(CS/EC 30117)

B.Tech. DEGREE (REGULAR) EXAMINATION,
DECEMBER 2019.

Second Year — First Semester

Computer Science And Engineering / Electronics And Communication Engineering

Paper I — HUMAN VALUES AND PROFESSIONAL ETHICS

(Regulation 2017-18)

Time : Three hours Maximum : 70 marks

Answer ALL questions.

All questions carry equal marks.

UNIT I

1. Explain the content and process for value education in detail.

Or

2. Discuss about the self-exploration and explain.

UNIT II

3. Define the terms "Happiness" and "Prosperity". Explain the methods to fulfill the basic Human Aspirations.

Or

4. Explain in detail about the understanding and living in harmony at various levels.

UNIT III

5. Explain the activities of understanding and realization. How do they lead to harmony in the activities of "I"?

Or

6. Discuss about the Sanyama and Swasthya and correct appraisal of physical needs.

UNIT IV

7. Explain the relation between the self and the body. What is the responsibility of the self towards the body?

Or

8. Discuss about the Sanyama and Swasthya. How they are related? Also how can we ensure harmony in self "I"?

UNIT V

9. What values are necessary in human relationship? Explain each in detail.

Or

10. Discuss about the "trust", "respect", guidance and gratitude.

(EC30217)

B.Tech. DEGREE (Regular) EXAMINATIONS, DECEMBER 2019.

Second Year — First Semester

Electronics and Communication Engineering

Paper II — ELECTRONIC DEVICES AND CIRCUITS

(Regulation 2017-18)

Time : Three hours Maximum : 70 marks

Answer ONE question from each unit.
All questions carry equal marks.

UNIT I

1. (a) Draw the V-I characteristics of Zener diode. Explain about Zener breakdown and avalanche multiplication.

(b) Explain about clipping and clamping operations with circuits.

Or

(c) Explain about current components in PN-Junction diode.

(d) Derive the diode equation.

UNIT II

2. (a) Discuss about the basic rectifier setup and half wave rectifier.

(b) Explain the filters and Inductor filter.

Or

(c) Explain an electronic filter and discuss types of filters.

(d) Explain about the comparison of various filter circuit in terms in ripple factors.

UNIT III

3. (a) Derive an expression for efficiency of half wave and full wave rectifier circuits. And show that the full wave rectifier has twice the value of half wave rectifier circuit.

(b) Explain characteristics in transistor in common base.

Or

(c) Explain input and output characteristics of common base transistor configuration

(d) Explain the types of MOSFET.

UNIT IV

4. (a) Explain the analysis of CB,CE and CC amplifiers using exact and approximate analysis.

(b) Discuss about generalized analysis of small signal model.

Or

(c) Explain thermal run away and thermal stability.

(d) FET and biasing and stabilization techniques.

UNIT V

5. (a) Explain determination of h-parameters and conversion of h-parameters.

(b) Explain CB amplifier in detail.

Or

(c) Draw and explain input and output characteristics of transistor in CB configuration.

(d) Explain how transistor acts as an amplifier.

UNIT V

9. Draw (a) Front view (b) Top view (c) Side view of Fig.I (14)

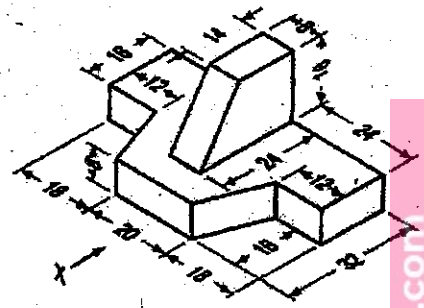

Fig. 1

Or

10. Draw Isometric view for Fig.2 (14)

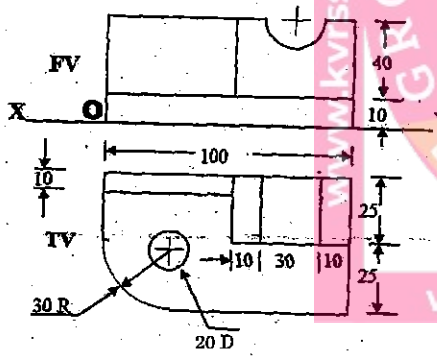

Fig. 2

(EC30317)

B.Tech DEGREE EXAMINATION,
DECEMBER 2019.

