4E2113

Roll No. : _____ Total Printed Pages : 4

4E2113

B. Tech. (Sem. IV) (Main / Back) Examination, June/July - 2013
Electrical Engg.
4EE5 Circuit Analysis - II

Time : 3 Hours] [Total Marks : 80
[Min. Passing Marks : 24

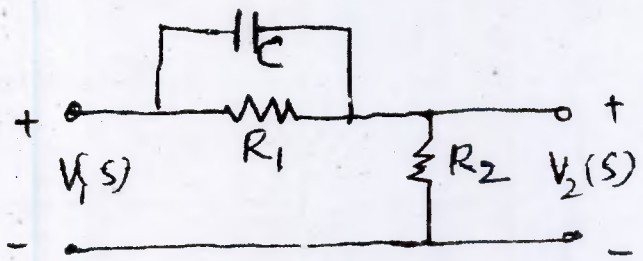
Attempt any five questions, selecting one question from each unit. All questions carry equal marks. (Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly.
Units of quantities used/calculated must be stated clearly.

Use of following supporting material is permitted during examination.
(Mentioned in form No. 205)

1. NIL 2. NIL

UNIT - I

1 (a) Explain the driving point impedance and admittance. Obtain the transfer function $\frac{V_2(s)}{V_1(s)}$ in fig.



8

(b) Explain the restrictions on location of poles and zeros in driving point functions. 8

OR

1 Obtain the pole zero diagram of the given function and calculate the time domain response.

$$I(s) = \frac{2s}{(s+1)(s^2+2s+4)}$$

16

UNIT - II

2 (a) Give the properties of Hurwitz polynomials. 8

(b) An impedance function is given by

$$Z(s)=\frac{2(s+1)(s+3)}{(s+2)(s+4)}$$

Find the R-L representation of foster first form of network. 8

OR

2 (a) Explain the positive real function and give the properties of function. 8

(b) An impedance function is given by

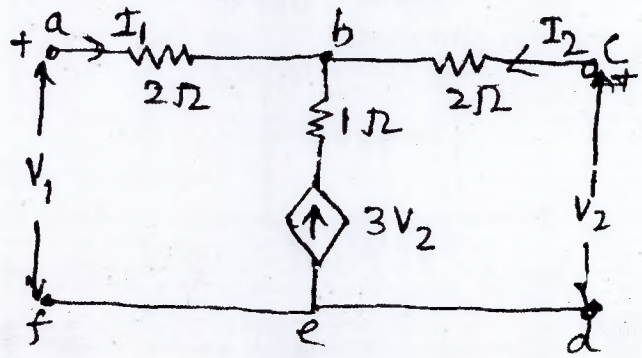
$$Z(s)=\frac{(s+1)(s+4)}{s(s+2)(s+5)}$$

Find the RC representation of caver 1st form. 8

UNIT - III

3 (a) Explain the relation between Z and ABCD parameter. 8

(b) Find Y-parameters of the network shown in fig.

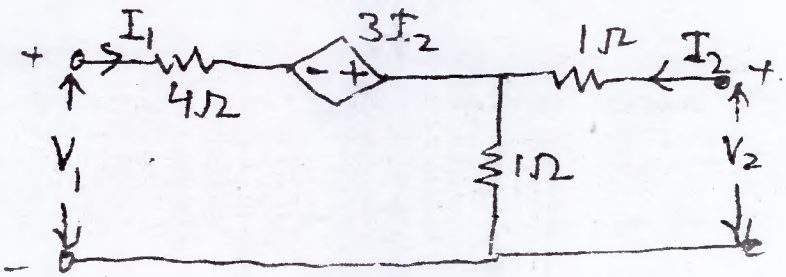


8

OR

3 (a) Explain the series connection of two port network. 8

(b) Find Z parameters of two port network.



8

68

UNIT - IV

4 (a) Explain the constant K-type filter. 8

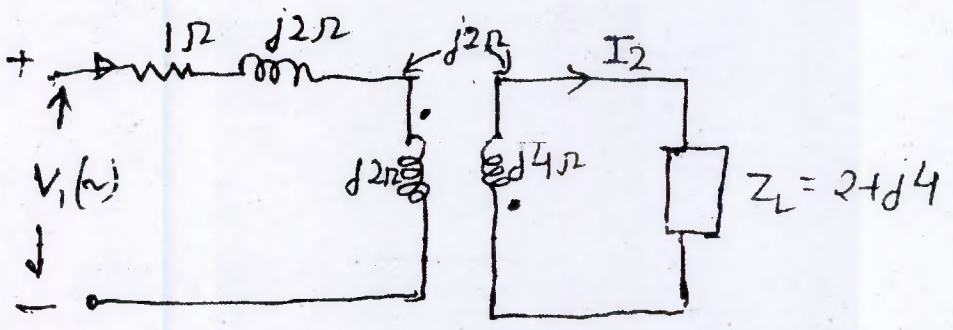
(b) Design a constant K-high pass filter, having $f_c = 4\ KHz$ and design impedance $R_0 = 600\,\Omega$ (π-section) 8

OR

4 Design an m-derived low pass filter to match a line having characteristics impedance of $500\,\Omega$ and to pass signals upto 1KHZ with infinite attenuation occurring at 1.2 KHZ. 16

UNIT - V

5 (a) Draw T equivalent circuit of the coupled network.

