

Total No. of Printed Pages:4

SUBJECT CODE NO:- E-38
FACULTY OF ENGINEERING AND TECHNOLOGY
S.E.(EC/ECT/IEC/E&C) Examination Nov/Dec 2017
Signals & Systems
(OLD)

[Time: 3 Hours]

[Max.Marks:80]

Please check whether you have got the right question paper.

N.B

- 1) Q.No.1 and Q.No.6 are compulsory.
- 2) Attempt any two question from Q.2 to Q.5 and Q.7 to Q.10
- 3) Assume suitable data if necessary.

Section A

- Q.1 Attempt any five. 10
- a) What is fundamental time period of $x(n)=\cos\frac{2\pi n}{5} + \cos\frac{2\pi n}{7}$
 - b) “Energy of power signal is ∞ (Infinity)” prove it.
 - c) State sampling theorem.
 - d) Define mathematical tool to convert time domain signal to frequency domain signal.
 - e) Give the examples of Deterministic & random signal.
 - f) Define with example causal system.
- Q.2 i. Determine whether the following signals are periodic / non-periodic. 08
- a) $\cos 0.01 \pi n$
 - b) $\cos\left(\frac{2\pi n}{5}\right) + \cos\left(\frac{2\pi n}{7}\right)$
 - c) $\sin(\pi + 0.2n)$
 - d) $\cos\left(\frac{n}{8}\right).\cos\left(\frac{n\pi}{8}\right)$

2017

- ii. A Unit rectangular function is as – $\text{rect}(t)=1$ for $|t| \leq \frac{1}{2}$ 07
 $=0$ for $|t| > \frac{1}{2}$

Plot a) $\text{rect}(t)$

b) $3\text{rect}\left(\frac{t+1}{4}\right)$

c) $-4\text{rect}(-t)$

Q.3 a) For the following systems. 08

- i) $y(t)=x(t).\cos wt$
- ii) $T[x(n)] = ax(n) + b$
- iii) $y(t) = x(t^2)$
- iv) $y(n) = \sum_{k=0}^2 x(n - k)$

Check whether the system is Linear/ Non-linear.

- b) Obtain convolution sum 07
- i. $x(n)=\{1,1,0,1,1\}$ & $h(n) = \{1, -2, -3,4\}$
 - ii. $x(n)=\{1,2,1,2\}$ & $h(n) = u(n)$

Q.4 a) Find output of LTI system to unit step Input signal having impulse response is 07
 $h(t)=\frac{R}{L} .e^{-t \frac{R}{L}} .u(t)$ for all 't'.

- b) Draw the mathematical & Graphical representation of 08
- i) Signum function
 - ii) Sinc function
 - iii) Exponential signal
 - iv) Cosine signal

Q.5 a) Obtain convolution of 10

$$\left. \begin{aligned} \alpha(t) &= e^{-t^2} \\ &\& \\ h(t) &= 3t^2 \end{aligned} \right\} \text{ for all 't'}$$

b) Explain polar Fourier series. 05

Section B

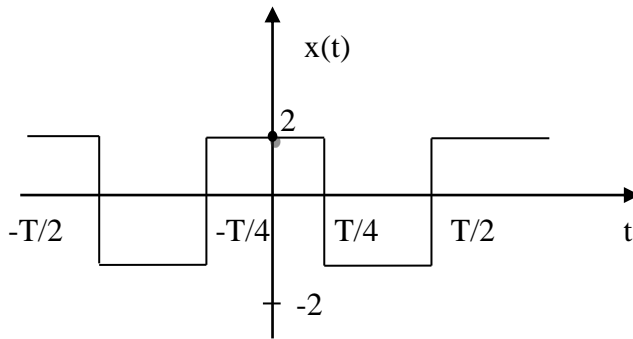
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Q.6 Attempt any five.

- a) Prove that cross correlation is not commutative.
- b) What is need of Fourier transform?
- c) Give formula to identify auto correlation.
- d) Define Fourier series. Explain its types.
- e) What is correlogram of two similar signals? Draw & explain.
- f) Define mathematically Energy & power.

Q.7 a) Obtain trigonometric Fourier series for following signal.

07



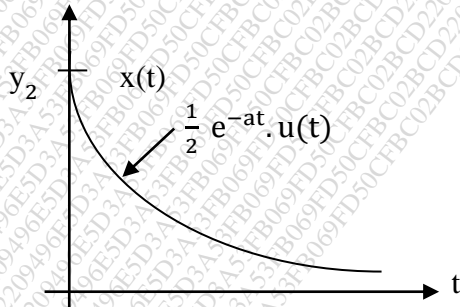
b) Draw correlogram of $y(t)=A \cos (2 \pi Ft)$

08

Q.8 a) Explain the properties of Autocorrelation for energy & power signal.

07

b) For decaying exponential signal given below, find percentage of total energy obtained inside the frequency band. $-w \leq f \leq w$ where $w=a/2 \pi$



Q.9 a) Using properties of auto correlation, find power of $x (t) =\sin w t$.

08

b) “For energy signal, ESD and Autocorrelation forms Fourier transform pair”. Prove it.

