



I Semester Term End Examination December 2018

B.Tech. Programmes (2018-19 session)

Branch: EE & PPT

Course Code: BT-PHY 115A

Max Time: 3hrs

Course Title: Waves, Optics and Quantum Mechanics

Max Marks: 70

**Note:**

Question Number **one (PART-I)** is compulsory and carries total 14 marks (Each sub Question carries two Marks).

Question Numbers 2(two) to 5(five) carry fourteen marks each with internal choice.

**PART -I**

Question No.1

- (a) What do you mean by transverse and longitudinal waves?
- (b) Explain superposition of two waves.
- (c) State and give the expression for uncertainty principle.
- (d) Write down Rayleigh criterion for limit of resolution.
- (e) What is Brewster's angle?
- (f) Explain P-N junction.
- (g) Write an acronym for LASER. Who do you understand by coherence?

**PART -II**

**Unit-I**

Question No.2 Write down the differential equations for damped harmonic oscillator. Discuss all the three cases (i) over damping (ii) under damping (iii) critically damped. (14)

Or

Question No. 2 (a) Derive Fresnel equations. (7)

(b) Calculate reflection and transmission coefficient when plane wave is incident normally on air-glass interface. (7)

**Unit-II**

Question No.3 What do you mean by diffraction? Derive an expression for maxima and minima in case of Fraunhofer diffraction using single slit. (14)SS

Or

Question No.3 (a) What are the properties of a laser? Explain construction and working of ruby laser. (7)

(b) Explain Newton's ring experiment in detail. In a Newton's ring experiment the diameter of the 15<sup>th</sup> ring was found to be 0.59 cm and that of the 5<sup>th</sup> ring is 0.336 cm. If the radius of curvature of the lens is 100 cm, find the wavelength of the light. (7)

**Unit-III**

Question No.4 Derive an expression for time independent Schrödinger equation. (7)

Or

Question No. 4 Derive wave function using delta function potential  $V = -\alpha\delta(x)$ . (14)

**Unit-IV**

Question No.5 (a) What do you mean by quantum free electron theory of metals? Write down its applications also. (7)

(b) Calculate density of states in three dimensions. (7)

Or

Question No.5 What are intrinsic and extrinsic semiconductors? Derive an expression for electrons concentration in case of intrinsic semiconductors. (14)





Central University of Haryana  
I/III/V Semester Term End Examination Dec 2018

B.Tech. Programmes

Branch: All branch (1<sup>st</sup> year)

Course Code: BT BEE 103A

Course Title: Basic Electrical Engineering

Max Time: 3hrs

Max Marks: 70

**Instructions:**

Question Number **one (PART-I)** is compulsory and carries total 14 marks (Each sub Question carry two Marks).

Question Numbers 2(two) to 5(five) carry fourteen marks each with internal choice.

**PART -I**

**Question No.1** Write short note on:

- Name of active and passive elements
- Define resonance condition of ac circuit.
- Explain double revolving field theory.
- Explain the role of commutator in a DC machine.
- Draw the experimental diagram of Open and Short CKT test of T/F.
- $N_s = 120f/p$  than derive the equation  $f_r = sf$ .
- Explain the relationship between frequency with eddy current and hysteresis loss.

**PART –II**

**Unit-I**

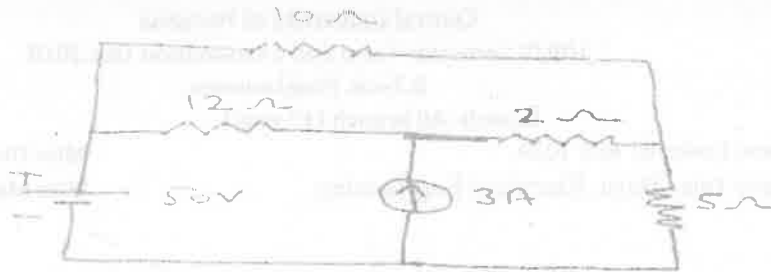
**Question No.2 (a)** State and explain superposition theorem how is it applied for solving a network? (7)

**Question No.2 (b)** Two batteries A and B are connected in parallel and a load of 10 ohm is connected across their terminals. A has an e.m.f of 12 V and an internal resistance of 2ohm; B has an e.m.f of 8V and an internal resistance of 1 ohm. Use Kirchhoff's laws to determine the value and direction of the external resistance. Also determine the potential difference across the external resistance. (7)

**Or**

**Question No.2 (a)** Explain with mathematical expression of maximum power transfer theorem? (7)

**Question No.2 (b)** Calculate current in 2 ohm resistor in the network shown in Figure using Thevenin's theorem. (7)



#### Unit-II

**Question No.3 (a)** With the help of mathematical expression explain the shunt resonance in ac circuit? (7)

**Question No.3 (b)** A coil having an inductance of 50 mH and resistance of 10 ohm is connected in series with 25 microfarad capacitor across a 200V, 50 Hz ac supply. Calculate

- (i) Resonance frequency of the circuit
- (ii) Current flowing at resonance and
- (iii) Value of  $Q_0$  by using given data (7)

Or

**Question No.3** Explain with mathematical expression of power consumed in a pure resistive, inductive and capacitive load. (14)

#### Unit-III

**Question No.4 (a)** How many type of single phase induction motor. Explain in brief only split type single phase I.M. (7)

**Question No.4 (b)** Explain the torque-slip and torque-speed curve of 3-phase I.M. (7)

Or

**Question No.4 (a)** Explain the relationship between torque and armature current in dc machine? Draw the characteristic of DC series motor. (7)

**Question No.4 (b)** With the help of copper and core losses derive the maximum efficiency condition in Transformer (7)

#### Unit-IV

**Question No.5** Explain different type of Wires and Cables with reference to their field of application, advantage and disadvantages. (14)

Or

**Question No.5** Explain the switch fuse, miniature circuit breaker and earth leakage circuit breaker. (14)



Central University of Haryana  
ODD Semester Term End Examination Dec 2018  
B.Tech. Programmes

Branch: CSE

Course Code: BT MAT 111A  
Course Title: Mathematics 1

Max Time: 3 Hours  
Max Marks: 70

**Instructions:**

Question Number **one (PART-I)** is compulsory and carries total 14 marks (Each sub Question carries two Marks).  
Question Numbers 2(two) to 5(five) carry fourteen marks each with internal choice.

