B. Tech Degree VIII Semester Examination in Marine Engineering, January 2010

MRE 805 (C) FLUID CIRCUITS AND CONTROL

Time : 3 Hours Maximum Marks : 100

I. (a) Explain the different types of valves. Describe with the aid of suitable diagrams. (18)
(b) Write a short note on the assembly of different hydraulic components. (7)

OR

II. Explain ***any five*** of the following terms with the help of suitable diagrams : (5 x 5 = 25)

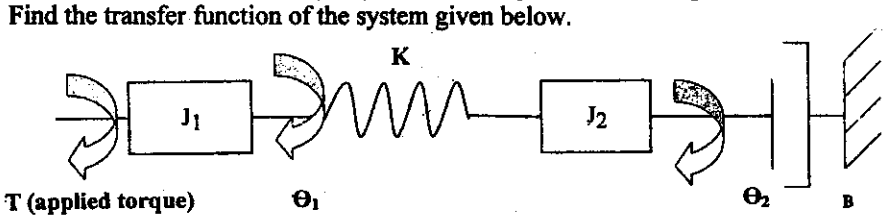
(i)	Piping and fitting	(ii)	Sealing and packing
(iii)	Actuators	(iv)	Vertical / horizontal stacking
(v)	Switches	(vi)	Pressure control valves

III. (a) Differentiate between Hydraulic and Pneumatic system. (15)
(b) Write a short note on compressors. (10)

OR

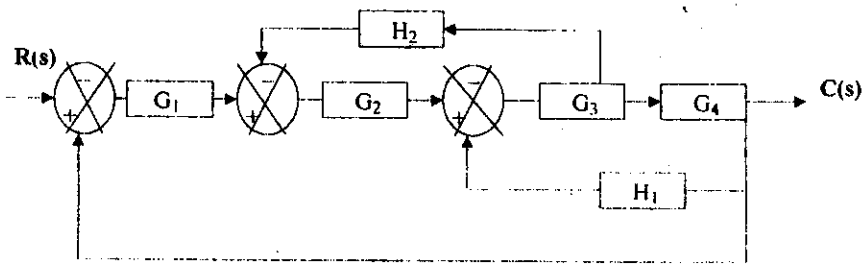
IV. (a) Derive an expression for the transfer function of a Hydraulic system. (15)
(b) Write the Fluid properties of Hydraulic system. (10)

V. (a) Explain the classification of pumps with the help of suitable diagrams. (15)
(b) Find the transfer function of the system given below. (10)



OR

VI. (a) Differentiate between open loop and closed loop system with example. (10)
(b) Reduce the block diagram given below : (15)



VII. (a) Sketch the Root locus for the unity feedback system, whose open loop transfer function is $G(S)=\dfrac{K}{S(S+2)(S+4)}$. (15)

(b) A unity feedback stable system with forward path transfer function $G(S)=\dfrac{K(S+3)(S+5)}{(S-2)(S-4)}$. Find the range of K. (10)

OR

VIII. Sketch and describe the working of the devices given below :

(i)	Hydraulic Press	(13)
(ii)	Hydraulic Crane	(6)
(iii)	Hydraulic lift.	(6)

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