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Seat No.	

S.E. (Electronics Engg.) (Part-II) (Semester - III) Examination, April- 2018

ELECTRONIC CIRCUIT ANALYSIS AND DESIGN - I

Sub. Code : 63436

Day and Date : Thursday, 26 - 4 - 2018 **Total Marks : 100**

Time : 2.30 p.m. to 5.30 p.m.

Instructions :
1) **All questions are compulsory.**
2) **Figures to the right indicates full marks.**
3) **Assume Suitable data if necessary.**
4) **Standard data sheet is allowed.**

SECTION-I

Q1) Attempt any three of the following: **[18]**

a) Draw neat circuit diagram of Bridge rectifier, derive an expression for:
   i) Ripple factor
   ii) Rectification Efficiency
   iii) Transformer Utilization Factor

b) Design a transistorized shunt regulator with the following specifications:
   $V_i = 20 \pm 20\%\ V$, $V_0 = 5\ V$, $I_L = 100\ mA$

c) Explain Voltage Tripler & Quadrupler circuits.

d) Explain the operation of L Section filter and derive expression for its ripple factor.

Q2) Attempt any Two of the following: **[16]**

a) Design a power supply using full wave rectifier with Capacitor filter to provide an output voltage of 8 V at 50 mA and the ripple factor of 0.02.

b) Explain low pass RC circuit as an integrator. A symmetrical square wave whose peak to peak amplitude is 2 V & whose average value is zero is applied to an RC integrating circuit. The time constant equals the half period of the square wave. Find the peak to peak value of the output amplitude.

c) Explain:
   i) Protection circuits for regulator.
   ii) Line Regulation & Load Regulation.

P.T.O.

Q3) Attempt any Two of the following: **[16]**

a) Design a series pass voltage regulator to provide output voltage of 15 V at 100 mA. The unregulated input is 25 V. Also calculate stability factor.

b) A Bridge rectifier is applied with input from a step down transformer having turns ratio of 10:1 and input 230 V, 50 Hz from mains supply. If each diode having forward resistance of 2Ω and the load resistance is of 2 KΩ, Determine:

i) DC Power output

ii) PIV across each diode

iii) Regulation efficiency

iv) % Regulation

c) Explain square & step response of RC high pass filter

SECTION-II

Q4) Attempt any Three of the following: **[18]**

a) Explain Voltage Divider biasing of a transistor.

b) Draw the high frequency hybrid-II model and explain the meaning of each component of a model.

c) Compare BJT and FET.

d) Write short note on bias compensation techniques.

Q5) Attempt any Two of the following: **[16]**

a) Design single stage RC coupled amplifier to give a voltage gain of 80 with stability factor better than 11 and output voltage of 3 Vrms using transistor BC 107 with h_{fe} = 110 and frequency range 100 Hz to 1 MHz.

b) Calculate coupling capacitor C_e required to provide a low frequency 3 dB point at 125 Hz if R_S= 600 Ω, h_{ie} = 800Ω, h_{fe} = 50, R_1 = 5 KΩ, R_2 = 1.5 KΩ for

i) Ideal bypass capacitor C_e

ii) Practical bypass capacitor C_e with R_{ee} = 15Ω

c) Draw h parameter model and define h parameters for CE, CB and CC configuration.

Q6) Attempt any Two of the following: **[16]**

a) Draw approximate short circuit high frequency model. Derive expression for unity gain bandwidth product (f_T) in terms of gm and $C_{b'e}$.

b) Draw the circuit diagram of a fixed bias and self bias circuits and derive the expressions for the stability factors.

c) Differentiate between enhanced and depletion type MOSFET.

Seat No.	

S.E. (Electronics) (Semester - III) Examination, April -2018
ANALOG COMMUNICATION
Sub. Code : 63437

Day and Date : Friday, 27 - 04 - 2018 **Total Marks : 100**
Time : 2.30 p.m to 5.30 p.m.

Instructions :
1) **All questions are compulsory.**
2) **Figures to the right indicate full marks.**
3) **Assume suitable data wherever necessary.**

SECTION - I

Q1) Solve any three. **[18]**

a) What is trapezoidal pattern. Sketch the pattern for
   i) $M < 1$
   ii) $M = 1$
   iii) Improper phase relationship
   iv) Asymmetrical modulation.

b) With a neat block diagram explain high level modulated Am transmitter.

c) Explain the following terms.
   i) sensitivity
   ii) selectivity
   iii) fidelity.

d) For frequency modulation define following.
   i) Modulation index
   ii) Frequency deviation
   iii) Percentage modulation.

e) Describe filter method for SSB generation.

P.T.O.