**PART - I**

Q. No.1

- (a) Find sum and product of eigenvalues of  $\begin{bmatrix} 1 & 1 & 3 \\ 1 & 5 & 1 \\ 3 & 1 & 1 \end{bmatrix}$ .
- (b) Find the rank of  $A = \begin{bmatrix} 8 & 1 & 3 & 6 \\ 0 & 3 & 2 & 2 \\ -8 & -1 & -3 & 4 \end{bmatrix}$ .
- (c) Show that any square matrix  $A$  can be written as the sum of a symmetric matrix  $B$  and skew-symmetric matrix  $C$ .
- (d) Determine  $a, b, c$  so that  $A$  is orthogonal, where  $A = \begin{bmatrix} 0 & 2b & c \\ a & b & -c \\ a & -b & c \end{bmatrix}$ .
- (e) Evaluate the integral  $\int_0^1 \frac{x^2}{\sqrt{(1-x^4)}} dx$ .
- (f) Test if  $\begin{bmatrix} 2 & 2 \\ 1 & 3 \end{bmatrix}$  and  $\begin{bmatrix} 2 & 1 \\ 0 & 2 \end{bmatrix}$  are similar matrices.
- (g) Find a value of  $x$  such that the vectors  $(1,3,5)$ ,  $(2, -1,3)$  and  $(4, x, 1)$  are linearly dependent.

**PART - II**

Q. No.2 (a) Solve by calculating the inverse by elementary row operations

$$\begin{aligned} x + y + z + u &= 0 \\ x + y + z - u &= 4 \\ x + y - z + u &= -4 \\ x - y + z + u &= 2. \end{aligned}$$

(b) Reduce  $A$  to Echelon form and to its row canonical form where

$$A = \begin{bmatrix} 1 & 3 & -1 & 2 \\ 0 & 11 & -5 & 3 \\ 2 & -5 & 3 & 1 \\ 4 & 1 & 1 & 5 \end{bmatrix}$$

Hence find the rank of  $A$ .

OR

Q. No.2 (a) Find the non-singular matrices  $P$  and  $Q$  such that the normal form of  $A$  is  $PAQ$  where

$$A = \begin{bmatrix} 1 & 1 & 2 \\ 1 & 2 & 3 \\ 0 & -1 & -1 \end{bmatrix}. \text{ Hence find its rank.}$$

(b) Solve

$$3x + 3y + 2z = 1$$

$$x + 2y = 4$$

$$10y + 3z = -2$$

$$2x - 3y - z = 5$$

Q. No.3(a) Find the modal matrix of  $A = \begin{bmatrix} 1 & 6 & 1 \\ 1 & 2 & 0 \\ 0 & 0 & 3 \end{bmatrix}$ , hence find  $A^8$ .

(b) Find the characteristic polynomial, eigenvalues, and eigenvectors of the matrix

$$A = \begin{bmatrix} 0 & 0 & 1 & 1 \\ -1 & 2 & 0 & 1 \\ -1 & 0 & 2 & 1 \\ 1 & 0 & -1 & 0 \end{bmatrix}$$

OR

Q. No 3(a) Diagonalize  $A = \begin{bmatrix} 1 & 2 & -2 \\ 2 & 1 & -4 \\ 1 & -1 & -2 \end{bmatrix}$ .

(b) Using Gram- Schmidt process to construct an orthogonal set of basis vectors for the given vectors

$$\begin{bmatrix} 1 \\ 2 \\ 1 \end{bmatrix}, \begin{bmatrix} 2 \\ 1 \\ 2 \end{bmatrix}, \begin{bmatrix} 2 \\ 1 \\ -4 \end{bmatrix}$$

Q. No.4 (a) Express  $\sin x$  as an nth degree Taylor's polynomial at  $x = \pi/6$  with Lagrange's form of remainder.

(b) Find the asymptotes of the curve  $x^3 + 3x^2y - 4y^3 - x + y + 3 = 0$ .

OR

Q. No .4 (a) Find the volume of the solid formed by the revolution about  $y$  - axis the plane area bounded by the straight lines  $y = x + 2, y = 2x - 1$  and outside of the parabola  $y = x^2$ .

(b) Prove that

$$\int_0^1 \frac{x^2}{\sqrt{1-x^4}} dx \times \int_0^1 \frac{1}{\sqrt{1+x^4}} dx = \frac{\pi}{4\sqrt{2}}$$

Q. No.5(a) Which of the given vectors are linearly dependent? For those which are, express one vector as a linear combination of the rest.

i.  $[1 \ 1 \ 0], [0 \ 2 \ 3], [1 \ 2 \ 3], [0 \ 0 \ 0]$

ii.  $\begin{bmatrix} 1 & 1 \\ 2 & 1 \end{bmatrix}, \begin{bmatrix} 1 & 0 \\ 0 & 2 \end{bmatrix}, \begin{bmatrix} 0 & 3 \\ 2 & 1 \end{bmatrix}, \begin{bmatrix} 4 & 6 \\ 8 & 6 \end{bmatrix}$

(b) Show that the vectors  $a = (1, 0, -1), b = (1, 2, 1), c = (0, -3, 2)$  form a basis for  $R^3$ .

OR

Q.No.5(a) Find  $T(x, y)$ , where the linear map  $T: R^2 \rightarrow R^2$  is defined by  $T(1,2) = (3, -1)$  and  $T(0,1) = (2,1)$ .

(b) State rank-nullity theorem and illustrate it on a transformation matrix  $\begin{bmatrix} 1 & 2 & 3 \\ 2 & 4 & 6 \\ 1 & 1 & 3 \end{bmatrix}$ .

Central University of Haryana  
I Semester Term End Examination Dec 2018

B.Tech. Programmes  
Branch: EE and PPT

Course Code: BT ME 106 A  
Course Title: Workshop/Manufacturing Practices

Max Time: 2 hrs.  
Max. Marks 50

**Instructions:**

Question Number **one (PART-I)** is compulsory and carries total 10 marks (Each sub Question carries two Marks).

Question Numbers 2(two) to 5(five) carry TEN marks each with internal choice.

**PART -I**

Q.No.1

- (a) : Explain at least two characteristics of NC and CNC.
- (b) Define lathe chucks, Reaming.
- (c) Define Rolling, Wire Drawing.
- (d) What are different types of casting defects? Explain any two..
- (e) What is punching? What is main difference between punching and blanking?

**PART -II**

Q.No.2 How can you specify a lathe? Explain various types of operations performed on a lathe machine.

**OR**

Q.No.2 Explain injection moulding and compression moulding with neat sketches.

Q.No.3 What is Extrusion? What are different types of Extrusion process? Show with diagrams.