Second Year

First Semester

Electronics and Communication Engineering

Paper III — ENGINEERING DRAWING

(Regulation 2017-18)

Time : Three hours Maximum : 70 marks

UNIT I

1. (a) The foci of an ellipse are 85mm apart and the minor axis is 60mm long. Determine the length of the major axis and draw the ellipse by oblong method. (7)

(b) Write free hand single – stroke vertical capital letters of 10 mm height (7)

ENGINEERING DRAWING IS LANGUAGE OF ENGINEERS.

Or

2. (a) Draw a Vernier scale of R.F. = 1/25 to read centimetres upto 4 meters and on it, show lengths representing 2.39m and 0.91m. (7)

(b) Draw the cycloid of a circle of diameter 50mm. also draw the tangent and normal to it at 30mm from directing line. (7)

UNIT II

3. (a) Draw the projections of the following points on the same ground line, keeping the projectors 15mm apart. (7)

(i) Point A, 10mm above the H.P. 25mm in front of V.P.

(ii) Point B, in the V.P and in the H.P.

(iii) Point C, 15mm below the H.P. and 25mm behind the V.P.

(iv) Point D, 15mm above the H.P. and 40mm behind the V.P.

(b) A line AB 30mm long is perpendicular to V.P. and parallel to H.P. its end A is 5mm in front of V.P. and the line is 10mm above H.P. Draw the projections of the line. (7)

Or

4. (a) A 30° – 60° set square of longest side 100mm long is in VP and its surface 45° inclined to VP. Top view of longest side is 30° inclined to HP. Draw it's projections. (7)

(b) A regular pentagon of 30mm sides is resting on HP on one of its sides while its opposite vertex (corner) is 30mm above HP. Draw projections when side in HP is 30° inclined to VP. (7)

UNIT III

5. A square pyramid, 40mm base sides and axis 60mm long, has a triangular face on the ground and the vertical plane containing the axis makes an angle of 45° with the VP. Draw its projections. (14)

Or

6. A tetrahedron of 50mm long edges is resting on one edge on HP while one triangular face containing this edge is vertical and 45° inclined to VP. Draw projections. (14)

UNIT IV

7. A pentagonal prism, 30mm base side & 50mm axis is standing on HP on its base whose one side is perpendicular to VP. It is cut by a section plane 45° inclined to HP, through mid-point of axis. Draw Development of surface of remaining solid. (14)

Or

8. A cone, 50 mm base diameter and 70 mm axis is standing on its base on Hp. It cut by a section plane 45° inclined to HP through mid-point of axis. Draw development of surfaces of remaining solid. (14)

UNIT V

5. (a) For the signal $x(t) = e^{-\sigma t}u(t)$. Discuss its convergence for fourier transform and laplace transform.

(b) Obtain the transform function of the given difference equation $y(n) = 0.5y(n-1) + x(n) + x(n-1)$.

Or

(c) Consider a signal that is the sum of a real and complex potential $x(t) = e^{-zt}u(t) + e^{-1}(Cos3t)u(t)$. Determine the laplace transform and ROC.

(d) Explain the properties of z-transform.

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(EC30417)

B.Tech. DEGREE EXAMINATION, DECEMBER 2019.

Second Year

First Semester

Electronics and Communication Engineering

Paper IV – SIGNALS AND SYSTEMS

(Regulation 2017-18)

Time : Three hours Maximum : 70 marks

Answer ONE question from each unit.

All questions carry equal marks.

UNIT I

1. (a) Explain in detail about periodicity properties of discrete time complex exponentials and compare with continuous time exponentials with necessary wave from.