Q2) Solve any Two. **[16]**

a) An AM wave is specified as follows:

V_c(peak) = 120V, V_m(Peak) = 60V, f_c = 120 MHz, f_m = 0.1 MHz & $R_L = 60\,\Omega$.

Determine

i) Modulation index

ii) LSF

iii) USF

iv) Bandwidth

v) Carrier Power

vi) Total Power

vii) USB Power

viii) LSB Power

b) Draw and explain a reactance modulator.

c) Draw & explain a simple diode detector and also comment on its distortions.

Q3) Solve any Two. **[16]**

a) Draw a balanced modulator and explain how it is used to suppress the carrier.

b) Discuss about the frequency spectrum and Bandwidth of FM wave using Bassel function.

c) Draw a superheterodyne receiver and explain how a constant If is obtained.

SECTION - II

Q4) Solve any three. **[18]**

a) What is the principle used in turned circuit frequency discriminator? Explain

b) What is time division multiplexing? Explain.

c) Draw a pulse amplitude modulator cricuit and explain.

d) Explain the following terms related to antenna.

i) radiation pattern

ii) Beam width

iii) Gain.

e) Two resistors 20 kΩ and 50kΩ are at room temperature of 290°K. Determine the thermal noise for bandwidth of 100KHz. for

i) each resistor

ii) For two resistors in series

iii) For two resistors in parallel.

Q5) Solve any Two. [16]

a) Draw a neat block diagram and explain FM receiver.

b) What is sampling theorem? Explain different sampling techniques used in pulse amplitude modulation.

c) What is a spacewave propagation? Explain.

Q6) Solve any Two. [16]

a) Explain how a FM signal is demodulated using a Ratio detector.

b) With neat waveforms explain the generation of pulse position modulation.

c) What is internal noise? Explain.

♦ ♦ ♦

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S.E. (Electronics) (Semester - III) Examination, April - 2018

NETWORK ANALYSIS

Sub. Code: 63438

Day and Date : Saturday, 28 - 04 - 2018 **Total Marks : 100**

Time : 02.30 p.m. to 5.30 p.m.

Instructions : 1) **All questions are compulsory**

2) **Figures to the Right indicate full marks.**

3) **Assume suitable data if necessary.**

SECTION - I

Q1) Attempt any two : **[16]**

a) Draw the oriented graph of the circuit given in figure 1. Form the Incidence Matrix for the given circuit.

b) Find the current flowing through the 10Ω resistance using Node Voltage Analysis technique in figure 1.

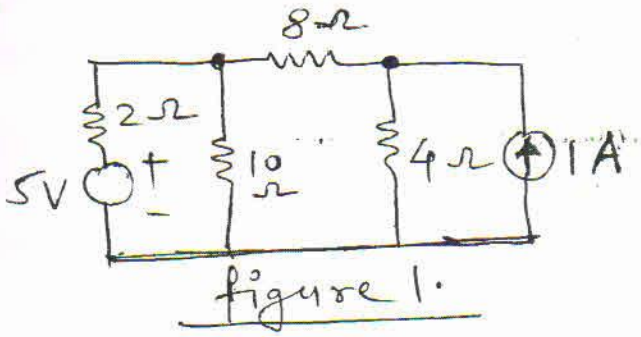


figure 1.

c) Derive equations for Star to Delta Transformation and Delta to Star Transformation in case of a resistive circuit.

Q2) Attempt any two : **[16]**

a) Derive the condition for Maximum Power Transfer in a resistive circuit.

P.T.O.

b) Find the current flowing through the 10Ω resistance by the application of Thevenin's Theorem in figure 2.

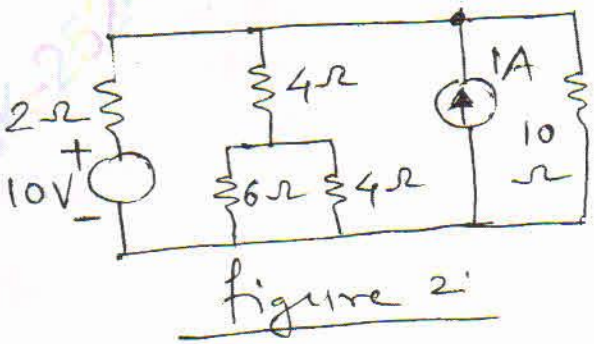


figure 2.

c) Find the current flowing through the 10Ω resistance using Millman's Theorem for the given circuit in figure 2.

Q3) Attempt any three : **[18]**

a) Find the equivalent parameters in case of two, two port networks connected in Series.

b) Derive the ABCD parameters in terms of Z parameters.

c) Derive the Z parameters of a symmetrical T network.

d) Find the Y parameters for the circuit given in figure 3.