**OR**

Q.No.3 Enlist various hot working and cold working processes. Compare hot working and cold working processes indicating advantages and disadvantages of each.

Q.No.4 Describe the type of flames obtained in oxy-acetylene gas welding process. Also give their application.

**OR**

Q.No.4 How is an obtained in arc welding? How do you specify an electric arc welding power source? Explain.

Q.No.5 Describe the various kinds of patterns in use. What are the allowances provided when making a pattern?

**OR**

Q.No.5 List five typical components produced by the casting process.

\*\*\*\*\*





Central University of Haryana  
I Semester Term End Examination Dec 2018

B.Tech. Programmes

Branch: CE

Course Code: BT ME 105A

Course Title: Engineering Graphics and Design

Max Time: 2 hrs.

Max. Marks 50

**Instructions:**

Question Number **one (PART-I)** is compulsory and carries total 10 marks (Each sub Question carry two Marks).

Question Numbers 2(two) to 5(five) carry TEN marks each with internal choice.

**PART -I**

**Question No.1**

- (a) : Draw the projection of the point A, in the VP and 40 mm below the H.P.  
(b) : Draw the projection of the points B, 30 mm below the HP and 40 mm in front of the V.P.  
(c) Define any two a) Cycloid b) Square prism c) Generators  
(d) What is the symbolic figure of first angle projection?  
(e) The angle required for development of lateral surface of a cone is.....?

**PART -II**

**Question No.2** Draw a diagonal scale of R.F. 1: 2.5, showing centimeters and millimeters and long enough to measure up to 20 centimeters. Show the distance of 13.4cm on it.

**Or**

**Question No.2** The distance between Delhi and Agra is 200 km. In a railway map it is represented by a line 5 cm long. Find it's R.F. Draw a diagonal scale to show single km. And maximum 600km. Indicate on it following distances. 1) 222 km 2) 336 km 3) 459 km 4) 569 km

**Question No.3** : A Straight line CD 50 mm perpendicular to VP and Parallel to HP .Draw its projection and determine its traces.

**Or**

**Question No.3** : A line AB 60mm long ,has its end A in both the H.P and V.P .It is inclined at 30 deg to the HP and 45 deg to the VP. Draw its projection.

**Question No.4** : A Rectangular plane 30mm and 50mm sides is resting on HP on one small side which is 300 inclined to VP, while the surface of the plane makes 450 inclination with HP. Draw it's projections.

**Or**

**Question No.4** : End A of a line AB is 15mm above HP & 20mm in front of VP while its end B is 50mm above HP and 75mm in front of VP. The distances between end projectors of the line is 50mm. Draw projections of the line and find its true length and true inclination with the principal planes. Also mark its traces.

**Question No.5** : A cube of 30 mm side rests with one of its edges on H P such that one of the square faces containing that edge is inclined at 30 deg. to H P and the edge on which it rests being inclined to 60 deg. to V P. Draw its projections.

**Or**

**Question No.5** : A Cone base 600mm diameter and axis 800mm long is resting with its base on HP. It is cut by a section plane perpendicular to the VP and inclined at 45 deg to the HP and bisecting axis. Draw the development.





Central University of Haryana  
I/III/V Semester Term End Examination Dec 2018  
B.Tech. Programmes  
Branch: All branch (1<sup>st</sup> year)

Course Code: BT BEE 103A  
Course Title: Basic Electrical Engineering

Max Time: 3hrs  
Max Marks: 70

**Instructions:**

Question Number one (PART-I) is compulsory and carries total 14 marks (Each sub Question carry two Marks).

Question Numbers 2(two) to 5(five) carry fourteen marks each with internal choice.

**PART -I**

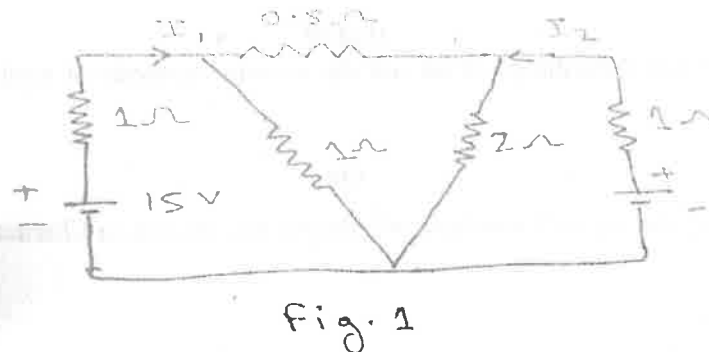
**Question No.1** Write short note on:

- (a) Define of KVL and KCL.
- (b) Difference b/w turn ratio and transformation ratio on T/F.
- (c) Explain loop and branch in electrical network.
- (d) DC series motor always runs ..... load condition.
- (e) Explain the importance of power factor in AC networks.
- (f) Explain the slip, frequency and cycle.
- (g) Explain the main role of earthing.

**PART -II**

**Unit-I**

**Question No.2 (a)** Find the current  $I_1$  and  $I_2$  in the passive elements of the network shown in Figure 1. (7)



**Question No.2 (b)** Derive the equation of Delta-star and star-delta transformation. (7)

**Or**

**Question No.2 (a)** Explain step by step Thevenin,s theorem. (7)

**Question No.2 (b)** A bridge network ABCD is arranged as follows: resistance between terminal A-B; B-C; C-D; D-A and B-D are 10,30,15,20 and 40 ohm respectively. A 2 volt battery of negligible internal resistance is connected between terminal A and C. Determine the value and direction of the current in 40 ohm resistor by applying Thevenin theorem. (7)

**Unit-II**

**Question No.3 (a)** Explain and derive the expression of the following terms:  
(i) Average and mean value (ii) effective value or R.M.S value (iii) form factor and peak factor

(7)

**Question No.3 (b)** An alternating current is given by the expression  $i=50\sin 628t$ . Determine  
(i) maximum value of current; (ii) r.m.s value of current; (iii) frequency of current; (iv) value of current after  $t=0.00625$  second and (v) time taken by the current to reach a value of 20 A.

(7)

**Or**

**Question No.3 (a)**. Explain with mathematical expression of R-L-C series circuit and brief description about its resonance conditions.