(b) Check whether the following signals are periodic or not. If they are periodic, determine the fundamental period

$(i)\ x(n) = \cos(zn)$, $(ii) x(n) = (-1)^n$,

$(iii)\ x(n) = \cos\left(\frac{\pi}{e} * n^2\right)$

Or

(c) Explain on classification and characteristics of signals and systems.

(d) Define error function which approximating signals and hence derive the expression for condition for orthogonality between two wave forms $f_1(t)$ and $f_2(t)$.

UNIT II

2. (a) Given a periodic waveform $x(t) = e^t$, $0 \le t \le 1$, with a time period T. Determine its fourier series representation.

(b) Obtain the fourier transform of the signal $x(t) = e^{-at}\mu(t)$, $a > 0$.

Or

(c) Explain convergence conditions for the validity of the fourier series.

(d) What is the significance of Hilbert transform and find hilbert transform of triangular function

$$x(t) = \begin{cases} t+1 \ for -1 \le t \le 0 \\ -t+1 \ for \ 0 \le t \le 1 \end{cases}$$

UNIT III

3. (a) State and prove sampling theorem for band limited signal using graphical approach.

(b) A signal having a spectrum range of 10 kHz to 100 kHz is said to be sampled and converted to discrete form. What is the theoretical minimum number of samples per second that must be taken to ensure recovery.

Or

(c) Explain natural sampling and flat top sampling techniques.

(d) Explain the 'aliasing' problem in sampling scheme.

UNIT IV

4. (a) What is linear system? Explain linear system and impulsive response.

(b) Explain distortion less transmission through a system single band width.

Or

(c) Discuss about relationship between bandwidth and rise time.

(d) Explain about extraction of signal from noise by filtering.

(EC30517)

B.Tech. DEGREE EXAMINATION, DECEMBER 2019.

Second Year – First Semester

Electronics and Communication Engineering

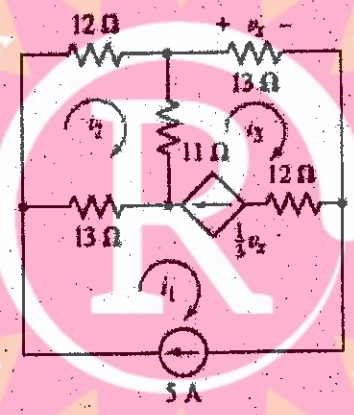
Paper V — NETWORK ANALYSIS

(Regulation 2017-18)

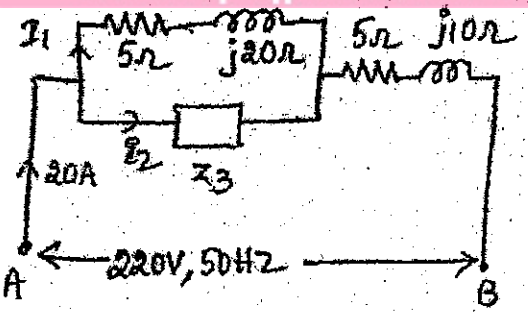
e : Three hours Maximum : 70 marks

UNIT I

(a) Using Mesh analysis, find mesh currents in the circuit shown.

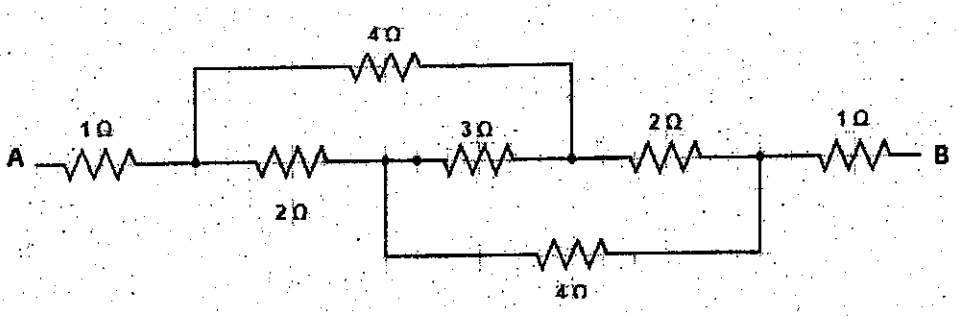


(b) If input power is 3.25 kW, find Z3 and its parameters in the circuit shown.