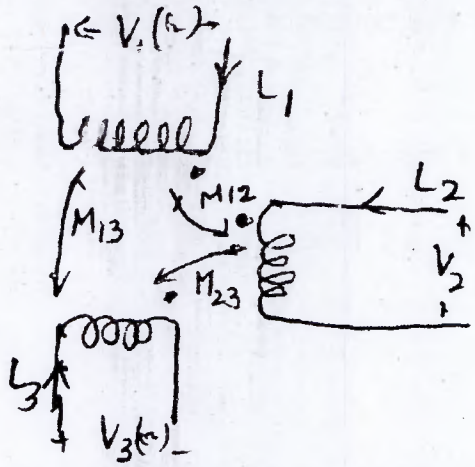


8

(b) Following data refers to two coupled coils 1 and 2, $\phi_{11} = 0.5\ mwb$, $\phi_{12} = 0.3\ mwb$, $N_1 = 100$ turns, $N_2 = 500$ turns, $I_1 = 1\ Amp$. Find K, the co-efficient of coupling, the inductances L_1 and L_2 and M the mutual inductance. 8

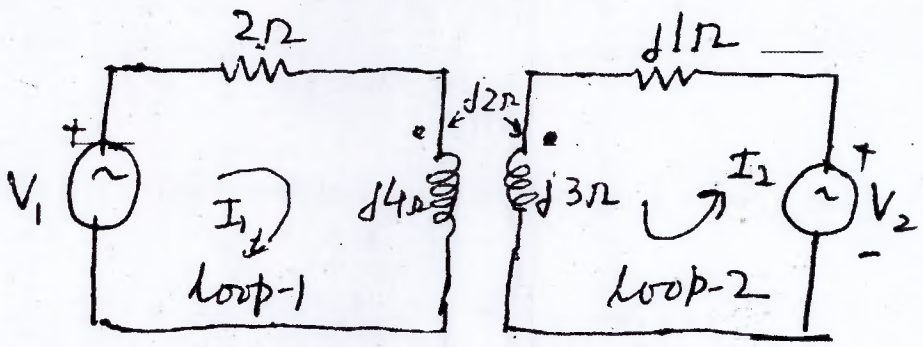
OR

5 (a) Write the voltage equation for the given fig. showing coupled coil equivalent circuit.



8

(b) Find V_2 in the circuit of fig. such that the current in the left hand loop (loop-1) is zero. Assume $V_1 = 5\angle 0^\circ V$.



8

35

4E2114

Roll No. : _____ Total Printed Pages : 4

4E2114

B. Tech. (Sem. IV) (Main / Back) Examination, June/July - 2013
Electrical Engg.
4EE6 Advanced Mathematics

Time : 3 Hours] [Total Marks : 80
[Min. Passing Marks : 24

Attempt any five questions, selecting one question from each unit. All questions carry equal marks. Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly.
Units of quantities used/calculated must be stated clearly.

Use of following supporting material is permitted during examination.
(Mentioned in form No. 205)

1. NIL 2. NIL

UNIT - I

1 (a) Using Lagrange's formula find the value of $y(2)$ from the following data :

$x \rightarrow$	0	1	4	5
$y \rightarrow$	8	11	68	123

8

(b) Solve :

$$54x + y + z = 110$$
$$2x + 15y + 6z = 72$$
$$-x + 6y + 27z = 85$$

by Gauss - Seidel method. 8

OR

1 (a) Using Stirling's interpolation formula to find $f(35)$ from the table

$x \rightarrow$	20	30	40	50
$y \rightarrow$	512	439	346	243

8

[Contd

(b) Find by Newton - Raphson method, the real root of the equation $3x = \cos x + 1$.

8

UNIT - II

2 (a) Find $f'(1.5)$, using the following data :

$x \rightarrow$	1.5	2.0	2.5	3.0	3.5	4.0
$y \rightarrow$	3.375	7.0	13.625	24	38.875	59

8

(b) Apply fourth order Runge - Kutta method to determine $y(0.1)$, given ODE

$$\frac{dy}{dx} = 3x + \frac{1}{2}y, \; y(0) = 1$$

8

OR

2 (a) Using Euler modified method, obtain a solution of

$$\frac{dy}{dx} = x + \left|\sqrt{y}\right|, \; y(0) = 1$$

for the range $0 \le x \le 0.4$ in steps of 0.2.

