Code No. 14524/CBCS/BL

FACULTY OF ENGINEERING

B.E. (Civil) III-Semester (CBCS)(Backlog) Examination, November 2021

Subject: Electrical Technology (Part – A)

Time: 1 hour **Max. Marks: 38**

Note: Missing data, if any, may be suitably assumed.

PART – A

Note: Answer any three questions: (3x4=12Marks)

1 State and explain Kirchhoff's laws.
2 Define the term Peak factor and form factor.
3 What is relationship between line current and phase current, line voltage and phase current of star and delta method?
4 Explain the basic principle of DC machine.
5 A 3 phase, 60 Hz induction motor has 2 poles. If the slip is 3% at a certain load. Determine synchronous speed and speed of rotor.
6 Why engine phase induction motor is not self starting?

PART – B

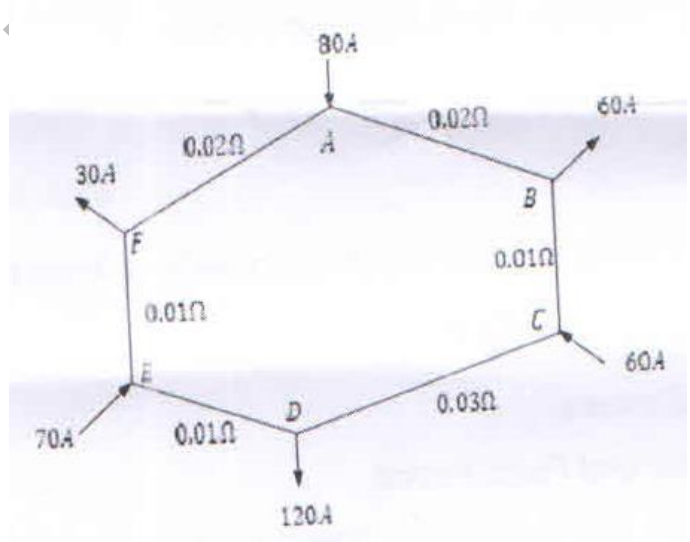
Note: Answer any two questions: (2x13=26Marks)

7(a) Resistance of 10 Ω is connected in series with two resistances each of 15Ω arranged in parallel. What resistance must be shunted across this parallel combination so that the total current taken shall be 1.5A with 20V applied?
(b) Derive the equation for voltage and current across a pure inductor 'L' connected to an alternating source.

8 (a) Explain OC and SC test of single phase transformer.
(b) Draw the phasor diagram of NO load transformer.

9 (a) Explain star-delta starting method of 3 phase induction motor.
(b) Explain about capacitor start single phase induction motor.

10 Find the current in all the branches of the network shown.



11 (a) Explain the working principle of Single phase energy meter.
(b) Give the application of Single phase induction motor.

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Code No. 14531/CBCS/BL

FACULTY OF ENGINEERING

B.E. (EEE / EIE) III-Semester (CBCS)(Backlog) Examination, November 2021

Subject: Electronic Engineering – II

Time: 2 hours **Max. Marks: 70**

Note: Missing data, if any, may be suitably assumed.

PART – A

Answer any five questions. **(5x2 = 10 Marks)**

1 Write briefly about classification of Amplifiers.
2 If upper cutoff frequency of one stage is 20KHz, five such stages are cascaded what is the overall upper cut-off frequency?
3 What is the effect of Voltage series negative feedback on R_i and R_o of amplifiers?
4 Write about characteristics of negative feedback Amplifiers.
5 Compare AF and RF oscillators.
6 What is frequency stability of feedback amplifier?
7 What is cross-over distortion in power amplifiers?
8 What are the advantages of class A push pull power amplifier?
9 State and prove Clamping theorem.
10 RC high pass circuit works as differentiator – explain.

PART – B

Answer any four questions. **(4x15 = 60 Marks)**

11 Draw a single stage RC-coupled BJT amplifier and derive expressions for mid band gain, upper and lower cutoff frequencies.

12 Draw a current shunt negative feedback amplifier circuit. Find A_{isf}, A_{vaf}, Ri If Rf = 300 KΩ, Rs =1KΩ, Re = 2KΩ, Rc=3KΩ, hie =1KΩ, hfe=50, hre=hoe=0?