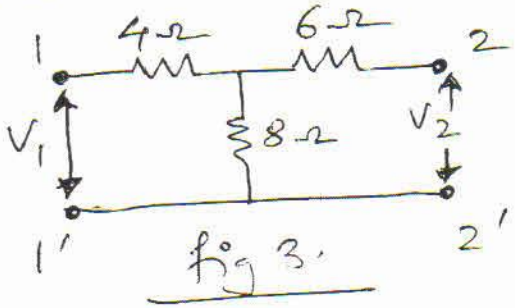


fig 3.

SECTION - II

Q4) Solve any two : **[2 × 8 = 16]**

a) Derive the equations for frequencies where the voltage across capacitor and inductor in series RLC circuit is maximum.

b) Design constant-k low pass filter (T & π sections) having cutoff frequency of 2 KHz and design impedance of 500Ω.

c) A 220 V, 100 Hz AC source supplies RLC circuit with capacitor and coil. If the coil has 50 mΩ resistance and 5 mH inductance, find at resonance frequency of 100 Hz, what is the value of capacitor? Also calculate Q factor and half power frequencies.

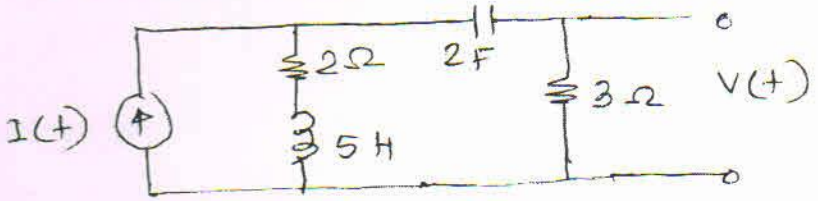
Q5) Solve any two : **[2 × 8 = 16]**

a) Design m-derived band pass filter for given specifications (T-section only). Pass band range : 1 KHz to 3 KHz, Design impedance : 100 Ω

Frequency of infinite attenuation : 0.9 KHz and 3.1 KHz.

b) Explain in detail the concept of complex frequency.

c) Find the transfer function V(S)/I(S) for given network.



Q6) Solve any three : **[3 × 6 = 18]**

a) Derive the design equation for symmetrical π attenuator.

b) Explain the restriction on poles and zeros for driving point functions.

c) Draw the pole zero diagram for given function v(s) and obtain v(t).

$$V(S)=\frac{10s}{(s+3)(s+2)}$$

d) What is equalizer? Explain series equalizer in detail.

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Total No. of Pages : 2

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S.E. (Electronics) (Semester - IV) Examination, May - 2018
LINEAR INTEGRATED CIRCUITS
Sub. Code : 63440

Day and Date : Friday, 04 - 05 - 2018 **Total Marks : 100**

Time : 10.00 a.m. to 1.00 p.m.

Instructions : 1) **All the questions are compulsory.**
2) **Assume suitable data if necessary.**

SECTION-I

Q1) Solve any three of the following : **[3×6=18]**

a) Explain difference between Voltage follower circuit and Inverter circuit using op-amp.

b) Why the need of constant current mirror source? Explain the principle of operation of current mirror circuit?

c) State and explain the characteristics of an ideal and practical op-amp.

d) Explain the following terms with respect to Op-amp :

i) CMRR

ii) Input Offset Voltage

Q2) Solve any two of the following : **[2×8=16]**

a) Explain in brief what is thermal drift?

b) Prove that offset minimizing resistor (R_{om}) is generally parallel combination of Input resistor (R1) & Feedback Resistor (R_f).

c) Draw neat circuit diagram for inverting and non inverting amplifier. Also derive expression for its gain.

P.T.O.

Q3) Solve any two of the following : **[2×8=16]**

a) Derive and explain DC Analysis of Dual Input Balanced Output Configuration differential Amplifier.

b) Derive closed loop voltage gain for Non-inverting amplifier with feedback.

c) Explain slew rate with its causes. Also derive an expression for the same.

SECTION-II

Q4) Solve any three of the following : **[3×6=18]**

a) Explain Precision rectifier with neat circuit diagram.

b) Draw and explain the I-V Converter.

c) What is Phase Lock Loop (PLL) and explain function of each block.

d) With help of neat circuit diagram explain the summing amplifier.

Q5) Solve any two of the following : **[2×8=16]**

a) With help of neat circuit diagram explain the operation of RC Phase Shift oscillator. Derive an expression for output frequency.

b) What is second order Low pass filter? Explain its operation and draw its frequency response.

c) Draw and explain triangular wave Generator.

Q6) Solve any two of the following : **[2×8=16]**

a) With the help of neat circuit diagram explain F-V Converter.

b) With neat circuit diagram derive and explain operation of Instrumentation amplifier using Transducer Bridge.

c) Explain application of open loop configuration of op-amp.