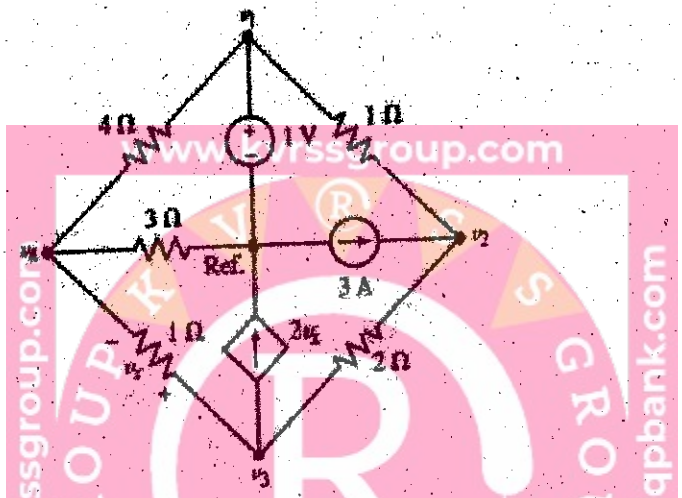


Or

Find equivalent resistance across A and B terminals.

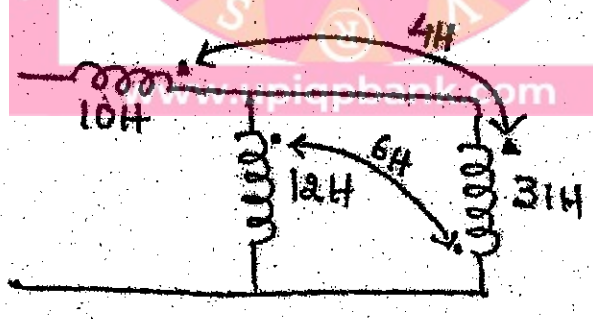


Find node voltages in the circuit shown.



UNIT II

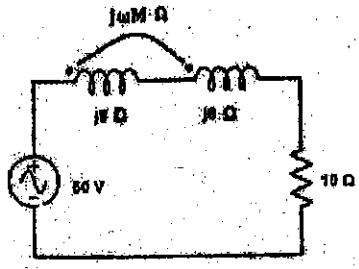
Find equivalent inductance for the given coupled circuit.



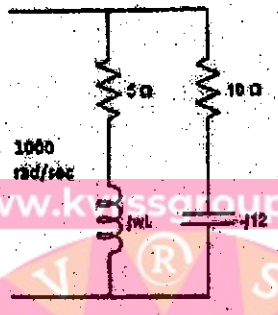
Derive the expression for the frequency at which voltage across capacitor is maximum in series resonance.

Or

(c) Determine the coefficient of coupling K for the following coupled circuit, if power dissipated in 10 ohm resistor is 40W.

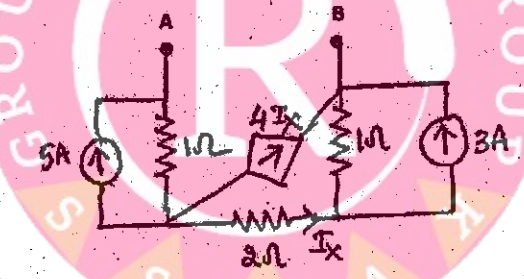


(d) Find possible values of L for which circuit resonates at 1000 rad/sec.