(14)

**Unit-III**

**Question No.4 (a)** What is a D.C machine? Drive the EM.F equation of D.C machine. (7)

**Question No.4 (b)** Explain the  $N-I_a$ ,  $T-I_a$  and  $N-T$  characteristics of series d.c motor. (7)

**Or**

**Question No.4 (a)** What is a transformer? Explain its e.m.f equation and maximum efficiency condition. (7)

**Question No.4 (b)** Explain the operational principle and rotor e.m.f equation of induction motor. (7)

**Unit-IV**

**Question No.5** What is earthing? What are the various methods of earthing? Explain pipe earthing. (14)

**Or**

**Question No.5** Explain the different type of batteries and important Characteristic of batteries. (14)



Central University of Haryana  
ODD Semester Term End Examination Dec 2018  
B.Tech. Programmes

Branch: CSE

Course Code: BT MAT 111A  
Course Title: Mathematics 1

Max Time: 3 Hours  
Max Marks: 70

**Instructions:**

Question Number **one (PART-I)** is compulsory and carries total 14 marks (Each sub Question carries two Marks).  
Question Numbers 2(two) to 5(five) carry fourteen marks each with internal choice.

**PART -I**

Q. No.1

- (a) Find sum and product of eigenvalues of  $\begin{bmatrix} 1 & 1 & 3 \\ 1 & 5 & 1 \\ 3 & 1 & 1 \end{bmatrix}$ .
- (b) Find the rank of  $A = \begin{bmatrix} 8 & 1 & 3 & 6 \\ 0 & 3 & 2 & 2 \\ -8 & -1 & -3 & 4 \end{bmatrix}$
- (c) Show that any square matrix  $A$  can be written as the sum of a symmetric matrix  $B$  and skew-symmetric matrix  $C$ .
- (d) Determine  $a, b, c$  so that  $A$  is orthogonal, where  $A = \begin{bmatrix} 0 & 2b & c \\ a & b & -c \\ a & -b & c \end{bmatrix}$ .
- (e) Evaluate the integral  $\int_0^1 \frac{x^2}{\sqrt{1-x^4}} dx$ .
- (f) Test if  $\begin{bmatrix} 2 & 2 \\ 1 & 3 \end{bmatrix}$  and  $\begin{bmatrix} 2 & 1 \\ 0 & 2 \end{bmatrix}$  are similar matrices.
- (g) Find a value of  $x$  such that the vectors  $(1,3,5)$ ,  $(2, -1,3)$  and  $(4, x, 1)$  are linearly dependent.

**PART -II**

Q. No.2 (a) Solve by calculating the inverse by elementary row operations

$$\begin{aligned} x + y + z + u &= 0 \\ x + y + z - u &= 4 \\ x + y - z + u &= -4 \\ x - y + z + u &= 2. \end{aligned}$$

(b) Reduce  $A$  to Echelon form and to its row canonical form where

$$A = \begin{bmatrix} 1 & 3 & -1 & 2 \\ 0 & 11 & -5 & 3 \\ 2 & -5 & 3 & 1 \\ 4 & 1 & 1 & 5 \end{bmatrix}$$

Hence find the rank of  $A$ .

OR

Q. No.2 (a) Find the non-singular matrices  $P$  and  $Q$  such that the normal form of  $A$  is  $PAQ$  where

$$A = \begin{bmatrix} 1 & 1 & 2 \\ 1 & 2 & 3 \\ 0 & -1 & -1 \end{bmatrix}. \text{ Hence find its rank.}$$

(b) Solve

$$\begin{aligned} 3x + 3y + 2z &= 1 \\ x + 2y &= 4 \\ 10y + 3z &= -2 \\ 2x - 3y - z &= 5 \end{aligned}$$

Q. No.3(a) Find the modal matrix of  $A = \begin{bmatrix} 1 & 6 & 1 \\ 1 & 2 & 0 \\ 0 & 0 & 3 \end{bmatrix}$ , hence find  $A^8$ .

(b) Find the characteristic polynomial, eigenvalues, and eigenvectors of the matrix

$$A = \begin{bmatrix} 0 & 0 & 1 & 1 \\ -1 & 2 & 0 & 1 \\ -1 & 0 & 2 & 1 \\ 1 & 0 & -1 & 0 \end{bmatrix}$$

OR

Q. No 3(a) Diagonalize  $A = \begin{bmatrix} 1 & 2 & -2 \\ 2 & 1 & -4 \\ 1 & -1 & -2 \end{bmatrix}$ .

(b) Using Gram-Schmidt process to construct an orthogonal set of basis vectors for the given vectors

$$\begin{bmatrix} 1 \\ 2 \\ 1 \end{bmatrix}, \begin{bmatrix} 2 \\ 1 \\ 2 \end{bmatrix}, \begin{bmatrix} 2 \\ 1 \\ -4 \end{bmatrix}$$

Q. No.4 (a) Express  $\sin x$  as an  $n$ th degree Taylor's polynomial at  $x = \pi/6$  with Lagrange's form of remainder.

(b) Find the asymptotes of the curve  $x^3 + 3x^2y - 4y^3 - x + y + 3 = 0$ .

OR

Q. No .4 (a) Find the volume of the solid formed by the revolution about  $y$  - axis the plane area bounded by the straight lines  $y = x + 2$ ,  $y = 2x - 1$  and outside of the parabola  $y = x^2$ .

(b) Prove that

$$\int_0^1 \frac{x^2}{\sqrt{1-x^4}} dx \times \int_0^1 \frac{1}{\sqrt{1+x^4}} dx = \frac{\pi}{4\sqrt{2}}$$

Q. No.5(a) Which of the given vectors are linearly dependent? For those which are, express one vector as a linear combination of the rest.

i.  $[1 \ 1 \ 0], [0 \ 2 \ 3], [1 \ 2 \ 3], [0 \ 0 \ 0]$

ii.  $\begin{bmatrix} 1 & 1 \\ 2 & 1 \end{bmatrix}, \begin{bmatrix} 1 & 0 \\ 0 & 2 \end{bmatrix}, \begin{bmatrix} 0 & 3 \\ 2 & 1 \end{bmatrix}, \begin{bmatrix} 4 & 6 \\ 8 & 6 \end{bmatrix}$

(b) Show that the vectors  $a = (1, 0, -1), b = (1, 2, 1), c = (0, -3, 2)$  form a basis for  $\mathbb{R}^3$ .

OR

Q.No.5(a) Find  $T(x, y)$ , where the linear map  $T: R^2 \rightarrow R^2$  is defined by  $T(1,2) = (3, -1)$  and  $T(0,1) = (2,1)$ .

(b) State rank-nullity theorem and illustrate it on a transformation matrix  $\begin{bmatrix} 1 & 2 & 3 \\ 2 & 4 & 6 \\ 1 & 1 & 3 \end{bmatrix}$ .





