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SILVER OAK COLLEGE OF ENGINEERING & TECHNOLOGY

BE - SEMESTER–IV • MID SEMESTER-I EXAMINATION – WINTER 2018

SUBJECT: Microprocessor and Interfacing (2141001) (EC)

DATE: **27-01-2018** TIME: **02:15 pm to 03:45 pm** TOTAL MARKS:**40**

Instructions: 1. All the questions are compulsory.
2. Figures to the right indicate full marks.
3. Assume suitable data if required.

Q.1	(a)	What are the advantages of assembly level language over higher level language?	[03]
	(b)	List the sequence of events when the 8085 microprocessor reads from memory.	[03]
	(c)	Explain IN and OUT instruction with example.	[04]
Q.2	(a)	Draw and explain the functional block diagram of 8085 Microprocessor.	[06]
	(b)	Explain following instructions in detail with example: 1. XCHG 2. MOV A, M	[05]
	(c)	Draw and explain Flag Register in detail.	[04]
		OR	
Q.2	(a)	State and explain addressing modes of 8085 Microprocessor.	[06]
	(b)	Explain following instructions in detail with example: 1. LXI B,6000H 2. ADD D	[05]
	(c)	Draw and explain opcode fetch machine cycle in detail.	[04]
Q.3	(a)	Draw and explain pin diagram of 8085 Microprocessor in detail.	[06]
	(b)	Write an assembly language program to transfer the 5 data bytes stored on location 5000H onwards to 6000H onwards in same order.	[05]
	(c)	Write an assembly language program to find out maximum number from the given 5 data bytes stored on location 6000H onwards. Store the maximum number on location 7000H.	[04]
		OR	
Q.3	(a)	Explain Demultiplexing of lower order address bus in 8085 with neat sketch.	[06]
	(b)	Write an assembly language program to transfer the 5 data bytes stored on location 5000H onwards to 6000H onwards in reverse order.	[05]
	(c)	Write an assembly language program to find out minimum number from the given 5 data bytes stored on location 6000H onwards. Store the maximum number on location 7000H.	[04]

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SILVER OAK COLLEGE OF ENGINEERING & TECHNOLOGY

BE – SEMESTER- IV • MID SEMESTER-I EXAMINATION – SUMMER 2018

SUBJECT: Control System Engineering (2141004) (EC)

DATE: 30-01-2018 **TIME: 02:15 pm to 03:45 pm** **TOTAL MARKS: 40**

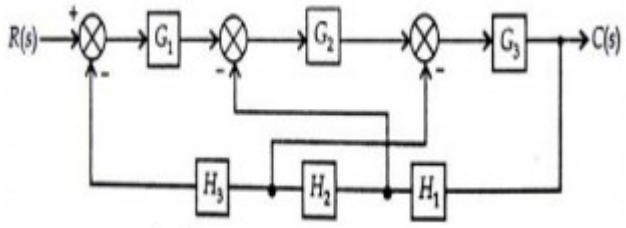
Instructions: 1. All the questions are compulsory.
2. Figures to the right indicate full marks.
3. Assume suitable data if required.

Q.1 (a) Difference between open loop system and close loop system with example & block diagram [03]

(b) Explain Mason's gain formula [03]

(c) Determine the stability $S^5+S^4+2S^3+2S^2+3S+5=0$. [04]

Q.2 (a) Obtain the transfer function C(s)/R(s) using block diagram reduction technique for the system [06]

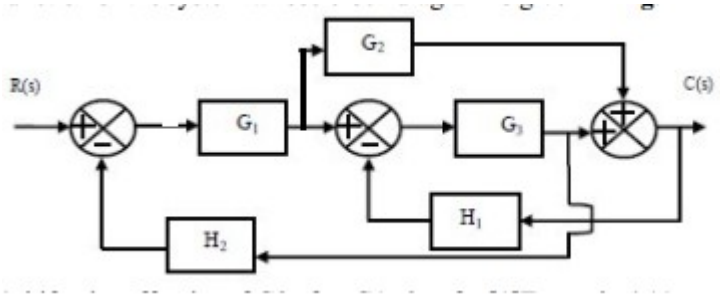


(b) Find range of values of 'K' using Routh Criterion, so that system with following characteristic equation will be stable. [06]
$s(s^2+s+1)(s+1)+K=0$

(c) State advantages and limitations of Routh's Criterion. [03]

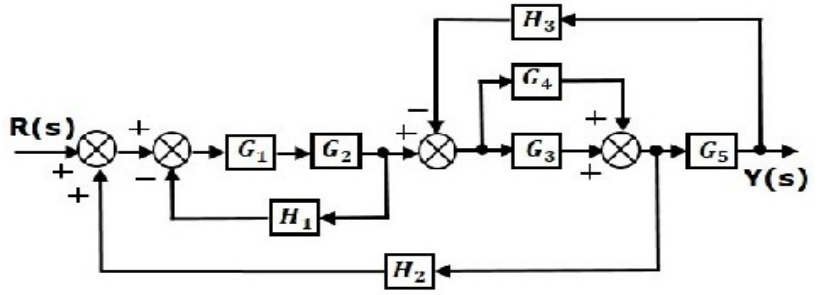
OR

Q.2 (a) Obtain system transfer function C(s)/R(s) using block diagram reduction technique for the system [06]