07

Q.10 a) Explain “When power signal $x(t)$ is applied to LTI system, find the value of PSD of O/P Signal”. 10

b) Write a short note on Sampling of band limited signal. 05

Total No. of Printed Pages:2

SUBJECT CODE NO:- E - 70
FACULTY OF ENGINEERING AND TECHNOLOGY
S.E.(EC/ECT/IEC/E&C) Examination Nov/Dec 2017
Digital Logic Design
(OLD)

[Time: Three Hours]

[Max.Marks:80]

Please check whether you have got the right question paper.

N.B

1. Question no.1 and 6 are compulsory.
2. Attempt any two remaining questions from each section.
3. Figures to the right indicate full marks.
4. Assume suitable data wherever necessary.

Section A

- Q.1 Solve any five from the following: 10
- a) Define and explain figure of merits.
 - b) What is the use of don't care condition?
 - c) Explain important features of array code.
 - d) Compare Demultiplexer and Decoder.
 - e) Comment on 'Noise immunity'.
 - f) Convert 0011_2 into array.
 - g) State the use of parity generators and checkers.
 - h) Carry out the conversion of T to JK.
- Q.2 08
- a) Explain digital IC characteristics with their typical values.
 - b) Design a two – bit comparator using gates. 07
- Q.3 08
- a) Reduce the following expression using k –map and implement using NAND gates only: 08
$$Y(A, B, C, D) = \sum m(1,4,5,6,9,12,13,14) + d(8,10,11)$$
 - b) Explain the operation of two input CMOS NAND gate. 07
- Q.4 08
- a) Design 16:1 multiplexer using 8:1 multiplexer.
 - b) Compare CMOS and TTL. 07
- Q.5 Write short notes (solve any three) 15
- a) Emitter – Coupled Logic (ECL)
 - b) Digital comparator IC 7485
 - c) Half subtractor
 - d) Quine – Mc Clusky technique
 - e) Seven segment decoders.

Sections B

2017

- Q.6 Solve any five from the following: 10
- Explain Race around condition.
 - State the applications of flip flop.
 - What is D- type latch? Explain.
 - Compare static RAM and dynamic RAM.
 - Draw and explain NAND implementation of 1 – bit memory cell.
 - Write applications of shift registers.
 - Draw the Logic symbol of clocked S –R flip – flop. Write its truth table.
 - Define and explain ‘resolution of ADC’.
- Q.7 a) Draw and explain J –K flip flop & its working. Also explain its truth table. 07
 b) Carry out the following conversions: 08
- J-K to D
 - S –R to T
- Q.8 a) Explain universal shift register IC 7495. 07
 b) Design 4 bit synchronous counter using D type flip – flop. 08
- Q.9 a) Differentiate between synchronous and asynchronous counter. 08
 b) Explain in detail the memory classification used in detail electronics. 07
- Q.10 Write short notes (solve any three): 15
- State diagram and state table.
 - Sequence generation and detection
 - Moore and Mealy machines
 - D to A converters
 - Performance characteristics of ADC.

Total No. of Printed Pages:2

SUBJECT CODE NO:- E-171
FACULTY OF ENGINEERING AND TECHNOLOGY
S.E.(EC/ECT/IEC/E&C) Examination Nov/Dec 2017
Electrical Machines & Instrumentation
(OLD)

[Time: Three Hours]

[Max.Marks:80]

Please check whether you have got the right question paper.

- N.B
- i. Attempt any three from each section
 - ii. Q.No.1 & Q.No.6 are compulsory
 - iii. Attempt any two questions from remaining four questions from each section.

Section A

- Q.1 Solve any five from following. 10
- i. Draw the circuit for DC series motor with proper notation
 - ii. What are constrains of the permanent magnet stepper motor
 - iii. What is the difference between self-excited & separately excited generators?
 - iv. Write the applications of induction motor
 - v. What are the different losses in DC generators?
 - vi. Why a synchronous motor is constant speed motor.
 - vii. List down the application of stepper motor.
 - viii. What are the advantages of 3-phase induction motor?
- Q.2 a) Explain the working principle of synchronous motor. 08
- b) Explain the different method of speed control for DC shunt motor. 07
- Q.3 a) Explain the principle, construction and working of electrical generator. 08
- b) Explain in detail the construction, working and advantages of stepper motor. 07
- Q.4 a) Explain power stages, losses and efficiency of induction motor. 08
- b) Explain the various characteristics of DC shunt generator 07
- Q.5 a) Explain the procedure for starting the synchronous motor and give the comparisons between synchronous motor and induction motor. 08
- b) Explain the different electrical braking for series DC motor. 07

Section B

- Q.6 Solve the five from following 10
- a) What is strain gauge and how it useful measurement?
 - b) What are different sensors for temperature measurement?
 - c) Cathode ray display
 - d) How smoke detector works
 - e) Give classification of transducer
 - f) Application of object counter
 - g) Need of signal conditioning circuit
 - h) How thermistor works
- Q.7 a) Explain the displacement measurement by LVDT in details 08
- b) What are different types of strain gauges & derive the relation for gauge factor. 07
- Q.8 a) Explain the different parameters of the Transducer in detail. 08
- b) Explain the working of piezoelectric transducers with application 07
- Q.9 a) How temperature sensor is interfacing with the microcontroller. 08
- b) How thermocouples suitable for heavy industrial application explain in brief 07
- Q.10 Attempt any three. 15
- a) Water level measurement
 - b) Hall effect transducer
 - c) Smoke and fire Detector
 - d) X-Y Plotter.