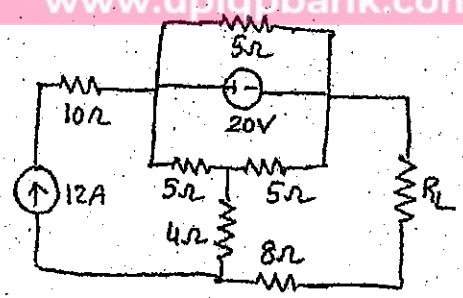


UNIT III

(a) Find Norton's equivalent circuit for the circuit shown across A and B terminals.

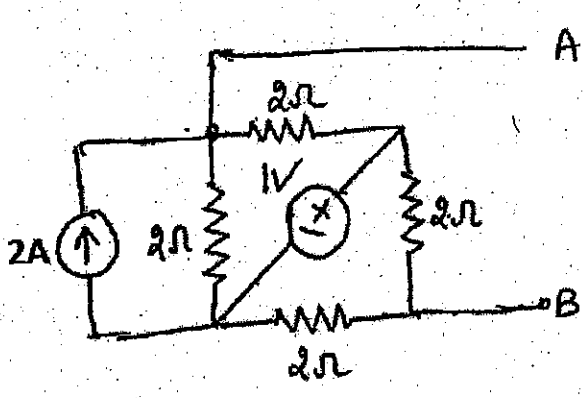


(b) Find the value of Load resistance for which maximum power transfer occurs in the circuit shown. Also find the value of maximum power.

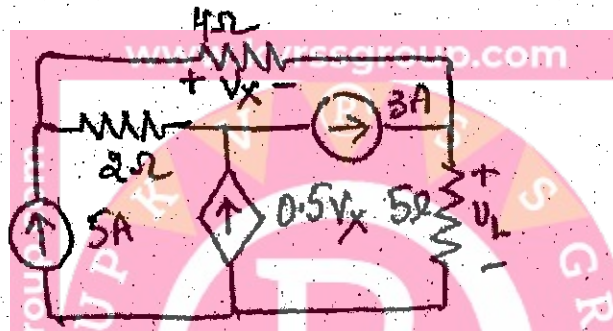


Or

Find Thevenin's equivalent circuit for the circuit shown across A and B terminals.

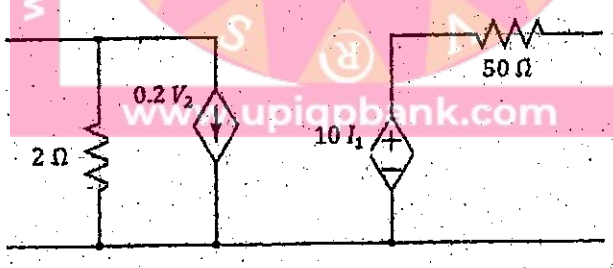


) Find V_L using Super position theorem in the given circuit.



UNIT IV

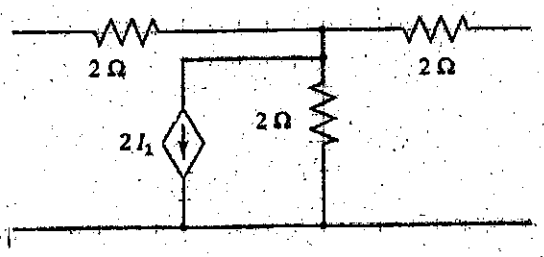
) Find Y-parameters for the given network.



) Derive reciprocal and symmetry conditions for ABCD parameters.

Or

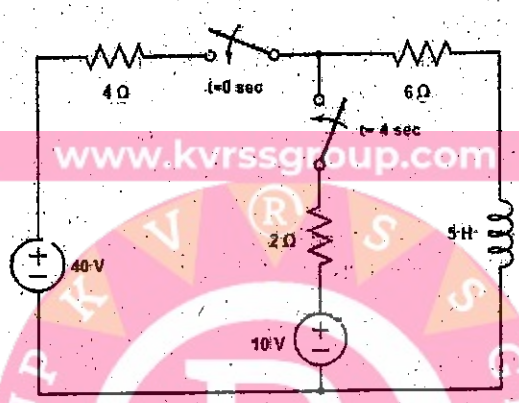
(c) Find h-parameters for the given network.