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S.E. (Electronics Engg.) (Part - II) (Semester - IV) (Revised) Examination, May - 2018

ELECTRONICS CIRCUIT ANALYSIS & DESIGN - II

Sub. Code: 63441

Day and Date : Monday, 07 - 05 - 2018 **Total Marks : 100**

Time :10.00 a.m. to 1.00 p.m.

Instructions :

1) **All questions are compulsory.**
2) **Figures to the right indicate full marks.**
3) **Assume suitable data if necessary.**
4) **Std. Data sheet is allowed.**

SECTION-I

Q1) Attempt any Three of the following: **[18]**

a) What is negative feedback? With a help of block schematic, derive an expression for gain after feedback (Av_F). State its advantags.

b) A Complementary push pull amplifier is operated with supply voltage Vcc = ± 10 V and delivers a power to load $R_L = 5\Omega$.

Calculate:

i) Maximum AC Power output ($P_{ac\,(max)}$)

ii) DC Power Input (P_{dc})

iii) % Efficiency

c) The emitter follower circuit has Rs = 620 Ω, R_L = 2.7 KΩ, hfe = 120, hie = 4.5 KΩ, Calculate Ai, Ri, Av, Ro & Rof.

d) Prove that the maximum conversion efficiency (η) of transformer coupled class A power amplifier is 50%.

P.T.O.

Q2) Attempt any Two of the following: **[16]**

a) Design a two stage Voltage series feedback amplifier to provide the following specifications: V_{CC} = 12 V, $A_{VF} \geq 100$, V_O = 5 V(p-p)), R_S = 330 Ω, R_L = 2 KΩ, f = 20 Hz - 20 kHz.

Use transistor BC147 with: $PD_{(Max)}$ = 250 m W, V_{CE} = 45 V, IC_{Max} = 100 m A, $hf_{e(min)}$=100, hie = 2.7 KΩ.

b) What is harmonic distortion? State its cause. Derive an expression for the second order harmonic distortion using three point method.

c) Design a bootstrapped emitter follower circuit to provide the following specifications: Input impedance (Ri) = 470 KΩ, Lower 3 dB frequency = 50 Hz, Vo = 3 V (P-P) Load resistance R_L = 4.7 KΩ, Source Resistance (Rs) = 620 Ω.

OR

c) Draw a neat block schematic of Current Series Feedback. Derive an expression for input impedance (Ri_f), Output impedance (Ro_f) and Voltage gain (gm_f).

Q3) Attempt any Two of the following: **[16]**

a) Design a direct coupled amplifier which uses identical transistors with the following specifications as: V_{CC} = 15 V, $V_{O\,P\text{-}P}$ = 9V, R_L = 5.6 KΩ, f_0 = 50 Hz and stability factor (S) = 5. Calculate individual and overall gain.

Use transistor BC147 with: $PD_{(Max)}$ = 250 m W, V_{CE} = 45 V, IC_{Max} = 100 m A, $hf_{e(Min)}$ = 100, hie = 2.7 KΩ.

b) What is Class B power amplifier? Explain the operation of Class B push pull amplifier with suitable waveforms. State its merits and demerits.

c) i) Explain how bootstrapping technique is helps to increase the input impedance.

ii) An amplifier has a gain of 150 and pass band from 100 Hz to 100 KHz. If 5% of output voltage is feedback, determine the voltage gain after feedback and cut off frequencies.

SECTION-II

Q4) Attempt any Three of the following: **[18]**

a) Design a Collector coupled astable multivibrator for the frequency of 1 KHz to give output voltage of 5 V.

Use transistor BC 547 with: $PD_{(max)}$ = 500 m W, V_{CE} = 45 V, $IC_{(max)}$ = 100 m A, $hfe_{(min)}$ = 200.

b) Explain the operation of Step down switch mode power supply with suitable waveforms.

c) Explain the operation of fixed bias bistable multivibrator. Derive equations for stable state currents & voltages of On & Off transistor.

d) Derive an expression for frequency of oscillation (f) and minimum gain requried for sustained oscillation in Wien bridge oscillator.

Q5) Attempt any Two of the following: **[16]**

a) Design a Schmitt Trigger using BJT with the following specifications:

UTP = 1.5 V, LTP = 1 V, V_{CC} = 9V, $I_{C\,(Sat)}$ = 5 m A, h_{fe} = 50, $V_{BE\,(Sat)}$ = 0.7 V. $V_{CE\,(Sat)}$ = 0.3 V.

b) Design a transistorized Hartley oscillator for the following specifications:

V_0 = 3 V rms, Output Frequency (f_0) = 10 MHz, AV = 25.