8

(b) Solve difference equation

$$y_n - 4y_{n-1} + 5y_{n-2} = 2$$

8

UNIT - III

3 (a) Derive following orthogonal properties of Bessel function

$$\int_0^1 x J_n(\alpha x) J_n(\beta x) dx = 0, \text{ if } \alpha \neq B$$

$$\int_0^1 x \left[J_n(\alpha x)\right]^2 dx = \frac{1}{2}\left[J_n'(\alpha)\right]^2, \text{ if } \alpha = \beta$$

8

(b) Prove the recurrence relation for $P_n(x)$

$$(2n+1)xP_n = (n+1)P_{n+1} + nP_{n-1}$$

8

OR

3 (a) Prove the recurrence relation for $J_n(x)$

$$xJ_n'(x) = nJ_n(x) - xJ_{n+1}(x)$$

8

(b) State and prove orthogonal properties of Legendre polynomials.

8

UNIT - IV

4 (a) A letter is known to have come either from CALCUTTA or from TATANAGAR. In the half printed postal stamp of these states only two consecutive letters "TA" are readable. Find the chances of the letter coming from CALCUTTA.

8

(b) Probability that a man aged 60 would be alive till the 70 years of the age is 0.65. find the probability that atleast 7 out of 10 such men should be alive till 70 years of age.

8

OR

4 (a) Two cards are drawn at random with replacement from a box which contains 4 cards numbered 1, 1, 2 and 2. If X denotes the sum of the numbers shown on the two cards, find the expected value of X.

8

(b) In a normal distribution 31% of the items are under 45 and 8% are over 64. Find μ and σ of the distribution, given that

if $\phi(t) = \frac{1}{\sqrt{2\pi}} \int_0^t e^{-z^2/2} dz$, then $\phi(0.50) = 0.19$ and $\phi(1.41) = 0.42$.

8

UNIT - V

5 (a) Calculate the Karl Pearson's coefficient of correlation of the following data :

$x \rightarrow$	25	27	30	35	33	28	36
$y \rightarrow$	19	22	27	28	30	23	28

8

(b) If $\bar{u}(z) = \dfrac{2z^2 + 5z + 14}{(z-1)^4}$, find u_0, u_1, u_2 and u_3.

8

OR

5 (a) Obtain the Spearman's rank correlation coefficient for the following data :

$x \rightarrow$	85	74	85	50	65	78	74	60	74	90
$y \rightarrow$	78	91	78	58	60	72	80	55	68	70

8

(b) Solve the following difference equation by Z-transform method :

$u_{n+2} + 4u_{n+1} + 3u_n = 3^n$ with $u_0 = 0,\ u_1 = 1$.

8

9L

4E2149

Roll No. : _____ Total Printed Pages : 4

4E2149

B. Tech. (Sem. IV) (Main / Back) Examination, June/July - 2013
4EX2 Electrical Electronics

Time : 3 Hours] [Total Marks : 80
[Min. Passing Marks : 24

Attempt any five questions, selecting one question from each unit. All questions carry equal marks. Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly.
Units of quantities used/calculated must be stated clearly.

Use of following supporting material is permitted during examination.
(Mentioned in form No. 205)

1. NIL 2. NIL

UNIT - I

1 (a) Perform the following operations using 2's complement :

(i) $(1ABC)_{16}+(1DEF)_{16}$

(ii) $(+43)_{10}-(-53)_{10}$

(iii) $(3E91)_{16}-(1F93)_{16}$

2×3

(b) Derive the Boolean expression for a 2 input EX-OR logic gate to realize with two input NAND gate without using complemented variables. Also, draw the circuit diagram.

4

(c) A 12-bit Hamming code word containing 8-bits of data and 4 parity bits is read out from memory. What will be the original 8-bit word if the 12-bit read out is as follows :

(i) 1100 1010 0110

(ii) 0011 0110 0101

3×2

OR

1 (a) Explain how errors are detected using :
(i) Check sums
(ii) Block parity

4

(b) What is reflective code ? With the help of an example, explain the differences between the reflective and sequential code.

4

(c) A 16-bit data word given by 1001100001110110 is to be transmitted by using a fourfold repetition code. If the data word is broken into four blocks of four bit each, then write down the transmitted bit stream.

8

UNIT - II

2 (a) Why ECL is called non-saturating device ? What is the main advantage accruing from this ? With help of relevant circuit diagram, briefly describe the operation of ECL OR / NOR logic.

6

(b) Show that in a toten pole TTL NAND gate, transistor Q_2 and Q_3 cannot conduct simultaneously.

6

(c) Why it is not recommended to leave the unused logic inputs floating ? What should be done to such inputs in case of TTL and CMOS logic gate families.

4

OR

2 (a) The data sheets of a Quad two-input AND gate specifies the propagation delay and power supply parameters as ;

$V_{CC} = 5.0V$; $I_{CC_H} = 18\,MA$ (for all four gates); $I_{CC_L} = 32MA$ (for all four gates); $t_{P_{L4}} = 4.5\,ns$ and $t_{P_{HL}} = 5\,ns$. Determine the speed power product specification.

10

(b) What in a logic family, decides the fan-out, speed of operation, noise immunity and power dissipation.