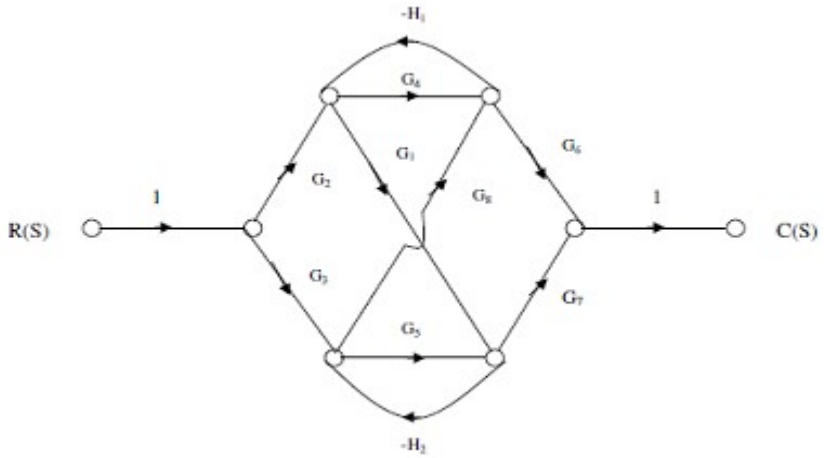
(b) Using Routh's criterion check the stability of a system whose characteristic equation is given by $S^5+2S^4+2S^3+4S^2+11S+10=0$ [06]

(c) From block diagram Only draw the corresponding signal flow graph. [03]



Q.3 (a) Sketch the root locus for the transfer function $G(s)H(s) = k/(S+2)^3$ [06]

(b) For the signal flow graph using Masson's gain formula determine the overall transmission C/R [06]

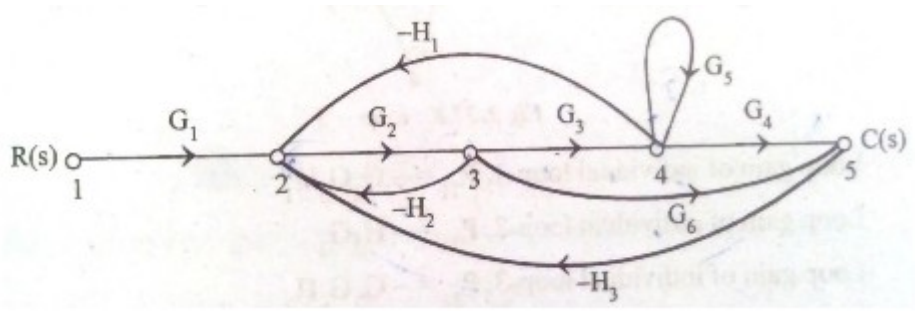


(c) Determine the value of asymptotes , angle of asymptotes and centroid for the transfer function $G(s)H(s) = k/(S-1)(S^2+4S+7)$ [03]

OR

Q.3 (a) Sketch the root locus for the transfer function $G(s)H(s) = k/S(S+2+2j)(S+2-2j)$ [06]

(b) For the signal flow graph using Masson's gain formula determine the overall transmission C/R [06]



(c) State the rules to sketch root locus and explain angle of arrival and angle of departure in detail. [03]

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ADITYA SILVER OAK INSTITUTE OF TECHNOLOGY

BE – SEMESTER-IV • MID SEMESTER- I EXAMINATION – WINTER 2017

SUBJECT: SIGNAL & SYSTEMS (2141005) (EC)

DATE: 31-01-2018 TIME: 02:15 PM to 03:45 PM TOTAL MARKS: 40

Instructions: 1. All the questions are compulsory.
2. Figures to the right indicate full marks.
3. Assume suitable data if required.

Q.1 (a) Explain classification of Signals. [03]

(b) Explain classification of Systems. [03]

(c) State & prove Time Shifting and Time Reversal properties of Z transforms. [04]

Q.2 (a) Determine whether each of them is (a) Memory less (b) Stable (c) Causal (d) Linear (e) Time invariant

(i) $y(n) = 2x(2^n)$ [06]

(ii) $y(t) = x(t-2) + x(2-t)$

(iii) $y(t) = tx(t)$

(b) Categorize the following signals as an energy or power signal and find energy or power of the signal:

(i) $x(t) = 5\cos(\Pi t) + \sin(5\Pi t)$ [05]

(ii) $x[n] = (1/2)^n\ u(n);\ n \geq 0$

$= 0$; otherwise

(c) Explain Sampling and Quantization. [04]

OR

Q.2 (a) Find the fundamental periods of the following periodic signals:

(i) $x(t) = \cos(13\Pi t) + 2\sin(4\Pi t)$ [06]

(ii) $x(n) = e^{j7.351\Pi n}$

(b) Sketch signal $x(t) = u(t+2) – u(t-2) + u(t+1) – u(t-1)$. Also sketch $x(2t)$. [05]