13 Derive expressions for frequency of oscillations and condition of oscillations for a Hartly oscillator.

14 (a) Find efficiency of class B power amplifier. What is the power dissipated?

(b)What is harmonic distortion in power amplifier? Derive the relevant formula.

15 Obtain the response of RC low pass circuit for :
(a) Step input
(b) Ramp input. Draw relevant waveforms and derive necessary expressions.

16 (a) Explain two level clipper circuit with waveforms.
(b) Explain class-B push pull and complimentary connection power amplifiers.

17 Write short notes on:
(a) Class D amplifier
(b) Local vs global feedback
(c) RC phase shift oscillator

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Code No. 14537/CBCS/BL

FACULTY OF ENGINEERING

B.E. (ECE) III-Semester (CBCS) (Backlog) Examination, November 2021

Subject: Elements of Mechanical Engineering

Time: 2 hours **Max. Marks: 70**

Note: Missing data, if any, may be suitably assumed.

PART – A

Answer any five questions. **(5x2 = 10 Marks)**

1 Define second law of thermodynamics laws.
2 Differentiate between two stroke and four stroke petrol engines.
3 Differentiate conductive heat transfer and convective heat transfer.
4 Mention importance of LMTD in heat exchangers.
5 Define Point and Path functions with examples.
6 Differentiatethe concept of microscopic and macroscopic approach of thermodynamics.
7 List out the types of gear trains.
8 Define velocity ratio in belt drives.
9 Differentiate welding soldering and brazing.
10 List out various unconventional machining methods.

PART – B

Answer any four questions. **(4x15 = 60 Marks)**

11 (a) Explain the working of SI engine with a neat sketch and draw the P-V diagram for the same.
(b) Explain the effect of clearance volume in reciprocating air compressors.

12 (a) Explain Newton's law of cooling in convective heat transfer.
(b) Explain the classification and applications of heat exchangers.

13 With a neat sketch explain the working principle and application of the following:
(a)EDM
(b)EBM

14 (a) Describe the working of a reverted gear train with neat sketch and list its applications.
(b) Derive the expression for the length of cross belt drive.

15 (a) Describe the working of oxy-acetylene welding process with the help of a neat sketch.
(b) List out the various operations performed on lathe machine.

16 (a) Differentiate sand and dic casting process.
(b) Explain the working principle of arc welding.

17 Write short notes on the following:
(a) Mechanical efficiency IC Engines
(b) Refrigerator

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Code No. 14541/CBCS/BL

FACULTY OF ENGINEERING

B.E III - Semester (M/P/AE) (CBCS) (Backlog) Examination, November 2021

Subject: Mechanics of Materials

Time: 2 Hours **Max. Marks: 70**

Missing data, if any, may be suitably assumed.

PART – A

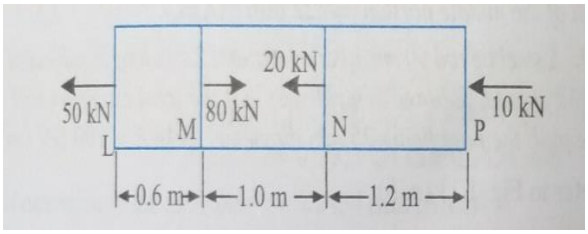
Note: Answer any five questions. **(5x2 = 10 Marks)**

1 Define Bulk modulus and give the relation between elastic constants.
2 Write the difference between Toughness and Hardness.
3 What is the relation between Shear force and Bending moment?
4 For a cantilever beam carrying a uniformly distributed load over the entire span, then maximum bending moments is _____?
5 Define core of a section. What are core dimensions of rectangular section of width b and depth d?
6 Define section modulus. What is section modulus of circular section of diameter 'D'?
7 For a simply supported beam carrying a point load 'W' at center, then maximum deflection is _____?
8 Write the equations for normal stress and shear stress acting on an oblique plane subjected to σ_x, σ_y and τxy.
9 Write Torsion formula.
10 Differentiate between closed and open coiled helical spring.