6

UNIT - III

3 (a) Write down the minterm and maxterm Boolean expression given by $f(A, B, C) = \pi\, 0, 3, 7$.

8

(b) Reduce $\pi M(1,2,3,5,6,7,8,9,12,13)$ and implement it in universal logics. 8

OR

3 (a) Using the Quinn-McClunskey method of tabular reduction, minimize the given combinational signal output function.

$$f(A,B,C,D)=\sum M(0,1,5,7,8,10,14,15)$$

8

(b) Obtain the minimal POS expression for :

$$f=\pi M(0,1,4,5,9,11,13,15,16,17,25,27,28,29,31)\cdot$$
$$\cdot d(20,21,22,30)$$

8

UNIT - IV

4 (a) If the CARRY GENERATE G_i and CARRY PROPAGATE P_i are redefined as $P_i=(A_i+B_i)$ and $G_i=A_iB_i$, Show that CARRY output C_{i+1} and SUM output S_i of full adder can be expressed as

$$C_{i+1}=\left(\overline{\overline{C}_i\,\overline{G}_i+\overline{P}_i}\right)=G_i+P_iC_i \text{ and } S_i=\left(P_i\,\overline{G}_i\right)\oplus G_i.$$

8

(b) Design the following :

(i) 32 : 1 MUX using two 16 : 1 MUX's one 2 : 1 MUX.

(ii) 10 × 1K decoder using 8 × 256 decoder and additional logics.

4×2

OR

4 (a) Implement the following multiple outputs combinational logic circuits using 3 to 8 line decoder circuitory :

$$F_1=\Sigma m(0,1,2,6)$$

$$F_2=\Sigma m(2,4,6)$$

$$F_3=\Sigma m(0,1,5,6)$$

8

(b) If the minuend, subtrahead and BORROW-W bits are respectively applied to Augend, Addend and CARRY-W inputs of a full adder, prove that the sum output of full adder will produce correct DIFFERENCE output.

8

95

UNIT - V

5 (a) Determine the function performed by the circuit given in fig. 5 (a). Referring to circuit, write its count sequence if it is initialize at 0000. Also draw the timing sequence.

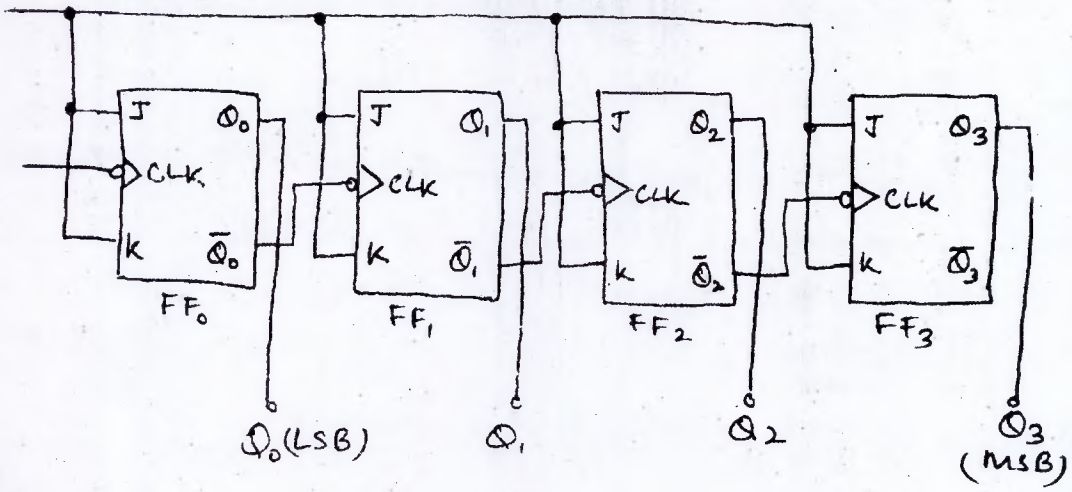


Figure 5 (a)

10

(b) Why is the maximum usable clock frequency in case of a synchronous counter independent of the size of counter.

6

OR

5 The 100 KHz square waveform given in the figure 5 (b) is applied to clock input of flip flop given in figure 5 (c) and 5 (d). If the Q output is initialize at '0', draw the output waveform in two cases. Also determine the frequency of Q output in these two cases.

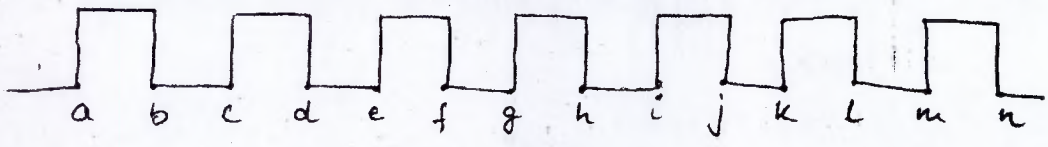


Figure 5 (b)