Central University of Haryana  
ODD Semester Term End Examination Dec 2018  
B.Tech. Programmes

Branch: EE/PPT

Course Code: BT CSE 104A  
Course Title: Programming for Problem Solving.

Max Time: 3 Hrs  
Max Marks: 70

**Instructions:**

Question Number **one (PART-I)** is compulsory and carries total 14 marks (Each sub Question carries two Marks).

Question Numbers 2(two) to 5(five) carry fourteen marks each with internal choice.

Q. No.1

- (a) Pointers
- (b) Data Types
- (c) String
- (d) Conditional operators
- (e) 2D and 3D Array
- (f) Switch Case
- (g) Draw flowchart to find largest number among 3 numbers.

- (a) What is a Computer? Briefly explain about Components of a computer system? (10)
- (b) What is the use of .h (header files) in programming? (4)

OR

Q. No.2

- (a) Difference between Flowchart and a program? (4)
- (b) Differentiate between Low, High and Machine languages? With their advantages and disadvantages? (10)

Q. No.3

- (a) What is a function? Write a program using function in C language? (8)
- (b) Explain the Calling techniques used in C language to call a function? (6)

OR

Q. No 3

- (a) Write a program using loop to print table of any given number? (8)
- (b) what is recursion? Write a program to explain the concept of recursion? (6)

Q. No.4

- (a) write a program explaining the concept of Loops in C language? (10)
- (b) what is Nested if-else? Write a program to support your answer. (4)

OR

Q. No .4

- (a) what is an Union? Advantages of using Union in Programming.
- (b) What is structure? Write a program using structure for mathematical functions?

Q. No.5

- (a) Write Algorithm and Program for linear Search with output? (10)
- (b) difference between bubble and quick sort ? (4)

OR

Q. No.5

- (a) Write a program for binary Search?(8)
- (b) Explain Sorting techniques ? In detail(6)





Central University of Haryana  
I/III/V Semester Term End Examination Dec 2018

B.Tech. Programmes

Branch: All branch (1<sup>st</sup> year)

Course Code: BT BEE 103A

Course Title: Basic Electrical Engineering

Max Time: 3hrs

Max Marks: 70

**Instructions:**

Question Number one (PART-I) is compulsory and carries total 14 marks (Each sub Question carry two Marks).

Question Numbers 2(two) to 5(five) carry fourteen marks each with internal choice.

**PART - I**

**Question No.1** Write short note on:

- Define of KVL and KCL.
- Difference b/w turn ratio and transformation ratio on T/F.
- Explain loop and branch in electrical network.
- DC series motor always runs ..... load condition.
- Explain the importance of power factor in AC networks.
- Explain the slip, frequency and cycle.
- Explain the main role of earthing.

**PART - II**

**Unit-I**

**Question No.2** (a) Find the current  $I_1$  and  $I_2$  in the passive elements of the network shown in Figure 1. (7)

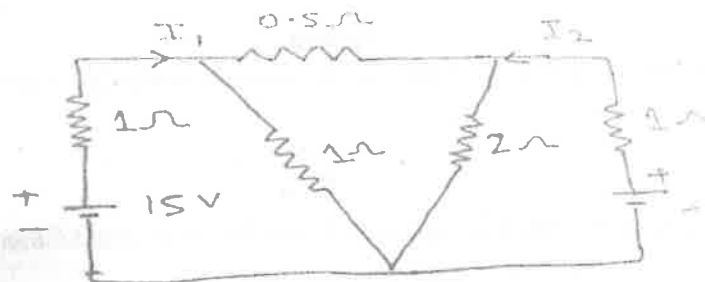


Fig. 1

**Question No.2** (b) Derive the equation of Delta-star and star-delta transformation. (7)

Or

**Question No.2** (a) Explain step by step Thevenin's theorem. (7)

**Question No.2** (b) A bridge network ABCD is arranged as follows: resistance between terminal A-B; B-C; C-D; D-A and B-D are 10,30,15,20 and 40 ohm respectively. A 2 volt battery of negligible internal resistance is connected between terminal A and C. Determine the value and direction of the current in 40 ohm resistor by applying Thevenin theorem. (7)

**Unit-II**

**Question No.3 (a)** Explain and derive the expression of the following terms:

(i) Average and mean value (ii) effective value or R.M.S value (iii) form factor and peak factor

(7)

**Question No.3 (b)** An alternating current is given by the expression  $i=50\sin 628t$ . Determine

(i) maximum value of current; (ii) r.m.s value of current; (iii) frequency of current; (iv) value of current after  $t=0.00625$  second and (v) time taken by the current to reach a value of 20 A.

(7)

**Or**

**Question No.3 (a)** Explain with mathematical expression of R-L-C series circuit and brief description about its resonance conditions.

(14)

**Unit-III**

**Question No.4 (a)** What is a D.C machine? Derive the EM.F equation of D.C machine. (7)

**Question No.4 (b)** Explain the  $N-I_a$ ,  $T-I_a$  and  $N-T$  characteristics of series d.c motor. (7)

**Or**

**Question No.4 (a)** What is a transformer? Explain its e.m.f equation and maximum efficiency condition. (7)

**Question No.4 (b)** Explain the operational principle and rotor e.m.f equation of induction motor. (7)

(7)

**Unit-IV**

**Question No.5** What is earthing? What are the various methods of earthing? Explain pipe earthing. (14)

**Or**

**Question No.5** Explain the different type of batteries and important Characteristic of batteries. (14)

(14)

4 ✓



Central University of Haryana  
ODD Semester Term End Examination Dec. 2018  
B.Tech. Programmes  
Branch: Civil & CSE

Course Code: BT HUM 101A

Max Time:3hrs.

Course Title: English Language Skills

Max Marks:70

**Instructions:**

Question Number **one (PART-I)** is compulsory and carries total 14 marks (Each sub Question carries two Marks).

Question Numbers 2(two) to 5(five) carry fourteen marks each with internal choice.