Total No. of Printed Pages:2

SUBJECT CODE NO: E-227
FACULTY OF ENGINEERING AND TECHNOLOGY
S.E.(EC/ECT/IEC/E&C) Examination Nov/Dec 2017
Electronics Devices & Circuits-I
(OLD)

[Time: Three Hours]

[Max.Marks:80]

Please check whether you have got the right question paper.

- N.B
- i. Q. No. 1 and Q. No. 6 are compulsory
 - ii. Solve three question from each section

Section A

- Q.1 Answer any five questions from the following 10
- a) What is varactor diode?
 - b) What is Ripple factor?
 - c) What is thermal stabilization?
 - d) What is cascaded amplifier?
 - e) Draw the JFET amplifier?
 - f) Define 'transconductance' (9m) of FET.
 - g) Draw the symbol and draw characteristics of depletion type MOSFET.
- Q.2
- A) Explain the band structure of PN junction. 08
 - B) Draw and explain the construction and characteristics of point contact diode. 07
- Q.3
- A) State the different biasing methods of transistor. Explain any one detail. 08
 - B) Draw hybrid equivalent circuit of common emitter transistor and derive various hybrid parameters. 07
- Q.4
- A) Explain FET as VVR 08
 - B) Compare between FET and BJT 07
- Q.5 Write notes on (Any three) 15
- a) Transistion and diffusion capacitance of PN junction
 - b) RC coupled amplifier
 - c) Power MOSFET
 - d) CMOS inverter

Section B

- Q.6 Answer the following (Any five) 10
- a) What is significance of Bode plot?
 - b) Draw the high frequency equivalent circuit of FET amplifier
 - c) What is current shunt and voltage series feedback?
 - d) Explain the principle of positive feedback.
 - e) What is Barkhausen criterion for oscillation?
 - f) Draw the Hartley oscillator circuit.
 - g) What it is hybrid –TT capacitance
- Q.7 A) What is optocoupler? Explain state its applications? 08
- B) Draw the high frequency equivalent circuit for BJT amplifier and explain it. 07
- Q.8 A) Explain various effects of negative feedback on amplifier. 08
- B) Draw and explain the wien Bridge oscillator circuit. State the advantages. 07
- Q.9 A) Draw and explain the emitter follower circuit and high frequency. 08
- B) Give the comparison of Hybrid-TT model with h-parameter model. 07
- Q.10 Write notes on (Any three) 15
- a) Video amplifier
 - b) Clapp oscillator
 - c) Boot strapping
 - d) Concept of stability in electric circuits.

Total No. of Printed Pages:03

SUBJECT CODE NO: E-228
FACULTY OF ENGINEERING AND TECHNOLOGY
S.E.(ECT/E&C/IE)(CGPA) Examination Nov/Dec 2017
Electronics Devices & Circuits
(REVISED)

[Time: Three Hours]

[Max.Marks:80]

Please check whether you have got the right question paper.

- N.B
- i. Q.no.1 and Q.no.6 are compulsory.
 - ii. Solve three questions from each section.

SECTION-A

- Q.1 Answer the following (any five) 10
- a) What is Avalanche and zener breakdown?
 - b) Draw bridge rectifier. Draw its input and output waveforms.
 - c) Explain in brief “Transistor as SWITCH”.
 - d) What is multistage amplifier? State its applications.
 - e) What is crossover distortion?
 - f) Draw FET as V. V.R.
 - g) What is CMOS Inverter?
 - h) What is Power MOSFET?
- Q.2 A) Draw and explain the operation of full wave rectifier using capacitor filter. Draw input and output waveforms. 08
- B) Explain the band structure of PN junction, in brief. What is transition and diffusion capacitance of PN junction? 07
- Q.3 A) What is the necessity of biasing? Explain the voltage divider biasing circuit for transistor. State the advantages of this method. 08
- B) Draw and explain the operation of class B push pull amplifier. State application of this circuit. 07
- Q.4 A) Explain the operation of JFET amplifier. Explain the JFET characteristics. 08
- B) What is n-MOSFET and p-MOSFET? Explain. 07

2017

Q.5 Write notes on, (any three)

- a) Emitter follower
- b) Need of heat sink and its design in power amplifier
- c) Handling precautions of CMOS devices.
- d) Clampers.

15

SECTION-B

Q.6 Answer the following questions (any five):

- a) What is the response of an Integrator for sine wave and square wave input?
- b) What is role of commutating capacitor in multivibrator circuit?
- c) What is voltage shunt and current series feedback?
- d) Draw Wien bridge oscillator?
- e) What is Relaxation oscillator? State its applications.
- f) State the limitations of voltage multiplier circuit.
- g) Draw shunts voltage regulator circuit using transistor.
- h) What is Bistable multivibrator? Draw its circuit diagram.

10

Q.7 A) Draw and explain the operation of Schmitt trigger circuit. State applications of this circuit.

08

B) What is symmetrical and Asymmetrical triggering? Explain.

07

Q.8 A) What is Negative feedback? State and explain advantages and disadvantages of Negative feedback in electronics circuits.

08

B) Draw and explain the operation of Hartley oscillator. State its advantages.