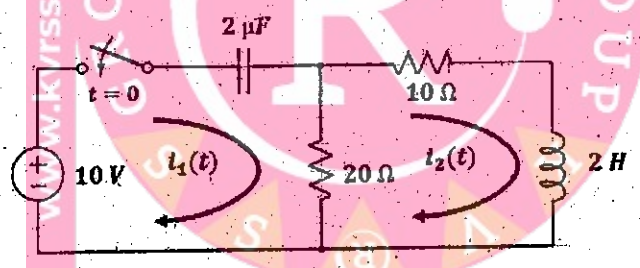
(d) Derive the relationship between Z and ABCD parameters.

UNIT V

(a) For the circuit shown, Switch 1 is closed at t=0 sec and Switch 2 is closed at t=4 sec. Find the expression for current i(t) for t>0.

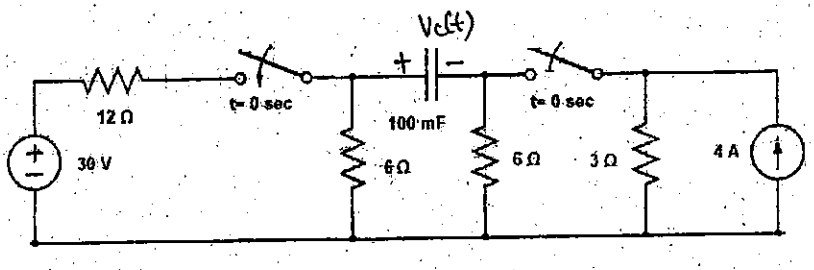


(b) Assuming Switch is closed at t=0, find Initial condtions at $t = 0^+$ for $i_1, i_2, V_c \frac{di_1}{dt}, \frac{di_2}{dt}$.

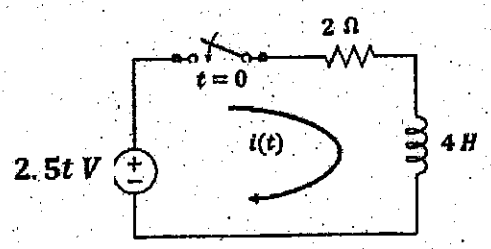


Or

(c) Switch 1 is closed at t=0 sec and Switch 2 is opened at t=0 sec. Find the expression for voltage $V_c(t)$ for t>0 for the circuit shown.



d) Find the expression for current i(t) for t>0.



UNIT II

2. (a) What is audio? Explain about acquiring and storing audio signals.

(b) Explain the difference between acquiring mono-chrome video and color video.

Or

(c) Explain compact disk read only memory and archival memory.

(d) Explain briefly about video display devices.

UNIT III

3. (a) Explain about the LAN and its applications.

(b) Discuss about users identification and authentication.

Or

(c) What is client - server computing? What are the functions of clients and those of a server.

(d) Explain WAN and give examples.

UNIT IV

4. (a) What is word processor? Explain.

(b) Explain about audio signal processing.

Or

(c) What is HTML? What are its applications?

(d) Explain about animation and video via internet.

UNIT V

5. (a) Explain different types of E-commerce.

(b) Explain the information system and system life cycle.

Or

(c) Explain about data security and integrity of information.

(d) Discuss about the electronic cheque payment in e-commerce.

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(EC30617)

B.Tech DEGREE EXAMINATIONS, DECEMBER 2019.

Second Year – First Semester

Electronics and Communication Engineering

Paper – VI – INTRODUCTION TO INFORMATION TECHNOLOGY

(Regulation 2017-18)

Time : Three hours Maximum : 70 marks

Answer ONE question from each unit.
All questions carry equal marks.

UNIT I

1. (a) Explain different types of data and give examples.

(b) Discuss about data processing using a computer briefly.

Or

(c) Explain briefly about error - detecting codes.

(d) Explain image acquisition with a digital camera.