**PART -I**

**Q. No.1**

- (a) Make two sentences with the verb pattern SVOO
- (b) Define phrase with an example
- (c) Write the structure of Past Perfect Continuous tense with two examples.
- (d) Define Salutation in a letter
- (e) Form type I conditional sentences: i. If I \_\_\_\_\_ I \_\_\_\_\_ pass the exam.  
ii. If my sister \_\_\_\_\_, I \_\_\_\_\_ be very excited.
- (f) Vocab: i. Proselytization      ii Topography
- (g) Differentiate an essay and Paragraph

**PART -II**

**Unit-I**

**Q. No.2A. Fill in the blanks:**

- i. The price of these jeans \_\_\_\_\_ (is/are) reasonable. 7
- ii. Each of the students \_\_\_\_\_ (is/are) responsible for doing his or her work.
- iii. Mary and John usually \_\_\_\_\_ (plays/play) together.
- iv. She often \_\_\_\_\_ (go, goes) to the Cinema because she loves movie
- v. The poor \_\_\_\_\_ (is, are) suffering.
- Vi. One of the books \_\_\_\_\_ (has/have) been missing.
- vii. Gold, as well as platinum \_\_\_\_\_ (has, have) recently risen in price.

**B. Write Effective Presentation Skills.** 7

**OR**

**Q. No.2A. Write why humanities are necessary for Engineering Professionals.**

**B. Write the structure of past tense of all branches with two examples of each.**

**Unit-II**

**Q. No.3. A. Write the meaning of following words used in prescribed texts:** 7

- i Anxiety      ii Pariah      iii Encomiums      iv Cloistered
- v Sequel      vi Sagacious      vii. Elixir

**B. Make a Paragraph out of Jumbles:**

7

- A. By reasoning, we mean the mental process of drawing an inference from two or more statements or going from the inference to the statements, which yield that inference.
- B. So logical reasoning covers those types of questions, which imply drawing an inference from the problems.
- C. Logic means if we take its original meaning, the science of valid reasoning.
- D. Clearly, for understanding arguments and for drawing the inference correctly, it is necessary that we should understand the statements first.

- A) ACBD      B) CABD      C) ABCD      D) DBCA

OR

**Q. No 3.A. Write/define one Word Substitution of following:**

- |                            |  |
|----------------------------|--|
| i A study of ancient thing | ii A great lover of books                  |
| iii A collection of flags  | iv A language of a region with its own way |
| v Dunce                    | vi Elegy                                   |
|                            | vii Illegible                              |

**B. Write the meaning of following idioms and use them in sentences:**

- |                        |                     |                          |
|------------------------|---------------------|--------------------------|
| i Fabian policy        | ii Doozy            | iii Feather in one's cap |
| iv The gift of the gab | v In Dribs and Drab | vi Achilles Heel         |
| vii A Herculean task   |                     |                          |

**Unit-III**

**Q. No.4A. Change Active Voice into Passive: -**

7

- a. I am drinking tea.      b. He will help you.      c. Do you imitate others?
- d. I saw him conducting the rehearsal.      e. Have the box broken.
- f. He teaches us Grammar.      g. Work hard.

**Q. No .4 B. Define the types of sentences on the basis of structure with two examples of each.**

7

OR

**Q. No .4A. Form Type 2 & Type 3 Conditional sentences:**

- a. If I \_\_\_\_\_ (to go) to the multiplex, I \_\_\_\_\_ (to watch) a Hindi film.
- b. If I \_\_\_\_\_ (to reach) home first, I \_\_\_\_\_ (to make) dinner.
- c. If we \_\_\_\_\_ (to visit) Milan, we \_\_\_\_\_ (to shop) for cloths.
- d. If we \_\_\_\_\_ (to win) the lottery, we \_\_\_\_\_ (to tour) Europe.
- e. If Alan \_\_\_\_\_ (to ask) me, I \_\_\_\_\_ (to send) the book.

f. If you \_\_\_\_\_ (to add) corn to the salad, it \_\_\_\_\_ (to taste) much better.

g. If the weather \_\_\_\_\_ (to be) nice, we \_\_\_\_\_ (to play) outside.

**B.** Define the types of dependent clauses with at least two examples of each.

#### Unit-IV

**Q. No.5A.** How Nirad Chaudhry reveals the general character of Englishmen in this essay. How are these different from the makeup of a typical Indian? 7

**B.** Write an essay on Social Media/Cyberspace and Internet: Blessing or curse to human civilization in the long run. 7

**OR**

**Q. No.5. A.** What according to Russell is Intellectual Rubbish? How can we throw it out of our minds?

**B.** Write a letter to the Editor of the Hindustan Times drawing attention of the government officials to the problem of unavailability of a bus stop near your colony.

2





Central University of Haryana  
ODD Semester Term End Examination Dec 2018  
B.Tech. Programmes

Branch: Common for all branches except CSE

Course Code: BT MAT 112A  
Course Title: Mathematics 1

Max Time: 3 Hours  
Max Marks:

**Instructions:**

Question Number **one (PART-I)** is compulsory and carries total 14 marks (Each sub Question carries two Marks).  
Question Numbers 2(two) to 5(five) carry fourteen marks each with internal choice.

**PART - I**

Q. No.1

(a) If  $A = \frac{1}{3} \begin{bmatrix} 1 & 2 & a \\ 2 & 1 & b \\ 2 & -2 & c \end{bmatrix}$  is orthogonal, find  $a, b, c$ .

(b) Find the rank of  $A = \begin{bmatrix} 8 & 1 & 3 & 6 \\ 0 & 3 & 2 & 2 \\ -8 & -1 & -3 & 4 \end{bmatrix}$

(c) Discuss the convergence of the series  $\frac{2}{7} + \frac{2.5}{7.10} + \frac{2.5.8}{7.10.13} + \dots$

(d) Develop  $\sin\left(\frac{\pi x}{l}\right)$  in half range cosine series in  $(0, l)$ .

(e) Evaluate the integral  $\int_0^1 \frac{x^8(1-x^6)}{(1+x^{15})} dx$

(f) Write a short note on the physical significance of Divergence.

(g) If a vector function  $\vec{F}$  has constant direction, show that

$$\vec{F} \times \frac{d\vec{F}}{dt} = 0.$$

**PART - II**

Q. No.2 (a) Find a matrix P which transforms the matrix  $A = \begin{bmatrix} 1 & 1 & 3 \\ 1 & 5 & 1 \\ 3 & 1 & 1 \end{bmatrix}$  to its diagonal form. Hence calculate  $A^3$ .

(b) Using Cayley-Hamilton theorem, find the inverse of  $\begin{bmatrix} 1 & 1 & 3 \\ 1 & 3 & -3 \\ -2 & -4 & -4 \end{bmatrix}$ .