07

Q.9 A) What is voltage multiplier? Explain the operation of voltage Quadruple circuit. State its application's.

08

B) What is three terminal voltage regulator? Explain.

07

2017

Q.10 Write notes on (any three)

- a) Clap oscillator.
- b) Monostable multivibrator.
- c) Variable voltage regulator.
- d) Concept of stability in electronics circuits.

SUBJECT CODE NO:- E-266
FACULTY OF ENGINEERING AND TECHNOLOGY
S.E.(EC/ECT/IEC/E&C) Examination Nov/Dec 2017
Network Analysis
(OLD)

[Time: Three Hours]

[Max.Marks:80]

Please check whether you have got the right question paper.

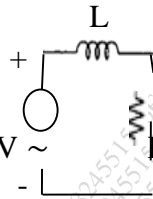
- N.B
- i) Q.No.1 and Q.No.6 are compulsory from section A and section B.
 - ii) Attempt any two questions from each section separately.

Section A

Q.1 Solve any five

10

- a) Define Node and supernode
- b) Define Tieset and Cut set matrix.
- c) Write significance of Quality factor.



d) Draw of V ~ in to Dual

- e) Define voltage and current source shifting.
- f) Write types of sources.
- g) Write application of resonance.

Q.2 a) Prove that Quality Factor

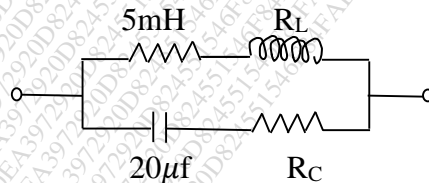
07

$$Q_r = \frac{1}{R} \sqrt{\frac{L}{C}} = \frac{W_r L}{R} = \frac{1}{R W_r C}$$

For series resonance.

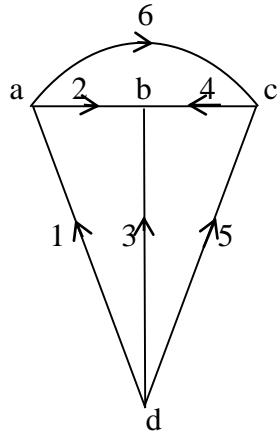
b) Determine R_c and R_L that causes the circuit to be resonant?

08

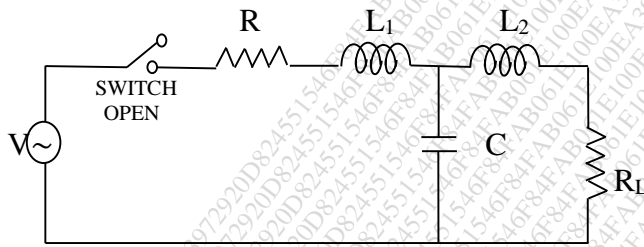


$R_L = ? \quad R_C = ?$

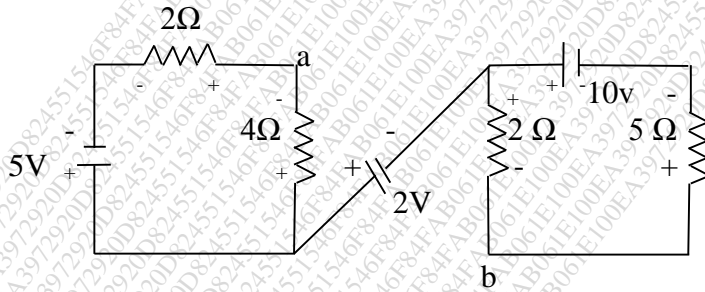
- Q.3 a) For the graph shown, consider the tree formed by branches (2, 3, 4), Using this tree write incidence Matrix, Tie-set Matrix, Cut set Matrix. 07



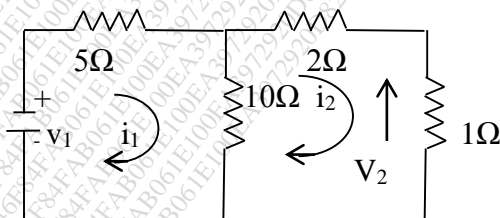
- b) Define Duals and Duality. Draw Dual Network of below network. 08



- Q.4 a) Find voltage drop across – ab 08



- b) Find V_2/V_1 using Mesh analysis 07



- Q.5 Write Notes :
- Star to Delta and Delta to Star transformation
 - Parallel resonance
 - Elements of Graph theory

15

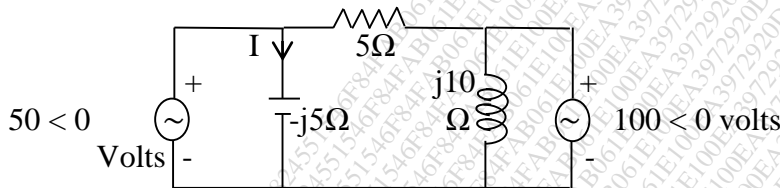
Section B

- Q.6 Solve any Five
- State Tellegen's theorem
 - Write properties of filter
 - Define Admittance parameter.
 - Define Decibel and Neper
 - Write Limitations of superposition theorem .
 - Write hybrid parameters

10

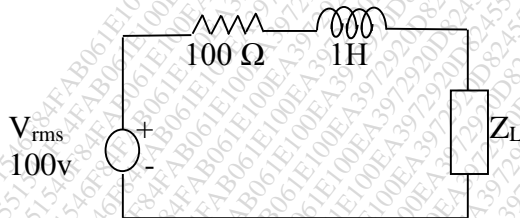
- Q.7 a) Calculate current through capacitor $-j5\Omega$ using Superposition theorem.