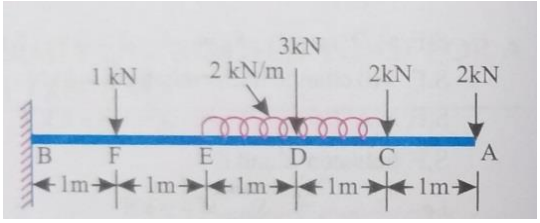
PART – B

Note: Answer any four questions. **(4x15 = 60 Marks)**

11 A bar having cross sectional area of 1000mm^2 is subjected to axial forces as shown in figure. Find the total elongation of the bar. Take E = 100GN/m^2.



12 Draw Shear force and Bending moment diagram for the loaded cantilever beam shown in the figure.



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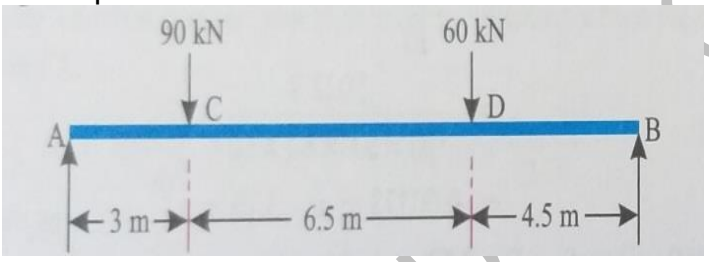
13 A point in a strained material is subjected to direct stress of 1000N/mm^2 (Tensile) and 300 N/mm^2 (Compressive) in two mutually perpendicular directions. Find Normal, Tangential and Resultant stress on a plane making 30° with the access of second stress.

14 Derive bending equation $M/I = \sigma/y = E/R$.

15 A wooden beam 100mm wide, 250mm deep and 3m long is carrying a uniformly distributed load of 40KN/m. Determine the maximum shear stress and sketch the variation of shear stress along the depth of the beam.

16 A steel bar of uniform cross section, 14m long is simply supported at its ends. It carries concentrated load of 90KN and 60KN as shown in figure. Calculate deflection under this point loads.



17 A steel shaft transmits 105kW at 160 rpm. The shaft is 100mm in diameter. Find the maximum shear stress induced and also find twist of the shaft in a length of 6m. Take C = 8 x 10^{4}N/mm^2.

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Code No. 14549/CBCS/BL

FACULTY OF ENGINEERING

B.E. (CSE) III-Semester (CBCS)(Backlog) Examination, November 2021

Subject: Basic Electronics

Time: 2 hours **Max. Marks: 70**

Note: Missing data, if any, may be suitably assumed.

PART – A

Answer any five questions. **(5x2 = 10 Marks)**

1 Differentiate between an intrinsic and extrinsic semiconductor.
2 State the hall-effect in semiconductor.
3 Draw h-parameter model of a common base configuration.
4 What are the applications of diode?
5 What is an oscillator?
6 What is an op-amp?
7 Draw the truth table of full Adder.
8 How the transistor amplifies the input-signal?
9 What are the universal gates? Give the truth tables.
10 What are the applications of CRO?

PART – B

Answer any four questions. **(4x15 = 60 Marks)**

11 (a) What are the types of semiconductor? Explain the working of PN junction diode with V-I characteristics.
(b) What is zener diode? Differentiate zener diode with a diode.

12 (a) Explain the common base configuration BJT.
(b) Briefly explain the principles and the operations of JFET.

13 (a) Write short notes on positive and negative feedback.
(b) With the help of a neat diagram explain the Wein bridge oscillator.

14 (a) Classify negative feedback amplifiers. Compare their performance in a tabular column.
(b) Realize the Half adder using basic gates.

15 (a) Explain the concept of DAS with a neat block diagram.
(b) Discuss the advantages and disadvantages of thermocouple.

16 (a) What are the applications of op-amp? Explain any two with proper expression.
(b) What is meant by slew rate in an op-amp?

17 (a) Explain the construction and working of LVDT.
(b) With the help of CRO block diagram explain its operation.

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Code No : 14555/CBCS/BL

FACULTY OF ENGINEERING

BE III – Semester (CBCS) (I.T) (Backlog) Examination, November 2021

Subject: Probability & Random Processes

Time: 2 hours **Max. Marks: 70**

Note: Missing data, if any, may be suitably assumed.