OR

Q. No.2 (a) Find the characteristic polynomial, eigenvalues, and eigenvectors of the matrix

$$A = \begin{bmatrix} 0 & 0 & 1 & 1 \\ -1 & 2 & 0 & 1 \\ -1 & 0 & 2 & 1 \\ 1 & 0 & -1 & 0 \end{bmatrix}$$

(b) Find  $e^A$  and  $e^{At}$ , and show by direct differentiation that  $d[e^{At}]/dt = Ae^{At}$ , given that

$$A = \begin{bmatrix} 0 & 2 & 1 & 1 \\ 0 & 0 & 3 & -2 \\ 0 & 0 & 0 & 1 \\ 0 & 0 & 0 & 0 \end{bmatrix}$$

Q. No.3(a) Obtain Fourier series for the function  $f(x) = \begin{cases} x & 0 < x < \pi \\ 2\pi - x & \pi < x < 2\pi \end{cases}$  and deduce that

$$\frac{1}{1^2} + \frac{1}{3^2} + \frac{1}{5^2} + \dots = \frac{\pi^2}{8}$$

(b) Discuss the convergence of the series

$$1 + \frac{3}{7}x + \frac{3.6}{7.10}x^2 + \frac{3.6.9}{7.10.13}x^3 + \dots$$

OR

Q. No 3(a) Test whether the following series is absolute convergent or not.

$$\sum_{n=2}^{\infty} \frac{1}{n(\log(n))^2}$$

(b) Find a Fourier series for the function defined by

$$f(x) = \begin{cases} -1, & \text{for } -\pi < x < 0 \\ 0, & \text{for } x = 0 \\ 1, & \text{for } 0 < x < \pi \end{cases}$$

Hence prove that

$$1 - \frac{1}{3} + \frac{1}{5} - \frac{1}{7} + \dots = \frac{\pi}{4}$$

Q. No.4 (a) Show that the radius of curvature at any point of the cycloid  $x = a(\theta + \sin\theta)$ ,  $y = a(1 - \cos\theta)$  is  $4a \cos \theta/2$ .

(b) Trace the curve  $a^2y^2 = x^2(a^2 - x^2)$ .

OR

Q. No.4 (a) Show that

$$\Gamma(m)\Gamma\left(m + \frac{1}{2}\right) = \frac{\sqrt{\pi}}{2^{2m-1}} \Gamma(2m)$$

(b) Find the surface of the solid formed by revolving the cardioid  $r = a(1 + \cos\theta)$  about the initial line.

Q. No.5(a) Divide 24 into three parts such that the continued product of the first, square of the second and the cube of the third may be maximum.

(b) Prove that

$$\nabla^2 f(r) = f''(r) + \frac{2}{r} f'(r)$$

where  $r = \sqrt{x^2 + y^2 + z^2}$

OR

Q. No.5(a) A rectangular box open at the top is to have volume of 32 cubic ft. Find the dimensions of the box requiring least material for its construction.

(b) Find the directional derivative of  $\nabla \cdot (\nabla p)$  at the point  $(1, -2, 1)$  in the direction of the normal to the surface  $xy^2z = 3x + z^2$ , where  $p = 2x^3y^2z^4$ .



Central University of Haryana  
Reappear Examination Dec 2018

B.Tech. Programmes

Branch: EE, CE, PPT, CSE

Course Code: BT-EPH103

Course Title: Engineering Physics-1

Max Time: 3 hrs

Max Marks: 70

**Instructions:**

Question Number **one (PART-I)** is compulsory and carries total 14 marks (Each sub Question carries two Marks).

Question Numbers 2(two) to 5(five) carry fourteen marks each with internal choice.

**PART -I**

Q. No.1

- (a) What do you understand by diffraction of light?
- (b) Write down applications of dielectrics.
- (c) Give the physical significance of wave function.
- (d) Write down mass-energy equivalence formula.
- (e) What are dielectric losses?
- (f) How are the X rays produced?
- (g) What is Moseley's law?

**PART -II**

**Unit-I**

Q. No.2 What do you mean by interference? Describe the experimental arrangement and give necessary theory of Newton's ring to find wavelength of monochromatic light. (14)

Or

Q. No.2 Define resolving power and dispersive power of grating. Obtain expression for these in case of plane transmission diffraction grating. (14)

**Unit-II**

Q. No.3 (a) Discuss principle, construction and working of Nicol prism. (7)

(b) Derive the expression for energy stored in an electric field. (7)

Or

Q. No.3 What do you understand by half and quarter-wave plate? Give the theory and construction of Laurent's half shade polarimeter. (14)

**Unit-III**

Q. No.4 (a) Explain group velocity and phase velocity. Derive the expression for group velocity with which a wave travels? (7)

(b) Derive an expression for time independent Schrödinger's wave equation. (7)

Or

Q. No.4 What is Compton effect? Derive an expression for Compton shift and wavelength of scattered photon. (14)

**Unit-IV**

Q. No.5 Distinguish between fission and fusion. Describe the principle of construction and working of a nuclear reactor. (14)

Or

Q. No.5 Explain the construction, working and principle of GM counter. (7)





Central University of Haryana  
ODD Semester Term End Examination Dec 2018  
B.Tech. Programmes (For CSE & CE branches)

Course Code: BT CH 102A  
Course Title: Chemistry

Max Time: 3hrs  
Max Marks: 70

**Instructions:**

Question Number **one (PART-I)** is compulsory and carries total 14 marks (Each sub Question carries two Marks).

Question Numbers 2 (two) to 5 (five) carry fourteen marks each with internal choice.

**PART -I**

Q. No.1

- What is Schrodinger Equation?
- What is the chemical structure of aspirin?
- Give the correct order for the following ligands in the spectrochemical series?  
Br, Cl<sup>-</sup>, NH<sub>3</sub>, H<sub>2</sub>O
- Distinguish between electronegativity and polarizability.
- What are diastereomers? Give one example.
- What is addition reaction? Explain with one example.
- How will you differentiate between acetylene and ethanol via IR spectra? (14)

**PART -II**

Q. No.2

- Write short note on i) Effective nuclear charge ii) ionization energies (4,5,5)
- Explain the band theory of solids.
- Explain the term Particle in a box solutions and their applications for conjugated molecules.