08



- b) For network $\omega = 200$ r/s. Determine Z_L to get maximum power transfer. Also find maximum power across Z_L

07



- Q.8 a) Derive design equations of constant k low pass filter.

07

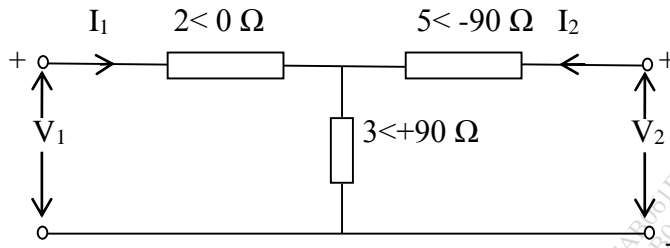
- b) Design constant K LPF if $f_c = 1000H_z$, $R_o = 200\Omega$.

08

Q.9

a) Find Z parameters of the network

08



b) Explain short circuit Admittance Parameters.

07

Q.10 Write Notes On

15

- a) Maximum Power transfer theorem
- b) Transmission line parameters
- c) Hybrid Parameters.

SUBJECT CODE NO: E-267
FACULTY OF ENGINEERING AND TECHNOLOGY
S.E.(ECT/E&C/IE)(CGPA) Examination Nov/Dec 2017

Network Analysis
(REVISED)

[Time: Three Hours]

[Max.Marks:80]

Please check whether you have got the right question paper.

N.B

- 1) Q.1 and Q. 6 are compulsory
- 2) Solve any two from Q.2 Q.3 Q.4 and Q.5
- 3) Solve any two from Q.7 , Q.8, Q.9 and Q.10
- 4) Figures to the right indicates full marks
- 5) Assume suitable data if necessary

Section A

Q.1 Solve any five

10

- a) Convert the given source into equilateral voltages sources as shown in fig 1

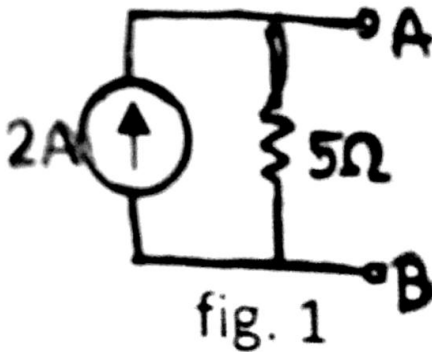


fig. 1

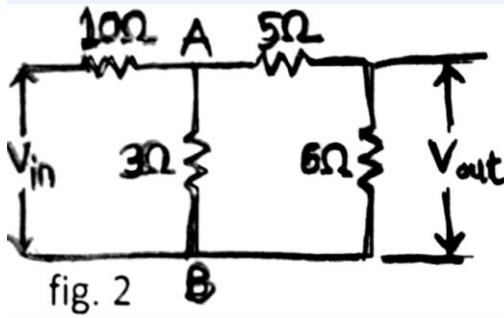
- b) What do you mean by supermesh and supernode
- c) What are the properties of incidence matrix
- d) Define quality factor
- e) What is Bandwidth and selectivity
- f) With example define graph tree twigs and links
- g) Explain mutual inductance

Q.2

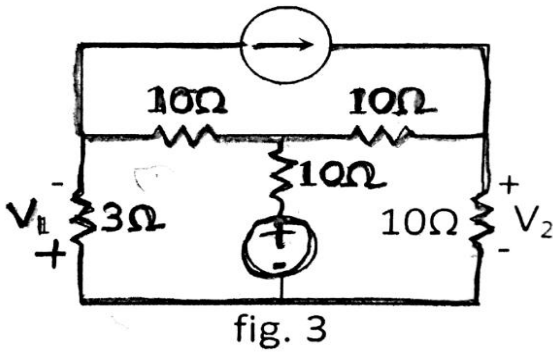
- a) Derive formula for star delta transformation
- b) Using node analysis. determine the voltages ratio V_{out} / V_{in} as shown in fig.2

07

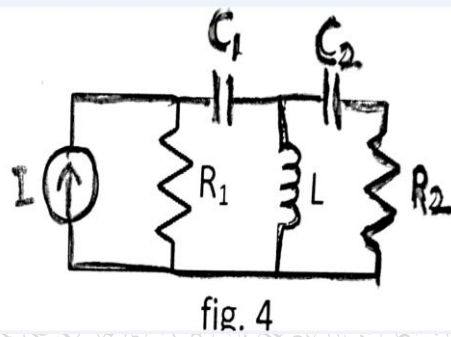
08



Q.3 a) Draw the oriented graph of network of fig.3 determine the incidence matrix and use it to find the voltage V_1 and V_2 08



b) Draw the dual of network shown in fig.4 07



Q.4 a) What is difference between series and parallel resonance? Derive resonance frequency of series RLC circuit 07

b) Find value of “L” for which circuit in fig. 5 is resonant at frequency of $\omega = 500 \text{ rad/s}$ 08