PART – A

Answer any five questions. **(5x2 = 10 Marks)**

1. Define probability based on its axioms.
2. If A is a subset of B, P(A)=1/4 and P(B)=1/3 . Determine P(A|B) and P(B|A).
3. Show that the area under the exponential distribution is unity
4. State poisson theorem.
5. If two random variables X and Y are independent then prove that their covariance is zero
6. Determine the density of the random variable $Z = \frac{X}{Y}$
7. Write any three properties of auto correlation function
8. Define mean and correlation ergodic process.
9. Draw the band pass and band limited representation of white noise
10. State Wiener-Khintchine relation.

PART – B

Answer any four questions. **(4x15 = 60 Marks)**

11 (a) State and prove addition theorem of probability for 3 events A,B and C.

(b)Three switches connected in parallel operate independently. Each switch remains closed with probability p. Determine i) the probability of receiving an input signal at the output ii) the probability that switch S_1 is open given that an input signal is received at the output

12 (a) A fair coin is tossed three times. Let the random variable X represent the number of heads. Obtain the distribution function ofX.

(b) The distribution of random variable X ~N(5,2) and Y= 2X+4. Determine η_y, σ_y and $f_y(y)$.

13(a) The following table represents the joint probability distribution of discrete RV (X,Y). Determine all the marginal and conditional distributions.

Y	X		
	1	2	3
1	1/12	1/6	0
2	0	1/9	1/5
3	1/18	1/4	2/15

Contd..2

14 (a) Given a RV Y with characteristic function $\phi(\omega) = E\{e^{j\omega Y}\}$ where $E\{e^{j\omega Y}\} = E\{\cos \omega Y + j \sin \omega Y\}$ and a random process defined by $X(t) = \cos(\lambda t+Y)$. Show that {X(t)} is a WSS process if $\phi(1) = \phi(2) = 0$

(b) Determine the mean and variance of a WSS process X(t) whose auto correlation function

$$R(\tau) = \frac{25\tau^2 + 36}{6.25\tau^2 + 4}$$

15(a) Determine the power spectral density of a WSS process with auto correlation Function $R(\tau) = e^{-\alpha\tau^2}$

(b) Determine the mean, variance and auto correlation of a poisson process

16(a) Determine the characteristic function of binomial distribution. Using that determine the mean and variance of binomial distribution.

(b) Given two independent Gaussian random variables X and Y with zero mean and common variance σ^2. Let $r = \sqrt{X^2 + Y^2}$ and $\theta = tan^{-1}(\frac{Y}{X})$. Determine the joint density of r and θ.

17(a) There are four boxes. Box1 contains 2000 components of which 5% are defective. Box2 contains 500 components of which 40% are defective. Boxes 3 and 4 contain 1000 each with 10% defective components. If a box is selected at random and a component is removed from that what is the probability that the selected component is defective.

(b) Define a random and semi random telegraph signal process

(c) The process X(t) is WSS with $R(\tau) = Ae^{-\alpha|\tau|}$. Determine the second order moment of the random variable X(8)-X(5)

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Code No: 15024/AICTE/BL

FACULTY OF ENGINEERING

B. E. (CE/EEE/EIE) III – Semester (AICTE) (Backlog) Examination,

November 2021

Subject: Energy Science & Engineering

Time: 2 hours **Max. Marks: 70**

Note: Missing data, if any, may be suitably assumed.

PART – A

Answer any five questions. **(5x2 = 10 Marks)**

1. What are the various sources of energy?
2. Explain the merits of renewable energy sources compared to conventional energy sources.
3. Name the various fossil fuels used in power generation.
4. Classify the types of gas turbine power plants.
5. Explain the difference between solar thermal systems and solar photovoltaic systems.
6. Differentiate nuclear fissile fuels from fertile fuels.
7. Present various methods to store mechanical energy.
8. What is Co-generation and its cycles?
9. Explain the greenhouse effect.
10. What is Energy Efficiency Rating?

PART – B

Answer any four questions. **(4x15 = 60 Marks)**

11. (a) Discuss the prospects of renewable energy sources in India.

    (b) Present the advantages and disadvantages of hydroelectric power.

12. (a) Explain the power generation in steam power plant with a schematic diagram.