Use transistor BC 147 B with: $PD_{Max)}$ = 250 m W, V_{CE} = 45 V, $IC_{(Max)}$ = 200 mA, $h_{fe\ typical}$ = 330, h_{ie} = 4.5 KΩ.

c) Draw the neat circuit diagram of collector coupled Monostable Multivibrator. Explain its operation with suitable waveforms. Derive an expression for Pulse width 'T'.

Q6) Attempt any Two of the following: **[16]**

a) Design an phase advancing phase shift oscillator for the following specifications: Frequency of oscillation (f) = 2 KHz, Peak to Peak output amplitude ($V_{0\,(P\text{-}P)}$) = 5 V and Supply Voltage (V_{CC}) = 10 V.

b) The Self biased symmetrical bistable multivibrator has the following data:

R_C = 4.3 KΩ, R_E = 330Ω, R_1 = 20 KΩ, R_2 = 10KΩ, V_{CC} = 15 V, $V_{BE(Sat)}$ = 0.8 V, $V_{CE(Sat)}$ =0.4 V & zero base to emitter voltage for cut off.

Determine:

i) Stable state currents & Voltages.

ii) Minimum h_{fe} required.

c) Write a short note on:

i) Crystal oscillator.

ii) Switching regulator LM3524.

EEE

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Total No. of Pages : 3

Seat No.	

S.E. (Electronics Engineering) (Semester - IV) Examination, May - 2018

CONTROL SYSTEM ENGINEERING

Sub. Code : 63444

Day and Date : Wednesday, 16- 5 - 2018 **Total Marks :100**

Time : 10.00 a.m. to 1.00 p.m.

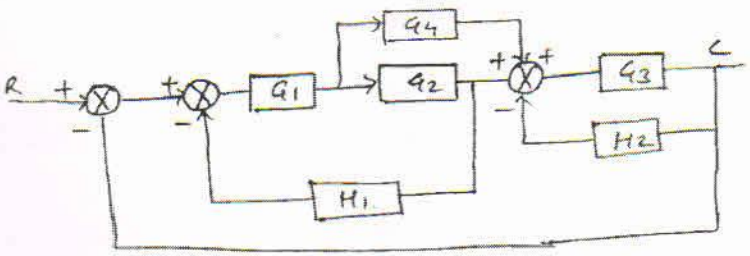
Instructions :
1) **All questions are compulsory.**
2) **Figures to the right indicate full marks.**
3) **Assume suitable data wherever necessary.**
4) **Use of graph papers are allowed.**
5) **Use of scientific calcualator is allowed.**

SECTION - I

Q1) Solve any two. **[16]**

a) Explain mathematical modelling of Mass, Spring, and Damper.

b) Find overall transfer function of following figure using block diagram reduction technique.



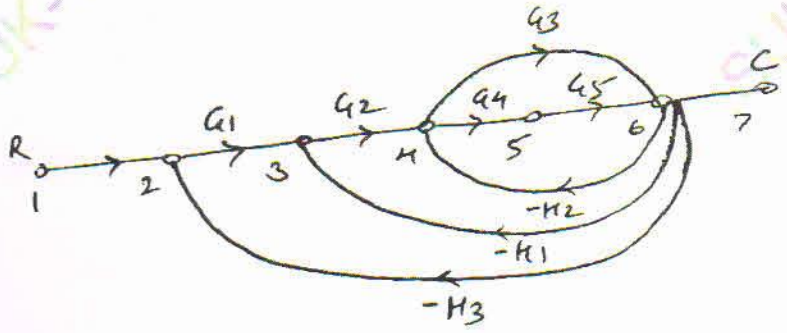
c) Explain Routh criterion for stability which are difficulties arises in the Routh's criterion. Explain how it overcomes.

P.T.O.

Q2) Sovle any Two. **[16]**

a) Explain control of effect of disturbance signals by use of feedback.

b) Determine overall transfer function. Use Masons Gain Formula.



c) Draw the time response of second order system for unit step input for underdamped case and derive expression for it.

Q3) Solve any two: **[18]**

a) Explain steady state error and error constants.

b) The open loop transfer function is G(S) = K/S(S+1)(S+3), Sketch the root locus of the system.

c) Define time domain specifications and derive expressions for any two.

SECTION - II

Q4) Solve any two. **[16]**

a) Explain frequency domain specification.

b) Sketch the Bode plot for G(s) = 1/S(S+3) and Determine Gain Margin and Phase Margin.

c) Explain effect of addition of poles and zeros on Bode plot.

