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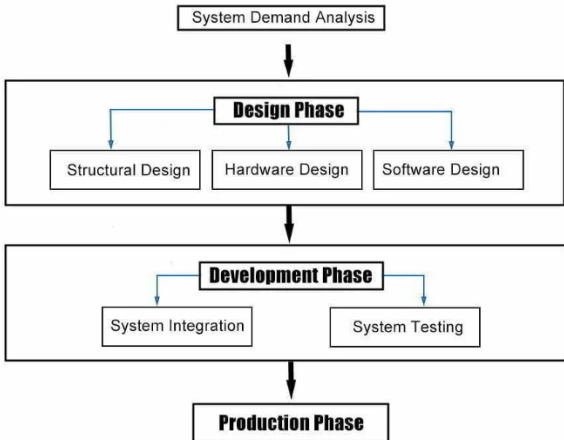
UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, Dec 2023

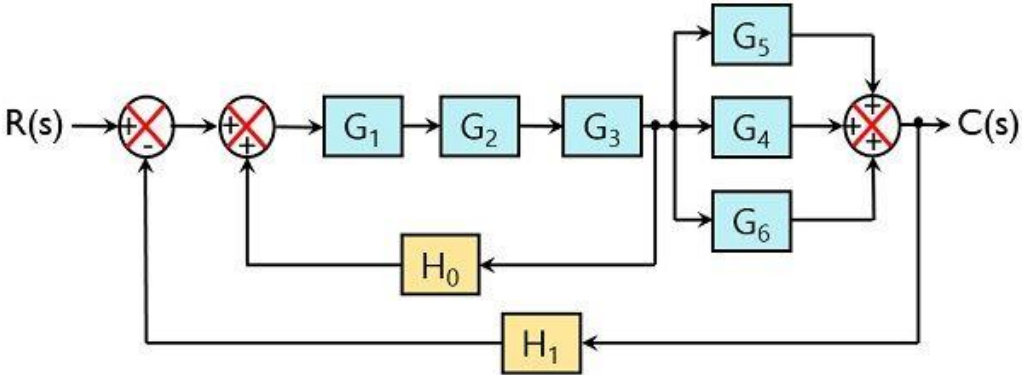
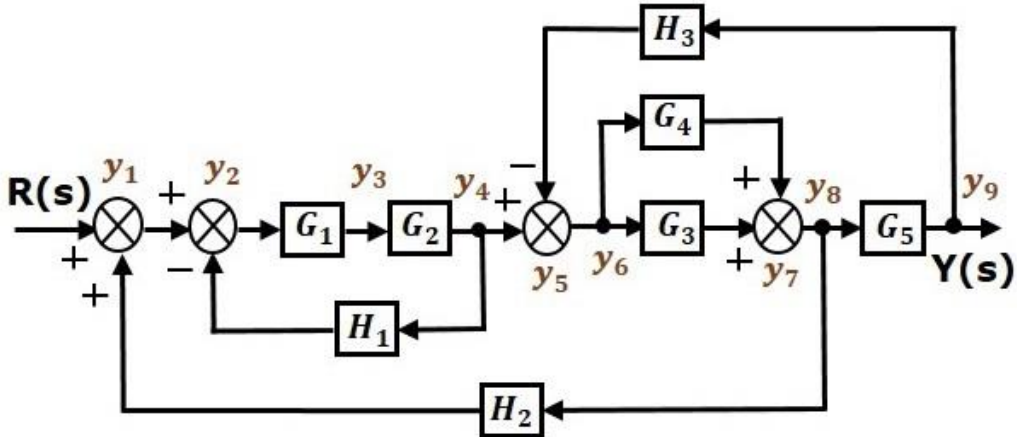
Programme Name: B Tech (Aerospace Engineering) **Semester : V**
Course Name : Signals & Embedded Electronics **Time : 03 hrs**
Course Code : ECEG 3065 **Max. Marks: 100**
Nos. of page(s) : 03
Schematic diagrams are must in each answers

SECTION A
(5Qx4M=20Marks)

S. No.	Question	Marks	CO
Q 1	List down all different types of test signals.	4	CO1
Q 2	Draw positive and negative feedback system, derive its transfer function model	4	CO2
Q 3	List out the time response parameters in studying the dynamics of the system	4	CO3
Q 4	How the electronics plays an important role in chip memory design	4	CO 4
Q 5	List down 10 embedded system devices used in Aircraft/Spacecraft	4	CO 4

SECTION B
(4Qx10M= 40 Marks)

Q 6	Discuss the project flow of signal embedded systems as shown in the figure <div style="text-align: center; margin: 10px 0;">  <pre> graph TD A[System Demand Analysis] --> B[Design Phase] subgraph B [Design Phase] B1[Structural Design] B2[Hardware Design] B3[Software Design] end B --> C[Development Phase] subgraph C [Development Phase] C1[System Integration] C2[System Testing] end C --> D[Production Phase] </pre> </div>	10	CO4
Q 7	Compare the Type 0, Type 1, Type 2 and Type 3 of typical open loop control system gain equation, estimate the steady state errors and corresponding error constants, Tabulate it.	10	CO 2

Q 8	<p>Reduce to SFG and derive TFM</p> 	10	CO 2
Q 9	<p>Derive the steady-state error for LTIV system. Discuss FVT. Apply FVT and derive the steady state error values for all kinds of input test signals to negative feedback system</p>	10	CO 3
<p>SECTION-C (2Qx20M=40 Marks)</p>			
Q 10	<p>Discuss the stability criterion for each condition of the roots on s-plane. Derive the mathematical models too in tabulated manner.</p>	20	CO4
Q 11	<p>Derive the transfer function model for the Block diagram as shown below using Mason's gain algorithm</p> 	20	CO 3