    (b) Compare the open cycle gas turbine power plant with closed cycle gas turbine power plant.

13. (a) Explain the working of a nuclear power plant with a neat sketch.

    (b) Discuss various methods of nuclear waste disposal.

14. (a) Outline the working principle of a hydroelectric power plant with a neat sketch.

    (b) Explain the various types of spillways of hydroelectric power plants.

15. (a) Discuss various types of concentrated solar collectors.

    (b) Describe in detail the working principle of a solar photovoltaic cell.

16. (a) Explain the concept of Tri-generation with a schematic diagram.

    (b) Discuss the thermal energy storage methods,

17. (a) What are the pollutants released by a coal fired power plant?

    (b) Discuss the various methods of pollution control for a coal fired thermal power plant.

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Code No. 15271/AICTE/N/BL

FACULTY OF ENGINEERING

B.E. III - Semester (AICTE) (ECE) (New) (Backlog) Examination, November 2021

Subject: Electronic Devices

Time: 2 Hours **Max. Marks: 70**

(Missing data, if any, may be suitably assumed)

PART – A

Note: Answer any five questions. **(5x2 = 10 Marks)**

1 What are the applications of PN junction diode?
2 Distinguish between Avalanche breakdown versus Zener break down.
3 Why bridge rectifier is preferred over Center-tap rectifier?
4 Draw the output waveform of full wave rectifier with and without filter.
5 Compare CE, CB and CC configurations.
6 Draw the h-parameter equivalent circuit in CE Configurations.
7 Determine the stability factor of fixed bias circuit.
8 Draw the small signal model of a common source JFET.
9 In a JFET the drain current changes from 1.2mA to 1.5mA when the gate to source voltage is varied from -4.25 to -4.10, keeping the drain source voltage constant, Determine transconductance for the given JFET.
10 Draw the transfer characteristics of JFET.

PART – B

Note: Answer any four questions. **(4x15 = 60 Marks)**

11 (a) How Zener diode works as voltage regulator? Explain with help of circuit diagram.
(b) Derive Diode current equation.

12 Explain a bridge rectifier with circuit diagram and waveforms. Why bridge rectifier is preferred than Centre tapped rectifier. Derive (i) Idc (ii) TUF (iii) Ripple factor (iv) Efficiency (v) form factor.

13 (a) Derive necessary expressions for small signal model of BJT in terms of Voltage gain, current gain, input and output impedances.
(b) Draw the circuit of collector to base bias circuit.

14 (a) Compare JFET and BJT what are the applications of JFET.
(b) Show that amplification factor of JFET μ = gm x rd.

15 (a) A JFET has drain saturation current IDSS of 10 mA and Quiescent point drain current I_D is 5mA, With pinch off voltage -4volts. Calculate VGS and gm.
(b) Draw the small signal model of a common drain JFET.

16 (a) In case of a JFET the drain current is changed by 0.25mA when the gate source voltage is changed by 0.125V, keeping drain source voltage constant. Calculate the transconductance of the given JFET.

(b) Explain the configuration of Common source configuration and draw its transfer and drain characteristics.

17 Write short notes on the following:

(a) BJT as an amplifier

(b) MOSFET behaves as switch.

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FACULTY OF ENGINEERING
B.E. III - Semester (AICTE) (ECE) (Old) Examination, November 2021

Subject: Electronic Devices

Time: 2 Hours **Max. Marks: 70**

PART – A

Note: Answer any five questions. **(5x2 = 10 Marks)**

1 A silicon semiconductor material is doped with Phosphorus impurities, if the concentration of the impurity atoms is given as 2.25 X 10^{15} cm^{-3}, calculate the minority charge concentration.
2 Determine the AC resistance of the Si diode for a Forward bias voltage of 0.59V and reverse saturation current is 1 ηA.
3 What is critical inductance in rectifier with LC filter, give the expression for it?
4 A Half wave rectifier having an internal resistance of the diode as 100 Ω and a load resistance of 1K Ω rectifies and AC voltage of 220V, Calculate the peak, average and R.M.S values of current through the rectifier.
5 What is thermal run away in transistor?
6 Calculate the collector current of a CE BJT amplifier if β=100, I_B = 10 μ A, I_{co} = 1 μ A.
7 For the h-parameters of BJT in CE configuration, convert them to the respective h-parameters in CC configuration.
8 What is SCR, Draw its structure and plot its V-I characteristics?
9 Explain briefly photolithography process in IC fabrication.
10 A JFET has Vp = -4.5V, I_{DSS} = 10 mA, I_D = 2.5 mA, determine the trans-conductance.