Q5) Solve any two. **[16]**

a) Explain concept of state, state variable and state model.

b) Check for controllability and observability.

$$\begin{bmatrix} x_1 \\ x_2 \end{bmatrix} = \begin{bmatrix} 1 & 0 \\ 0 & -2 \end{bmatrix} \begin{bmatrix} x_1 \\ x_2 \end{bmatrix} + \begin{bmatrix} 0 \\ 1 \end{bmatrix} U$$

$$y(t) = \begin{bmatrix} 1 & 2 \end{bmatrix} \begin{bmatrix} x_1 \\ x_2 \end{bmatrix}$$

c) Derive the equation for transfer function from state model for continuous time system.

Q6) Sovle any three. **[18]**

a) lead - lag compensator.

b) PID Controller

c) Nyquist Stability Criterion

d) Polar Plot

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Total No. of Pages : 2

Seat No.	

S.E. (Electronics Engineering) (Part-II) (Semester - IV) Examination, May - 2018

DIGITAL SYSTEM AND MICROPROCESSOR - IV (Revised)

Sub. Code : 63443

Day and Date : Monday, 14 - 05 - 2018 **Total Marks : 100**

Time : 10.00 a.m. to 01.00 p.m.

Instructions : 1) **Figure to the right Indicates full Marks.**

2) **Assume suitable data wherever necessary.**

SECTION - I

Q1) Write any three [18]

a) Design full adder using IC 74138(3:8 line decoder).

b) Explain Flip-Flop Operating Characterstics.

i) Propogation delay time.

ii) Set up time.

iii) Hold time.

c) Explain Mater Slave J-K Flip-Flop.

d) Convert J-K Flip-Flop to T Flip-Flop.

Q2) Solve any two. [16]

a) Design an even parity generator for a 4 bit input.

b) Reduce Using mapping the expression $f = \Sigma m(1,2,3,5,7,8,9,10,12,13)$ and implement the real minimal expression in universal form.

c) Explain Twisted Ring Counter (Johnson Counter).

P.T.O

Q3) Solve any two. [16]

a) Design Mod-6 Synchronous counter using J-K Flip Flop.

b) Draw the logic digatram & explain

i) 4 bit serial in serial out shift register

ii) 4 bit parallel in parallel out shift register.

c) Derive Characteristics equation for all flip-flops.

SECTION - II

Q4) Answer any two of the following [2 × 8 = 16]

a) Draw and Explain Machine Cycle of instruction STA C200H.

b) Explain addressing modes of 8085 with example.

c) Interface DAC 0808 to 8085 using 8255 and write a program to generate Triangular waveform.

Q5) Answer any two of the following [2 × 8 = 16]

a) Write a program for exchanging ten bytes stored at B000h to A000h.

b) Explain arithmetic & logical operations of 8085.

c) What happens when RET instruction is executed in 8085? Explain with state diagram

Q6) Write short notes on ony three of the following [3 × 6 = 18]

a) Stack instructions in 8085

b) Mode 0 of 8255

c) I/O Mapped I/O vs Memory mapped I/O

d) DMA Controller

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Total No. of Pages : 2

Seat No.	

S.E. (Electronics) (Semester - III) (Revised) Examination, April - 2018

ELECTRONICS MEASUREMENT AND INSTRUMENTATION

Sub. Code : 63435

Day and Date : Wednesday, 25- 4 - 2018 **Total Marks : 100**

Time : 2.30 p.m. to 5.30 p.m.

Instructions : **1)** **All questions are compulsory.**
2) **Figures to the right indicate full marks.**

SECTION - I

Q1) Attempt any two of the following: **[16]**

a) Draw block diagram of measuring system and explain each block in detail.

b) Explain the principle of a successive approximation type DVM.

c) Draw and explain block diagram of cathode ray oscilloscope.

Q2) Attempt any two of the following: **[16]**

a) Draw and explain pulse and square wave generator.

b) Explain the working of Spectrum Analyzer.

c) Explain general classes of errors occurring in measuring system.

Q3) Write short note on any three of the following: **[18]**

a) CRO probes.

b) Fourier analyzer.

c) AF Generators.

d) Digital frequency meter.

P.T.O.

SECTION - II

Q4) Attempt Any Two of the following: **[16]**

a) What is basic principle of strain Gauge?Explain construction of strain Gauge.

b) Derive Bridge Balance condition for Hays Bridge.State advantages.

c) Draw the block diagram and explain single slope A/D Converter.

Q5) Attempt Any Two of the following: - **[16]**

a) What is piezoelectric effect?explain the working of piezoelectric transducer.

b) What are objectives of DAS ?Explain multichannel DAS with neat block diagram.

c) Explain Andorsens Bridge.