(c) State and prove Sampling Theorem. [04]

Q.3 (a) Determine the inverse Z – transform of the following using partial fraction method. $X(z) = (z + 1) / (2z^2 – 7z + 3)$. [06]

(b) Write differentiation in Z – domain property of Z – transform. Obtain z – transform of $x[n] = a^n \cos(\Omega_0 n)\ u(n)$, where a is real and positive. [05]

(c) Define Z – transform. Explain region of convergence. [04]

OR

Q.3 (a) Determine Z – transform of following signals:

(i) $x(n) = 2^n\ u(-n)$ [06]

(ii) $x(n) = n\ a^n\ u(n)$

(iii) $x(n) = (1/4)^n u(n-1)$

(b) Determine inverse Z – transform of following using partial fraction method. [05]
$X(z) = 3 / [\ 1 – (10/3)z^{-1} + z^{-2}\ ]$

(c) Explain the properties of Region of Convergence with reference to Z – transform. [04]

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SILVER OAK COLLEGE OF ENGINEERING & TECHNOLOGY

BE - SEMESTER–IV • MID SEMESTER-I EXAMINATION – SUMMER 2018

SUBJECT: ELECTRONICS MEASUREMENT & INSTRUMENTATION (2141003) (EC)

DATE: 29-01-2018 TIME:02:15 pm to 03:45 pm TOTAL MARKS:40

Instructions: 1. All the questions are compulsory.
2. Figures to the right indicate full marks.
3. Assume suitable data if required.

Q.1	(a)	Enlist all types of Error and Specify Sources of error.	[03]
	(b)	Explain International Standard in brief.	[03]
	(c)	Define Following Terms: 1)Measurement, 2)Precision, 3) Accuracy, 4) Resolution	[04]
Q.2	(a)	Determine equation of Wheatstone bridge in unbalanced condition.	[06]
	(b)	Explain Hay's Bridge and derive equation for R_x and L_x.	[05]
	(c)	Write down Difference between Static Error & Dynamic Error.	[04]

OR

Q.2	(a)	Determine equation to measure the value of unknown resistor using Kelvin double bridge .	[06]
	(b)	Explain Schering's Bridge in detail.	[05]
	(c)	Write down Difference between AC bridge & DC Bridge.	[04]
Q.3	(a)	Explain Static Error in detail.	[06]
	(b)	Explain Maxwell's capacitance comparison bridge.	[05]
	(c)	Which are advantages and disadvantages of Owen bridge.	[04]

OR

Q.3	(a)	Explain Electrical Standards in detail.	[06]
	(b)	Explain Maxwell's Induction comparison bridge.	[05]
	(c)	List advantages and disadvantages of Anderson bridge.	[04]

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SILVER OAK COLLEGE OF ENGINEERING & TECHNOLOGY

BE - SEMESTER–IV • MID SEMESTER-II/REM I/MID SEM EXAMINATION – WINTER 2017

SUBJECT: Analog Circuit Design (2141002) (EC)

DATE:1-2-2018 TIME :2:15 TO 3:45 TOTAL MARKS: 40

Instructions: 1. All the questions are compulsory.
2. Figures to the right indicate full marks.
3. Assume suitable data if required.

Q.1	(a)	Short Questions 1.Apllications of op-amp. 2.Write the equation of gain with positive feedback. 3.List three open loop op-amp configuration. 4.Write the equation of CMRR 5.Which type of negative feedback is present in inverting configuration.	[5]
Q.1	(b)	What is an oscillator? Explain Barkhausen criterion.	[5]
Q.2	(a)	Draw Block diagram of op-amp.	[3]
	(b)	Define following: (1)common mode gain (2)Input bias current (3)Slew rate (4)Gain	[4]
	(c)	Explain the working of Hartley Oscillator with it's circuit diagram.	[7]
		OR	
Q.2	(a)	Draw equivalent circuit of an op-amp.	[3]
	(b)	Expalin Instrumentation amplifier with its block diagram.	[4]
	(c)	Frequency sensitive arm of wein-bridge oscillator uses R1=R2=10K Ω while C1=C2 is kept variable. Find minimum & maximum value of capacitance to Achieve output frequency range from 20KHz to 70 KHz.	[7]
Q.3	(a)	Sketch equivalent circuit of crystal and discuss crystal based oscillator circuit.	[4]
	(b)	A wien-bridge oscillator has a frequency of 500 Hz if the value of C is 100pF, Determine the value of R.	[5]
	(c)	What is op-amp list out characteristics of ideal op-amp.	[7]
		OR	
Q.3	(a)	Explain hybrid – π capacitances.	[4]
	(b)	Explain working of colpitt oscillator.	[5]
	(c)	A crystal has L=0.33H, C=0.065 pF and CM=1 pF with R=5.5kΩ, Find: i) Series resonant frequency, ii) Parallel resonant frequency iii) By what percent does the parallel resonant frequency exceed the series resonant frequency. iv) Find the Q factor of the crystal.	[7]