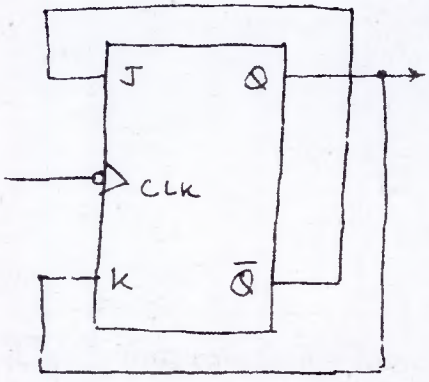


Figure 5 (c)

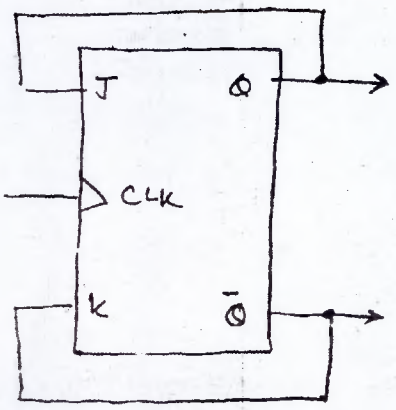


Figure 5 (d)

73

4E2137

Roll No. : _____ Total Printed Pages : 4

4E2137

B. Tech. (Sem. IV) (Main) Examination, June/July - 2013
Petroleum
4PE1 Mathematics - IV **(Common with EC)**

Time : **3** Hours] [Total Marks : **80**
[Min. Passing Marks : **24**

Attempt any five questions. Selecting one question from each unit. All questions carry equal marks. Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly.
Units of quantities used/calculated must be stated clearly.

Use of following supporting material is permitted during examination.
(Mentioned in form No. 205)

1. NIL 2. NIL

UNIT - I

1 (a) Find the missing term in the following table

$x \rightarrow$	0	1	2	3	4
$y \rightarrow$	1	3	9	–	81

4

(b) Find the form of the function given by the following table

$x \rightarrow$	0	1	2	3	4	5
$y \rightarrow$	–5	1	9	25	55	105

4

(c) The area A of a circle of diameter d is given for the following values

$d \rightarrow$	80	85	90	95	100
$A \rightarrow$	5026	5674	6362	7088	7854

Calculate the area of circle of diameter 105.

8

OR

74

1 (a) Using Stirling formula to find $f(35)$ from the table

$x \rightarrow$	20	30	40	50
$y \rightarrow$	512	439	346	243

8

(b) Using Lagrange's interpolation formula, find the value of y for $x = 9.5$ from table

$x \rightarrow$	7	8	9	10
$y \rightarrow$	3	1	1	9

8

UNIT - II

2 (a) Find $f'(1.5)$ using following data

$x \rightarrow$	1.5	2	2.5	3	3.5	4
$y \rightarrow$	3.375	7	13.625	24	38.875	59

8

(b) Using Euler's modified method, obtain a solution of $\frac{dy}{dx} = x + \left|\sqrt{y}\right|, y(0) = 1$ for the range $0 \le x \le 0.4$ in steps of 0.2.

8

OR

2 (a) Using Simpson's "$\frac{1}{3}$" rule, integrate, $\int_1^{1.04} f(x)dx$ from following data

$x \rightarrow$	1	1.01	1.02	1.03	1.04
$f(x) \rightarrow$	3.953	4.066	4.182	4.300	4.421

8

(b) Apply fourth order Runge-Kutta method to

$$\frac{dy}{dx} = 3x + \frac{1}{2}y, y(0) = 1$$

to determine $y(0.1)$ correct to four decimal places.

8

UNIT - III

3 (a) Derive the result of generating function for Bessel function $J_n(x)$. 8

(b) For Legendre's function, show that

(i) $P_n(1) = 1$

(ii) $P_n(-x) = (-1)^n P_n(x)$ 8

OR

3 (a) For Bessel function, show that

$$\left[J_{-\frac{1}{2}}(x)\right]^2 + \left[J_{\frac{1}{2}}(x)\right]^2 = \frac{2}{\pi x}$$

8

(b) State and prove orthogonal properties of Legendre's function. 8

UNIT - IV

4 (a) There are 3 true coins and 1 false coin with 'head' on both sides. A coin is chosen at random and tossed 4 times. If 'head' occurs all the 4 times, what is the probability that the false coin has been chosen and used ? 8

(b) Fit a binomial distribution for given data :

$x \rightarrow$	0	1	2	3	4	5	6
$f \rightarrow$	5	18	28	12	7	6	4

8

OR

4 (a) Two cards are drawn at random with replacement from a box which contains 4 cards numbered 1, 1, 2 and 2. If X denotes the sum of the numbers shown on the two cards, find the expected value of X. 8

(b) Compute the coefficient of correlation between x and y, using the following data :

$x \rightarrow$	1	3	5	7	8	10
$y \rightarrow$	8	12	15	17	18	20

8

76

UNIT - V

5 (a) Find the extremals of functional

$$\int_0^{\pi/2} \left[(y'')^2 - (y)^2 + (x)^2 \right] dx;$$

given that $y(0) = 1,\ y'(0) = 0,$

$$y(\pi/2) = 0,\ y'(\pi/2) = -1$$

8

(b) Find the curve through two points (x_1, y_1) and (x_2, y_2) which when rotated about the x axis, gives minimum surface area.