Q6) Write short notes on (Any three) **[18]**

a) wheatstones Bridge

b) Cold junction compensation

c) Sample and hold circuit

d) Selection criterion of Transducer

x x x

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Seat No.	

Total No. of Pages : 2

S.E. (Electronics Engineering) (Semester -IV) Examination, May - 2018
DATA STRUCTURE & ALGORITHM
Sub. Code : 63442

Day and Date : Friday, 11 - 05 - 2018 **Total Marks : 100**

Time : 10.00 a.m. to 01.00 p.m.

Instructions: 1) **Question one is compulsory.**
2) **Figures to the right indicate full marks.**

SECTION - I

Q1) Attempt any two: **[2×8=16]**

a) Write a algorithm for binary search method with example also write a program.

b) Define recursion. Write a algorithm to find factorial of given number.

c) What is record? How record will represent by structure?

Q2) Attempt any two: **[2×8=16]**

a) What is circular queue? Write a algorithm to add and remove item from circular queue.

b) Write a algorithm for transforming infix expression into postfix expression using suitable example.

c) Explain following operation on singly link list.

i) Insertion as first node

ii) Deletion of first node

iii) Searching node from given link list.

iv) Display nodes of link list.

P.T.O.

Q3) Write short note (any three) **[3×6=18]**

a) Insertion sort

b) Circular link list

c) Sparse Matrix

d) Single and multidimensional array

SECTION - II

Q4) Attempt any two: **[2×8=16]**

a) What is graph? Explain link list representation of graph.

b) Write a different type of tree. Explain post order traversal of binary tree with algorithm & example.

c) Explain DFS algorithm with example.

Q5) Attempt any two: **[2×8=16]**

a) What is hashing? Explain different hash functions.

b) Write warshall's algorithm with an example.

c) Explain Binary search tree. Draw BST for following sequence.
150,30,180,100,10,25,220,170,8,200

Q6) Write short note (any three) **[3×6=18]**

a) Chaining

b) Rehashing

c) Multiway tree

d) Application of graph

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Seat No. 07491

Total No. of Pages : 4

B.Sc., B.Sc. (Biotech), B.Sc. (Sugar Tech.), B.Sc. (I.T.), B.Sc. (Animation Science), B.Sc. (Forensic Science), B.Sc. (Food Processing), B.C.A., B.B.A., Law, B. Tech., B.Sc. (Nano Science), B.I.D., B.F.T.M.,B. Desh., B.D.F.C., B.C.S., B.Form, S.E.,B. Architecture, B. Textiles, B.M.M.,B.Voc. (All Degree) (Semester - IV) Examination, May - 2018

ENVIRONMENTAL STUDIES (New) (Compulsory)

Day and Date : Sunday, 20 - 05 - 2018 **Total Marks : 70**

Time : 11.00 a.m. to 02.00 p.m.

Instructions : 1) **All questions are compulsory.**
2) **Figures to the right indicate full marks.**

Q1) Select correct answer from the given alternatives. [10]

i) Ozone in the atmosphere is present in the layer _____ .
   a) Stratosphere b) Troposphere
   c) Thermosphere d) Inosphere

ii) Maharashtra has large mineral deposits of _____.
   a) Mica b) Iron
   c) Bauxite d) Gold

iii) Following is a man-made disaster.
   a) Rain b) Cyclone
   c) Nuclear hozard d) Drought

iv) Environmental day is celebrated on _____.
   a) 15 August b) 5 June
   c) 22 April d) 16 September

v) Air pollution (preventation and control) Act in India was enacted in the year.
   a) 1972 b) 1986
   c) 1989 d) 1981

vi) Following is Ex-situ biodiversity conservation method.
   a) National Park b) Seed bank
   c) Biosphere reserve d) None of the above

vii) Following is non-renewable resource.
   a) Wind b) Water
   c) Sunlight d) Petroleum

P.T.O.

viii) Following gas is responsible for acid rain.

a) CFC b) CO

c) SO_2 d) H_2S

ix) Noise pollution is measured by

a) Hertz b) Dynes

c) Joules d) Decibel

x) The disposing method for biomedical waste is

a) Incineration b) Vermicomposting

c) Landfilling d) Composting

Q2) Answer any three of the following. **[15]**

a) What are various method for controlling the growing population in our country?

b) Define food chain. Explain the types of food chain with suitable examples.

c) Give an account of consumerism in relation to environment.

d) Give disaster management of earthquake.

e) Discuss the causes of deforestation.

Q3) Write short notes on any three. **[15]**

a) Mining

b) Water pollution

c) In-situ conservation

d) Global Warming

e) Human right

f) Environmental Ethics

Q4) Discuss the concept and importances of environmental studies related to public awareness. **[10]**

OR

What are natural resources? Give the type of natural resources. Discuss forest as a resource.