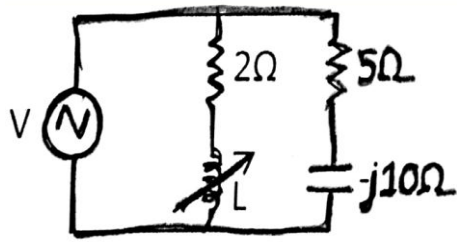


fig. 5

Q.5 Write short note on the following (any three) 15

- Principle of Quality
- Voltages and current variation with frequency in series RLC circuit
- Formation of equilibrium equation in matrix form
- Mesh Analysis

Section – B

Q.6 Solve any five 10

- State compensation theorem
- What is the condition to transfer maximum power from source to load
- Write open circuit impedance parameters
- Why H-parameters are called hybrid parameters
- Enlist different types of filters
- Enlist types of transmission lines
- What is the limitation of superposition theorem

Q.7 a) State and prove Millman’s theorem. Give its application 07

b) Find Thevenis equivalent of the circuit between A- B as shown in fig.6 08

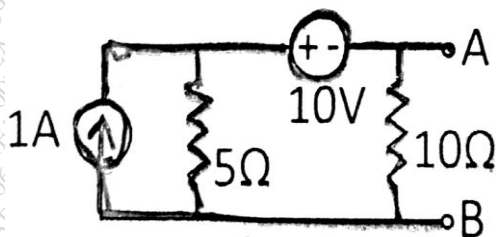
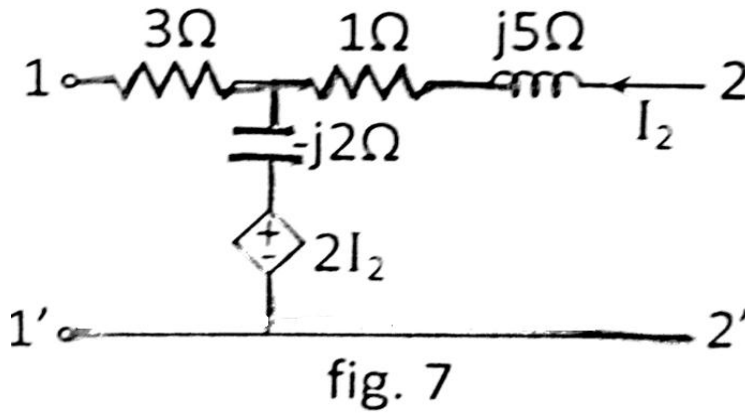


fig. 6

- Q.8 a) Calculate Z – parameters of network shown in fig.7 and show that the network is neither reciprocal nor symmetrical 08



- b) Find Z- parameters in terms of ABCD parameters 07
- Q.9 a) Derive the design equation of constant K – type filter 07
 b) In a constant K –type filter the ratio of shunt arm capacitance to total series of capacitance is 100:1 the frequency of resonance of both the arms is 1000Hz. Calculate bandwidth of filter 08
- Q.10 Write short note on the following (any three) 15
 a) Prove 1 dB= 8.686Nepers
 b) Transmission line equations
 c) Interconnection of two port network
 d) Reciprocity theorem

Total No. of Printed Pages:2

SUBJECT CODE NO:- E-307
FACULTY OF ENGINEERING AND TECHNOLOGY
S.E.(EC/ECT/IEC/E&C) Examination Nov/Dec 2017
Communication Engineering
(OLD)

[Time: Three Hours]

[Max.Marks:80]

Please check whether you have got the right question paper.

- N.B
1. Q.No.1 and Q.No.6 are compulsory.
 2. Solve any two from remaining questions from each section.
 3. Figure to the right indicate full marks.
 4. Assume suitable data, if necessary.

Section A

- Q.1 Solve any five. 10
- a) Define Am, Fm and Pm.
 - b) What is mean by intermediate frequency? Give its typical values for Am and Fm.
 - c) Define flywheel effect in modulation.
 - d) What is bandwidth requirement of Fm Wave?
 - e) What are the different methods of suppressing unwanted sidebands?
 - f) What is modulation index for Am and Fm.
 - g) A broadband radio transmitter radiates 10kw When the modulation index is 60%. Calculate the carrier power.
- Q.2 08
- a) Explain ISB with block diagram.
 - b) An Am transmitter radiates 8kw of carrier power and delivers at its output 10.135 kw of power. What is the depth of modulation? If the same carrier is modulated with a sine wave of 30% modulation then find the total transmitted power. Now if both signals simultaneously modulate this carrier then what is the resultant transmitted power? 07
- Q.3 08
- a) Explain Third method of SSB generation.
 - b) What is mean by noise? What are their types? Explain in detail. 07
- Q.4 08
- a) What are the generations method of Fm? Explain any one method in detail.
 - b) Explain RF amplifier of radio receiver with neat block diagram. 07
- Q.5 Write short note. (any three) 15
- a) Am detector
 - b) TRF receiver
 - c) Image frequency & its rejection
 - d) Sensitivity, selectivity, fidelity

Section B

- Q.6 Solve any five questions. 10
- a) State sampling theorem
 - b) Define quantization noise
 - c) State different types of microphone
 - d) Define TDM & FDM.
 - e) What is the function of amplitude limiter
 - f) What is principle of PCM?
 - g) State different types of Fm detector
- Q.7 08
- a) Draw and explain block diagram of delta modulation.
 - b) Draw and explain crystal type microphone. 07
- Q.8 08
- a) Explain Horn type loudspeaker.
 - b) Explain different analog pulse modulation techniques. Explain any one in detail. 07
- Q.9 08
- a) What is the use of baffles and enclosure for loudspeaker? Give the types of enclosures used to produce good quality of sound. Explain any one in detail.
 - b) Draw and explain the block diagram of Fm receiver. 07
- Q.10 Write short note. (any three) 15
- a) Tone control circuit
 - b) Balanced slope detector
 - c) DPCM
 - d) Principle of TV signal generation.