8

OR

5 (a) Derive Euler's equation.

8

(b) Find the extremals of functional

$$\int_0^{\pi/2} \left[(y')^2 + (z')^2 + 2yz \right] dx;$$

given that $y(0) = 0, \quad y(\pi/2) = 1$

$z(0) = 0, \quad z(\pi/2) = -1$

8

4E2109

Roll No. : _____ Total Printed Pages : 4

4E2109

B. Tech. (Sem. IV) (Main & Back) Examination, June/July - 2013
Electrical Engg.
4EE1 Power Electronics - II

Time : 3 Hours] [Total Marks : 80
[Min. Passing Marks : 24

Attempt any five questions, selecting one question from each unit. All questions carry equal marks. Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly.

Units of quantities used/calculated must be stated clearly.

Use of following supporting material is permitted during examination. *(Mentioned in form No. 205)*

1. NIL 2. NIL

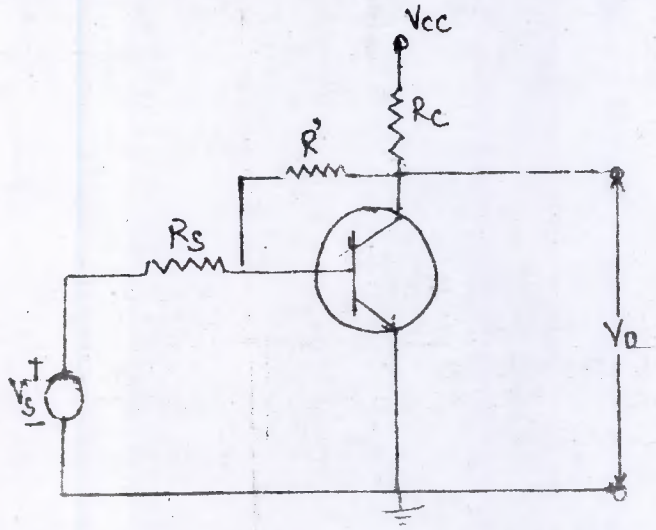
UNIT - I

1 (a) What do you mean by feedback in amplifiers ? Explain how negative feedback in an amplifier helps is reducing the distortion and noise. 8

(b) List five characteristics of an amplifier which are modified by negative feedback. Explain them in brief. 8

OR

1 (a) Identify the topology in the circuit. Prove that the voltage of the amplifier with feedback is given by $\frac{-R'}{R_S}$.



10

(b) Calculate the bandwidth input impedance and output impedance of a negative feedback amplifier.

6

UNIT - II

2 (a) Sketch the topology for a generalised resonent circuit oscillator, using impedance Z_1, Z_2, Z_3. At what frequency will the circuit oscillate ? Under what conditions does the configuration reduces to Hartley Oscillator ?

8

(b) What is Schmitt triggering ? Explain the working of a schmitt trigger with the help of a neat circuit diagram and waveform.

8

OR

2 (a) Explain the Barkhausen criterion for sustained oscillation. An RC phase shift oscillator is required to oscillate at 1 KHz. JFET used has gm=5mA/V and r_d=20k. If R=10K. find the value of

(i) Capacitance in RC network.

(ii) External load resistance R_D.

8

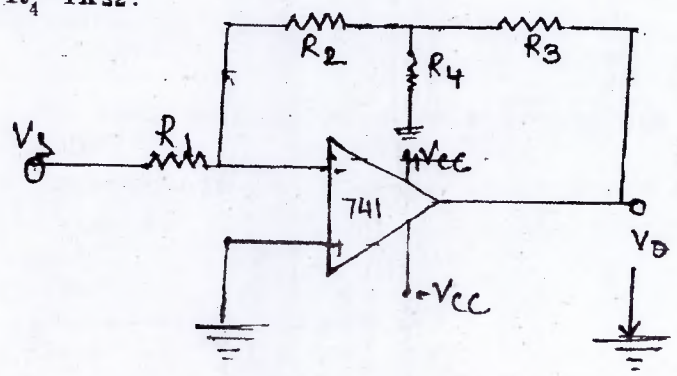
(b) Normally, crystal controlled oscillator are not available beyond 10 MHz, why ?

(c) Explain the working of BJT bistable multivibrator.

8

UNIT - III

3 (a) Find V_O/V_S for the circuit in figure. Use R_1=5Kl, R_2=R_3=20k Ω and R_4=1kΩ.



8

(b) Write short note on :

(i) Logarithmic amplifier using OP-AMP

(ii) Differentiator.

8

OR

3 (a) Define following parameters in brief :

(i) Slew Rate

(ii) CMRR

(iii) Input offset voltage

(iv) PSRR

(v) Input offset current drift.

8

(b) Explain the operation of Integrator using OP-AMP and also draw input and output waveform.