PART – B

Note: Answer any four questions. **(4x15 = 60 Marks)**

11 (a) Explain the working of PN junction diode in forward and reverse bias.
(b) Derive the expression for the depletion capacitance in reverse bias of a PN junction diode.

12 Draw the circuit diagram of a Full wave rectifier and explain its operation, derive its ripple factor, Efficiency, TUF, PIV, % Regulation.

13 (a) Draw the circuit diagram of BJT in common emitter configuration and explain its input, Output V-I characteristics.
(b) Design a Collector to base bias circuit to establish the Q-point at I_C = 1mA, V_{CE} = 6V. Use a transistor with β = 200 and V_{BE} = 0.65V. Given V_{CC} = 12V.

14 (a) For a Common Collector amplifier with R_S = 1k Ω, R_L = 5k Ω assume the h-parameters values as h_{ie} = 1. 1k Ω, h_{re} = 150 μ, h_{fe} = 50, h_{oe} = 25 μ mhos. Determine the following parameters: (i) current gain A_I (ii) input resistance R_I (iii) voltage gain A_v (iv) output resistance R_o.
(b) Derive the approximate Hybrid model of BJT.

15 (a) Draw and explain the V-I characteristics of JFET in Common source configuration.
(b) For a JFET amplifier in Common Drain configuration, derive the expressions for (i) current gain A_I (ii) input resistance R_I (iii) voltage gain A_v (iv) output resistance R_o.

16 (a) Define stability factor, derive the stability factor for a self bias circuit using BJT.
(b) Explain Process flow for the fabrication of NMOS transistor with neat diagrams.

17 Write short notes on the following.
(a) Light Emitting diode
(b) MOS capacitor
(c) Solar cell.

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FACULTY OF ENGINEERING

B.E. III – Semester (CME) (Backlog) Examination, November 2021

Subject: - Discrete Structure & Mathematical Logic

Time: 2 hours **Max. Marks: 70**

Note: (Missing data, if any, may be suitably assumed)

PART – A

Answer any five questions. **(5 x 2 = 10 Marks)**

1. Define symmetrical difference of two sets A and B. Explain the concept with an example.
2. Find the gcd and lcm of a = 540 and b = 504.
3. Among 'n' pigeon holes, some pigeon holes should contain at least 3 pigeons. Find the number of pigeons.
4. How many ways can the letters of the OPTICAL be arranged so that the vowels always come together.
5. Write the logical equivalence to the following statement.
   $\neg(p \wedge q) \rightarrow (\neg p \vee (\neg p \vee q))$
6. Explain the proof methods proof by contradiction and proof by necessity and sufficiency
7. What is an order of a group? Explain with example.
8. Define ring and ring homomorphism.
9. Define in- degree and out-degree of a diagraph.
10. What is height balanced binary tree? Give an example.

PART – B

Answer any four questions. **(4 x 15 = 60 Marks)**

11a) Consider the functions f and g defined by f(x) = x^3, g(x) = $x^2 + 1$, $\forall x \in R$. Find
$g \circ f, f \circ g, f^2, g^2$

b) Using mathematical induction show that
$1 + 2 + 2^2 + \ldots\ldots\ldots\ldots + 2^n = 2^{n+1} - 1$, $\forall n \in N$.

12. a) State and prove principle of inclusion and exclusion.

b) Find the number of ways of arranging 6 boys and 5 girls in a row so that
i) all the girls sit together ii) no two girls sit together iii) boys and girls sit alternatively

13. a) Establish the validity of the following arguments

$p \rightarrow (q \rightarrow r)$

$p \vee s$

$t \rightarrow q$

$\neg s$

$\therefore \neg r \rightarrow \neg t$

..2

b) Prove the statement: For all integers *a*, *b*, and *c*, if $a^2 + b^2 = c^2$, then *a* or *b* is even

14. a) Show that if a, b are any two elements of a group G, then $(ab)^2 = a^2 \cdot b^2$, if an only if G is abelian group

b) Let S be the set of real numbers of the form $a + b\sqrt{3}$, where *a* and *b* are rational numbers. Show that S is a field.