Total No. of Printed Pages:2

SUBJECT CODE NO:- E-308
FACULTY OF ENGINEERING AND TECHNOLOGY
S.E.(ECT/E&C/IE)(CGPA) Examination Nov/Dec 2017
Analog Communication Engineering
(REVISED)

[Time: Three Hours]

[Max.Marks:80]

- N.B
- Please check whether you have got the right question paper.
- i) Question No.1 and Question No.6 are compulsory.
 - ii) Attempt any two questions from remaining in each sections.
 - iii) Figures to right indicate full marks.
 - iv) Assume suitable data, if necessary.

Section A

- | | | |
|-----|---|----------|
| Q.1 | Solve any Five | 10 |
| | <ol style="list-style-type: none">a) Define modulation process and state types of modulation.b) Define fly wheel effect in modulationc) Define Am, Fm with wave form.d) What is balanced modulator?e) State types of SSB Generationf) State the sampling theorem.g) Explain multiplexing technique for communication system.h) Define pre-emphasis and De-emphasis N/W | |
| Q.2 | <ol style="list-style-type: none">a) Draw and explain the Am broadcast transmitter.b) Derive the Power relation of Am wave. | 08
07 |
| Q.3 | <ol style="list-style-type: none">a) Compare Am, Fm & Pm with suitable waveformb) Draw and explain indirect method of Fm generation | 08
07 |
| Q.4 | <ol style="list-style-type: none">a) The transmitter radiates 9.1 kw with carrier unmodulated and 10.3 Kw when carrier is simultaneously modulated, calculate modulation index. If an another sine wave is simultaneously transmitted with modulation index of 0.42 then find the total power radiated.b) Draw the block diagram of I.S.B. and explain it in detail | 08
07 |
| Q.5 | Write short note (any three)
<ol style="list-style-type: none">(a) VSB Technique(b) TDM Technique(c) Pre-emphasis & De-emphasis N/W for noise reductions(d) Necessity of modulation(e) Narrowband and wideband Fm(f) Am super heterodyne radio receiver. | 15 |

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Section B

- Q.6 Solve any five questions 10
- (a) What is Fidelity? Explain with fidelity Curve.
 - (b) Define critical frequency and skip distance
 - (c) Explain three point tracking system
 - (d) What is the function of amplitude limiter in Fm receiver?
 - (e) Define noise and state the types.
 - (f) State different types of Fm detector
 - (g) What is meant by intermediate frequency? Give its typical values for Am and Fm.
- Q.7 a) What is the Principle of AGC? Explain simple and delayed AGC in detail. 08
b) Explain RF amplifier of Am receiver with neat diagram. 07
- Q.8 a) Explain image frequency and its rejection. How to avoid image frequency in Am receiver? 08
b) Explain noise figure and S/N ratio. 07
- Q.9 a) What are the concepts of radiation pattern, Antenna gain, Antenna resistance and Bandwidth of antenna. 08
b) Compare ground wave, sky wave and space wave propagation. 07
- Q.10 Write Short note on (any three) 15
- a) Sources of noise
 - b) Practical diode detector
 - c) Ionosphere
 - d) Yagi-uda Antenna
 - e) Mixer in receiver

SUBJECT CODE NO: E – 351
FACULTY OF ENGINEERING AND TECHNOLOGY
S.E.(EC/ECT/IEC/E&C) Examination Nov/Dec 2017
Data Structure
(OLD)

[Time: Three Hours]

[Max.Marks:80]

Please check whether you have got the right question paper.

- N.B
- i. Que. No. 1 & Q.No.6 are compulsory.
 - ii. Attempt any two questions from Q.2 to Q.5 and two questions from Q.7 & Q.10.

Section A

- Q.1 Answer any five 10
- i) Explain linked list?
 - ii) What is priority queue?
 - iii) Explain function with example.
 - iv) What is pointer?
 - v) Define singly linked list.
 - vi) What is stack?
 - vii) What is priority queue?
 - viii) Insertion operation on linked list.
- Q.2 a) Define data structure with its types. 08
b) Explain circular linked list. 07
- Q.3 a) Convert from infix to postfix & prefix $A^*(b+c) + (b/d) * a + z * u$. 08
b) Write a program using array. 07
- Q.4 a) Explain application of linked list. 08
b) What is queue explain with example. 07
- Q.5 Write short on (any three) 15
- 1) Storage classes.
 - 2) Circular queue
 - 3) Doubly linked lists
 - 4) Pointer