8

UNIT - IV

4 (a) Explain an monostable multivibrator using IC-555 with functional block diagram of IC.

8

(b) Connect IC-555 as astable multivibrator with following particulars R_A=R_B=7.5 KΩ, C=0.1 μF, $V_{CC} = 5V$. find output frequency.

8

OR

4 (a) Explain the 555 timer IC ? Explain the operation of monostable multivibrator using IC-555 timer.

8

(b) What is bleeder resistor ? Explain Bleeder Resistor Regulator with proper diagram.

8

UNIT - V

5 (a) In a class - B push - pull amplifier, prove that $P_{C\,max} = 4/\alpha^2 P\,max$.

(b) What is meant by cross-over distortion in class - B amplifier. Explain how it is overcome in class-AB amplifier operation ?

(c) Discuss the classification of amplifiers based on function, frequency, conduction angle, type of coupling and load.

16

OR

5 (a) Draw the schematic circuit diagram of series fed class-A amplifier and explain its working.

(b) A sinusoidal signal V_S=1.95 sin 400t is applied to a power amplifier the resulting current is i_o=12 sin 400t+1.2 sin 800t + 0.9 sin 1200t + 0.4 sin 1600t

Calculate :

(i) Total harmonic distortion.

(ii) The percentage increase in power.

because of distortion.

(c) Show the classification of power amplifier using output characteristics load line and operating point.

16

81

4E2110

Roll No. : _____ Total Printed Pages : 4

4E2110

B. Tech. (Sem. IV) (Main / Back) Examination, June/July - 2013
Electrical Engg.
4EE2 Digital Electronics

Time : 3 Hours] [Total Marks : 80
[Min. Passing Marks : 24

*Attempt any **five questions**. Selecting **one question** from **each unit**. All questions carry **equal** marks. Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly. Units of quantities used/calculated must be stated clearly.*

Use of following supporting material is permitted during examination.
(Mentioned in form No. 205)

1. NIL 2. NIL

UNIT - I

1 (a) Convert the following :

(i) $(36.625)_{10}=(?)_2$

(ii) $(1011011.10)_2=(?)_8$

(iii) $(2DE \cdot CA6)_{16}=(?)_{10}$

(iv) Convert the given BCD code (natural) in Excess-3 code.
100101110101

8

(b) Explain the following with suitable example.

(i) Sign Magnitude Representation

(ii) BCD arithmatic

8

OR

1 (a) Find the redix value if :
$(23)_r+(12)_r=(101)_r$

3

(b) Find using r's complement method.

$(BLA5)_{16}-(29DA)_{16}$

3

(c) Make notes on the following :

(i) Natural BCD and ASCII codes.

(ii) Error detecting and correcting codes.

10

UNIT - II

2 (a) Draw all logic gates with their truth tables. Generate X-OR gate with any one universal gate.

6

(b) Reduce the expression using mapping and implement if in universal logic.

$\Pi M(2,8,9,10,11,12,14)$

6

(c) Simplify the expression using boolean algebra.

$$\overline{\overline{A\bar{B}+ABC}+A\left(B+A\bar{B}\right)}$$

4

OR

2 (a) Simplify using K-map.

$f=\Sigma m(1,3,7,11,15)+d(0,2,5)$

5

(b) Explain De Morgan's law and Duality theorem.

5

(c) Explain following with example.

(i) SOP and POS form

(ii) Minterm and Maxterm

6

UNIT - III

3 (a) Draw and explain the circuit diagram of a TTL-NAND gate with totempole output. 8

(b) Define the following terms :
(i) Propagation Delay
(ii) Power Dissipation
(iii) Fanout
(iv) Noise Margin 8

OR

3 (a) Explain the working of CMOS-NAND and NOR gates. 8

(b) Explain the following briefly :
(i) RTL
(ii) ECL
(iii) FET as a switch
(iv) 3-state output logic 8

UNIT - IV

4 (a) Explain full subtractor in detail. Realize it with two half-subtractors. 8

(b) Explain 1:4 demultiplexer. Design 1:8 DEMOX using two 1:4 DEMOX. 8

OR

4 (a) Design a 4-bit parallel adder using full adders. 6

(b) Implement the following boolean function using 8:1 MUX.

$F(A,B,C) = \Sigma m(1,3,5,6)$ 6

(c) Describe encoders and decoders with suitable diagram. 4

84

UNIT - V

5 (a) Discuss Master-Slave PK-Flip Flop. Also realize PKFF using D-Flip Flop. 8

(b) Make a detailed note on counters. 8

OR

5 Make short notes on any four of the following :

(i) D-Flip Flop

(ii) P-Flip Flop

(iii) Shift Register

(iv) R-S latch

(v) Race around condition 16

29

4E2111

Roll No. : _____ Total Printed Pages : 3

4E2111

B. Tech. (Sem. IV) (Main / Back) Examination, June/July - 2013
4EE3
Electrical Engg. (Machines-II)

Time : 3 Hours] [Total Marks : 80
[Min. Passing Marks : 24

*Attempt any **five questions**. Selecting **one question** from **each unit**. All questions carry **equal** marks. Schematic diagrams must be shown wherever necessary. Any data you fell missing suitably be assumed and stated clearly. Units of quantities used/calculated must be stated clearly.*