15. a) What is the Chromatic number of $K_{4,4}$

b) Define a complete binary tree and show that the total number of edges is given by 2(n-1), Where n is the number of terminal nodes.

16. a) If G(V,E) is an undirected graph, then prove that number of vertices of odd degree must be is even.

b) On the set Z, define the relation R by aRb if an only if $ab \geq 0$. Prove that R is reflexive and symmetric, but not transitive.

17. Write short notes on any two.

a) Bi-connected components and Articulation points

b) Partial ordering and Hasse diagram

c) Properties of Algebraic system

Code No. 15039/AICTE/BL

FACULTY OF ENGINEERING
B.E. III - Semester (AICTE) (M/P/AE/CSE/IT) (Main) Examination, November 2021
Subject: Basic Electronics

Time: 2 Hours **Max. Marks: 70**

Note: Missing data, if any may be suitably assumed.

PART – A

Answer any five questions. **(5x2 = 10 Marks)**

1 Define the terms (a) Ripple factor and (b) TUF for a rectifier.
2 What is Voltage Regulation?
3 Compare BJT and FET.
4 What is punch-through effect?
5 Draw the h-parameter equivalent circuit of BJT.
6 Draw the Block diagram of Current shunt Feedback amplifier.
7 What is an Oscillator? Define Barkhausan's Criteria for oscillations.
8 What are the ideal characteristics of an OP AMP?
9 Define (a) CMRR & (b) Slew rate.
10 What are the factors that determine the choice of a suitable Transducer?

PART – B

Answer any four questions. **(4x15 = 60 Marks)**

11 (a) Explain the operation of a Full Wave rectifier Derive the expression for its Ripple factor.
(b) Explain the operation of PN Junction diode in Forward & Reverse bias.

12 (a) Explain the Output characteristics of a Common Base BJT Configuration.
(b) Derive the relation between α, β & γ parameters of BJT.

13 (a) Explain the Input & Output characteristics of Common Emitter Configuration.
(b) Define h-parameters.

14 (a) Derive the expression for Input & Output Resistance of Current series feedback amplifier.
(b) What are the advantages of Negative feedback amplifiers?

15 (a) Explain the working of RC Phase shift oscillator and derive the expression for its frequency of oscillation.
(b) Explain the application of OP AMP as an integrator.

16 (a) Explain the construction & Working of LVDT.
(b) Explain R-2R Ladder DAC.

17 Write short notes on any 2 of the following:
(a) AC characteristics of OP AMP
(b) Successive Approximation ADC
(c) CRO.

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Code No: 14525 /CBCS/BL

FACULTY OF ENGINEERING

BE III-Semester (Civil) (CBCS) (Backlog) Examination, November 2021

Subject : Mechanical Technology (Part – B)

Time: 1 Hour **Max marks: 37**

Missing data, if any, may be suitably assumed

PART - A

Note: **Answer any two questions**. **(2x6=12 Marks)**

1. *Explain the function of crusher's jaw*
2. *Differentiate various screens used in concrete producing equipment.*
3. *What is a Whirler Crane?*
4. *List the uses of Hoist Winch*
5. *Explain function of Earth Compactor*

PART - B

Note: Answer any Two questions. **(25 Marks)**

6. a) List the advantages and disadvantages of Apron Conveyor
   b) Differentiate between Belt Conveyor and Screw Conveyor

7. Explain the working principle and uses of Reciprocating Air Compressor with neat sketch.

8. a) Write short note on Concrete Mixer and Concrete Pump.
   b) Explain the function of Hammer and Roll Crushers.

9. a) Mention the advantages and disadvantages of Aerial Ropeway and Rock Drill.
   b) Differentiate between Pneumatic Jack Hammer and paving Breaker

10. Write short notes on selection and operation of following earth moving and excavation equipment.

    1. Cable Excavator
    2. Shovels
    3. Bucket wheel excavator
    4. Scraper

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