Section B

- Q.6 Answer any five 10
- i) Explain out degree of vertex?
 - ii) What is Forest?
 - iii) What is shortest path?
 - iv) Explain binary tree.
 - v) What is binary search?
 - vi) What is selection sort?
 - vii) What is tree explain with example?
 - viii) Explain heap sort.
- Q.7 a) Explain BFS with an example. 08
b) Explain different operation that can perform on binary search tree. 07
- Q.8 a) Explain shell sort. 07
b) Explain tree traversal. 08
- Q.9 a) Explain application of tree. 07
b) Explain bubble sort with an example. 08
- Q.10 Write short notes on (any three) 15
- 1) B trees
 - 2) Binary search tree
 - 3) Sequential sorting
 - 4) DFS

Total No. of Printed Pages:2

SUBJECT CODE NO: E-352
FACULTY OF ENGINEERING AND TECHNOLOGY
S.E.(ECT/E&C/IE)(CGPA) Examination Nov/Dec 2017
Data Structure and Linux
(REVISED)

[Time: Three Hours]

[Max.Marks:80]

Please check whether you have got the right question paper.

- N.B
1. Q.No.1 and Q.No.6 are compulsory.
 2. Attempt any two questions from Q.2 to Q.5 and from Q.7 to Q.10 of each section.
 3. Figure to the right indicate full marks.

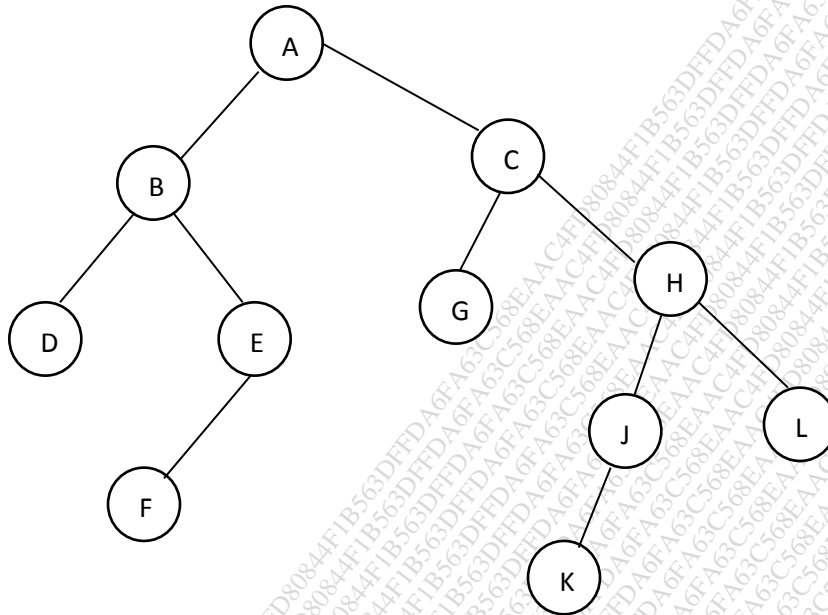
Section A

- Q.1 Attempt any five of following. 10
- a) What are disadvantages of queue? How to overcome it?
 - b) Define data type and abstract data type.
 - c) What are properties of binary tree?
 - d) Explain stack full and stack empty condition
 - e) Differentiate between B-tree and B⁺ tree.
 - f) List drawbacks of sequential representation
 - g) How two dimensional array is represented in C?
 - h) Define queue. Explain role of front and rear end.
- Q.2 08
- a) Write C program to implement queue using array.
 - b) Write array as an ADT. 07
- Q.3 08
- a) What is circular linked list? Explain insert and delete operations on circular linked list.
 - b) What is breadth first search? Explain with an example. 07
- Q.4 08
- a) Show how to represent following polynomials using linked list. Add A and B using linked representation 08
$$A = 10x^4 + x^2 + x + 5$$
$$B = x^3 + x + 2$$
 - b) What is pointer? How to declare and initialize pointer variable? Write C program to illustrate concept of pointer variable. 07
- Q.5 08
- a) Convert the following expression to postfix using stack,
 $(A + B)/(C - D)$

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b) Consider the tree,

07



Describe stepwise procedure for finding post order traversal in above tree.

Section B

- | | | |
|------|---|----|
| Q.6 | Attempt any five of following. | 10 |
| | a) Enlist any four Linux distribution | |
| | b) What is sorting? Explain different types of sorting. | |
| | c) Give use of ping and trace route command. | |
| | d) How binary search is efficient over linear search? | |
| | e) How to kill process in Linux? | |
| | f) With example, explain ls command. | |
| | g) What is the advantage of bubble sort over other sorting techniques? | |
| | h) Differentiate between GUI and CLI in Linux. | |
| Q.7 | a) Explain heap sort algorithm with an example. | 08 |
| | b) With neat labeled diagram, explain LINUX architecture. | 07 |
| Q.8 | a) Explain user and password management commands in Linux with example. | 08 |
| | b) Explain boot process and run level in Linux. | 07 |
| Q.9 | a) Explain basic file and directory handling commands with example. | 08 |
| | b) What is the functionality of kernel in Linux architecture? | 07 |
| Q.10 | a) With an example, explain stepwise algorithm for binary search. | 08 |
| | b) Explain basic command structure in Linux. Also explain how to get help about commands. | 07 |