Use of following supporting material is permitted during examination.
(Mentioned in form No. 205)

1. NIL 2. NIL

UNIT - I

1 (a) Explain the phenomena of general equation of inducted EMF in an Electrical Machines. 8

(b) By help of neat diagram explain concentric and distributed type winding in a Electrical Machine. 8

OR

1 (a) Explain Armature and field mmf in AC machines also explain its rotating fields. 8

(b) Describe effect of power factor and current on armature mmf in AC machine. 8

96

UNIT - II

2 (a) The starting and maximum torques of a 3ϕ induction moter moor are 1.5 times and 2.5 times its full load torque det the percentage change in rotor circuit resistance to obtain a full load slip of 0.03. Neglect stator impedance. 8

(b) Explain equivalent circuit diagram of induction motor, also explain its torque equation and torque-slip curves. 8

OR

2 (a) Explain a Double Cage induction motor. Explain Cogging and Crawling in induction motor. 8

(b) A746kW, 3ϕ, 50Hz, 16 pole induction motor has a rotor impedance of (0.02 + j0.15)Ω at stand still full load torque is obtained at 360 rpm calculate

(i) Ratio of max to full load torque

(ii) Speed for maximum torque

(iii) The rotor resistance to be added to get max. starting torque 8

UNIT - III

3 (a) Explain starting and speed control of a squirrel Cage Induction motor. 8

(b) Explain by help of neat diagram about Cascade connection in Induction motor. 8

OR

3 (a) Calculate the reduction in starting current and starting torque when the supply voltage to a cage rotor motor is 80 percent instead of 100 percent. 8

(b) Explain starting and braking method of slip ring motor. 8

UNIT - IV

4 (a) Explain Construction, excitation and principle system of Synchronous Generator. 8

(b) Describe phenomena OC and SC tests in Synchronous generator. 8

OR

4 (a) Explain zero power factor characteristics and concept of polier tiangle in Synchronous generator. 8

(b) Explain Synchronization and parallel operation in Synchronous generator. 8

UNIT - V

5 (a) Describe with help of principle, construction and phases diagram about a Synchronous motor. 8

(b) Explain the concept of Synchronous condenser and method of find and uses of V curves in Synchronous motor. 8

OR

5 (a) Explain Synchronous induction motor. 8

(b) Write short note on :

(i) Starting method of synchronous motor.

(ii) Power factor control of Synchronous motor. 8

70

4E2112

Roll No. : _____ Total Printed Pages : 3

4E2112

B. Tech. (Sem. IV) (Main / Back) Examination, June/July - 2013
Ele trical Engg.
4EE4 Computer Programming - Ii

Time : 3 Hours] [Total Marks : 80
[Min. Passing Marks : 24

*Attempt any **five questions**. Selecting **one question** from **each unit**. All questions carry **equal** marks. Schematic diagrams must be shown wherever necessary. Any data you fell missing suitably be assumed and stated clearly. Units of quantities used/calculated must be stated clearly.*

Use of following supporting material is permitted during examination.
(Mentioned in form No. 205)

1. NIL 2. NIL

UNIT - I

1 (a) What is the difference between "Cp" command and the "MV" command ? 8

(b) What is the use of having a command called "Sleep" ? and How will you terminate a job if it is running in the background ? 8

OR

1 (a) When should you use the quotations (single or double) within an echo statement ? and Write down two advantages of using the pipe "l" command ? 8

(b) What is the difference between "Comm", "Cmp" and "Uniq" ? and When should we use the "&" when issuing a command ? 8

71

UNIT - II

2 (a) Explain different modes of Vi editor. 8

(b) What are the different delete commands used in vi editor. ? 8

OR

2 (a) How to start and Quit Vi ? Explain it. 8

(b) Explain the colon commands in Vi. 8

UNIT - III

3 (a) C++ is an object oriented language older than Java, then why did Java replace C++ in most of the application development ? 8

(b) Explain the security model of Java that makes it more secured than other languages. 8

OR

3 (a) Why is Java known to be multithreading ? How does it help Java in its performance ? 8

(b) Explain the structure of a Java program. 8

UNIT - IV

4 (a) What is the differance between for, while and do while loops? 8

(b) What are shift operators ? How many types of shift operators are available in Java ? 8

OR

4 (a) What is precedence and how precedence and associativity are useful in expression evaluation ? 8

(b) Explain the following :

(i) Variable

(ii) Keywords in Java

(iii) Data types in Java

(iv) Break and continue. 8

UNIT - V

5 (a) What is an interface ? How is it different from an abstract class ? 8

(b) What are packages ? How are they created and used ? 8

OR

5 (a) Write a program to count the number of words and charactors in a string. 8

(b) Explain the difference between String and String Buffer. 8