Q5) Give formation and environmental impact of acid rain and Ozone depletion. **[10]**

OR

Give salient features of wildlife protection Act of India.

Q6) What are the steps taken for water conservation. Discuss rain water harvesting techniques. **[10]**

OR

Explain the concept of ecosystem & discuss energy flow in it?

मराठी रूपांतर

सूचना : 1) सर्व प्रश्न लिहणे गरजेचे आहेत.
2) प्रश्नांच्या उजवीकडील संख्या पूर्ण गुण दर्शवितात.

प्र.1) खालीलपैकी योग्य पर्याय निवडा. [10]

i) ओझोनचा थर वातावरणातील कोणत्या थरात असतो.
अ) स्ट्रॅटोस्फिअर ब) ट्रोपोस्फिअर
क) थर्मोस्फिअर ड) आयनोस्फिअर

ii) महाराष्ट्रात मोठ्या प्रमाणात कोणते खनिज सापडते.
अ) मायका ब) लोह
क) बॉक्साइट ड) सोने

iii) खालीलपैकी कोणती आपत्ती मानवनिर्मित आहे.
अ) पाऊस ब) वादळ
क) आण्विक ड) दुष्काळ

iv) पर्यावरण दिवस कोणत्या दिवशी साजरा केला जातो.
अ) 15 ऑगस्ट ब) 5 जून
क) 22 एप्रिल ड) 16 सप्टेंबर

v) भारतात हवा प्रदूषण (नियंत्रण व प्रतिबंध) कायदा कोणत्या साली समत झाला.
अ) 1972 ब) 1986
क) 1989 ड) 1981

vi) खालीलपैकी कोणती जैवविधतेची संकल्पना परस्थानी संवर्धन पध्दतीमध्ये येते.
अ) राष्ट्रीय उदयाने ब) सीड बँक
क) जैवविधतेचे आरक्षित प्रदेश ड) यापैकी नाही

vii) खालीलपैकी कोणते संसाधन अपुर्ननिर्मितिक्षम आहे.
अ) वारा ब) जल
क) सूर्यप्रकाश ड) पेट्रोलियम

viii) आम्लपर्जन्यासाठी कोणता वायू कारणीभूत ठरतो.
अ) CFC ब) CO
क) SO_2 ड) H_2S

ix) ध्वनीप्रदूषण मोजण्याचे एकक कोणते ?
अ) हर्टस ब) डाईन्स
क) ज्युल्स ड) डेसीबल

x) जैविक वैद्यकीय कचऱ्याची विल्हेवाट लावण्यासाठी कोणती प्रक्रिया केली जाते?

अ) इंसिनरेशन ब) गांडुळखत

क) जमीनभरण ड) कंपोस्ट

प्र.2) खालीलपैकी कोणत्याही तीन प्रश्नांची उत्तरे लिहा. [15]

अ) देशात वाढणारी लोकसंख्या नियंत्रित करण्यासाठी कोणते उपाय योजले जातात?

ब) अन्नसाखळीची व्याख्या सांगा. अन्नसाखळीचे प्रकार सोदाहरण स्पष्ट करा.

क) पर्यावरणाच्या दृष्टीकोणातून चंगळवाद संकल्पना स्पष्ट करा.

ड) भूकंपाचे आपत्ती व्यवस्थापन सांगा.

इ) जंगलतोडीची कारणे या विषयी चर्चा करा.

प्र.3) खालीलपैकी कोणत्याही तीन टिपा लिहा. [15]

अ) खाणकाम

ब) जलप्रदूषण

क) मूळस्थानी संवर्धन

ड) वैश्विक तापमान

इ) मानवी हक्क

फ) पर्यावरणीय नितीमुल्ये

प्र.4) जनजागृती संदर्भात पर्यावरण अभ्यासाची संकल्पना व महत्त्व स्पष्ट करा. [10]

किंवा

नैसर्गिक साधनसंपत्ती म्हणजे काय? नैसर्गिक साधनसंपत्तीचे प्रकार सांगा. जंगल एक संसाधन चर्चा करा.

प्र.5) आम्लपर्जन्य व ओझोन क्षयाची निर्मिती व त्याचे पर्यावरणीय दुष्परिणाम सांगा. [10]

किंवा

भारतातील वन्य जीव संवर्धन कायदयातील प्रमुख तरतुदी सांगा.

प्र.6) जलसंवर्धनाचे उपाय कोणते? पावसाच्या पाण्याचे संकलन करण्याची पध्दती स्पष्ट करा. [10]

किंवा

परिसंस्थेची संकल्पना स्पष्ट करून त्यातील ऊर्जावहनाविषयी चर्चा करा.

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