5	Write the turning moment diagram of a single cylinder engine.	