OR

Q. No 2

- Write short note on i) penetration of orbitals ii) ionization energies
- Construct the Pi-molecular orbitals in benzene.
- Explain crystal field splitting of d-orbitals in octahedral complexes. (5,4,5)

Q. No.3

- What is conformational analysis? Explain conformational analysis in butane via pictorial presentation.
- Explain the chirality w.r.t. chiral axis.
- What is elimination? Explain E<sub>1</sub> and E<sub>2</sub> reactions. (5,5,4)

OR

Q. No.3

- Describe stereoisomerism in tartaric acid. (4,10)
- Explain followings with one example  
i) oxidation and reduction ii) enantiomers and diastereomers

Q. No.4

- What is Corrosion? Explain wet corrosion with example.
- What is pitting corrosion?
- What is hardness of water and how will you determine it? (5,4,5)

OR

Q. No. 4

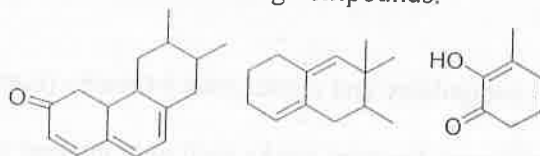
- (a) What is an Ellingham diagrams.  
(b) What is Nernst equation? Explain its applications.  
(c) Distinguish between free energy and cmf.

(4,5,5)

Q. No.5

- (a) Assign the  $\lambda_{\max}$  for the following compounds.

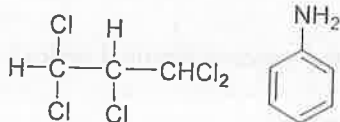
(5,4,5)



OR

Q. No.5

- (a) What is Chemical shift? Alkene shows high chemical shift in comparison to alkyne. Why?  
(b) Draw the finer NMR spectrum (with splitting) for following compound.



- (c) What is the principle of IR?

(4,8,2)



Central University of Haryana  
 ODD Semester Term End Examination Dec 2018

B.Tech. Programmes

Branch: Common for all branches

Course Code: BT EMA 102

Course Title: Engineering Mathematics I

Max Time: 3 Hours

Max Marks: 70

**Instructions:**

Question Number **one (PART-I)** is compulsory and carries total 14 marks (Each sub Question carries two Marks).

Question Numbers 2(two) to 5(five) carry fourteen marks each with internal choice.

**PART -I**

Q. No.1

(a) If  $\lambda$  be an eigenvalue of a non-singular matrix A, show that  $\frac{|A|}{\lambda}$  is an eigenvalue of the matrix adj. A

(b) Find the rank of  $A = \begin{bmatrix} 8 & 1 & 3 & 6 \\ 0 & 3 & 2 & 2 \\ -8 & -1 & -3 & 4 \end{bmatrix}$

(c) If  $u = \tan^{-1}\left(\frac{x^3 + y^3}{x - y}\right)$ , prove that  $x \frac{\partial u}{\partial x} + y \frac{\partial u}{\partial y} = \sin 2u$ ,

(d) Expand  $e^{-x \cos x}$  using Maclaurin's series upto 3<sup>rd</sup> degree.

(e) Show that the following series is absolute convergent:

$$\frac{1}{2} - \frac{1}{2} \cdot \frac{1}{2^2} + \frac{1}{3} \cdot \frac{1}{2^3} - \frac{1}{4} \cdot \frac{1}{2^4} + \dots$$

(f) Find a real symmetric matrix of the quadratic form  $x^2 + 3y^2 + 2z^2 + 2xy + 6yz$ .

(g) Change the order of integration of  $\int_0^1 \int_{x^2}^{2-x} xy \, dy \, dx$

**PART -II**

Q. No.2 (a) Find a matrix P which transforms the matrix  $A = \begin{bmatrix} 1 & 1 & 3 \\ 1 & 5 & 1 \\ 3 & 1 & 1 \end{bmatrix}$  to its diagonal form. Hence calculate  $A^3$ .

(b) Using Cayley-Hamilton theorem, find the inverse of  $\begin{bmatrix} 1 & 1 & 3 \\ 1 & 3 & -3 \\ -2 & -4 & -4 \end{bmatrix}$ .

OR

Q. No.2 (a) For what values of a and b do the equations

$$x + 2y + 3z = 6, \quad x + 3y + 5z, \quad 2x + 5y + az = b$$

have (i). no solution (ii) a unique solution (iii). more than one solution

(b) Reduce the following matrix to normal form and hence, find rank





$$\begin{bmatrix} 0 & 2 & 3 & 4 \\ 2 & 3 & 5 & 4 \\ 4 & 8 & 13 & 12 \end{bmatrix}$$

Q. No.3(a) Test the convergence of the series:  $\sum \frac{1^2 \cdot 3^2 \dots (2n-1)^2}{2^2 \cdot 4^2 \dots (2n)^2} x^{n-1}$ ,  $x > 0$ .

(b) Discuss the convergence of the series

$$1 + \frac{3}{7}x + \frac{3.6}{7.10}x^2 + \frac{3.6.9}{7.10.13}x^3 + \dots$$

OR

Q. No 3(a) Test whether the following series is convergent or not.

$$\sum_{n=2}^{\infty} \frac{1}{n(\log(n))^2}$$

(b) Test for convergence of the series

$$\frac{\alpha}{\beta} + \frac{1+\alpha}{1+\beta} + \frac{(1+\alpha)(2+\alpha)}{(1+\beta)(2+\beta)} + \frac{(1+\alpha)(2+\alpha)(3+\alpha)}{(1+\beta)(2+\beta)(3+\beta)} + \dots$$

Q. No.4 (a) Find the maximum and minimum values of

$$f(x, y) = x^3 + 3xy^2 - 15x^2 - 15y^2 + 72x$$

(b) Expand  $f(x, y) = e^y \ln(1+x)$  in powers of  $x$  and  $y$  and verify the result by direct expansion.

OR

Q. No.4 (a) Divide 24 into three parts such that the continued product of the first, square of the second and the cube of the third may be maximum.

(b) Determine whether the following function is functionally dependent or not. If functionally dependent find the functional relation between them:

$$u = 4x^2 + 9y^2 + 16z^2, \quad v = 2x + 3y + 4z \quad w = 12xy + 16xz + 24yz$$

Q. No.5(a) Find the area lying inside the cardioid  $r = a(1 + \cos\theta)$  and outside the circle  $r = a$ .

(b) Show that

$$\Gamma(m)\Gamma\left(m + \frac{1}{2}\right) = \frac{\sqrt{\pi}}{2^{2m-1}} \Gamma(2m)$$

OR

Q. No.5(a) Change the order of integration in the following integral and hence solve it

$$\int_0^1 \int_1^{e^y} x y dx dy$$

(b) Find the volume bounded by the cylinder  $x^2 + y^2 = 4$  and the plane  $y + z = 4$ .



**CENTRAL UNIVERSITY OF HARYANA**  
**JANT-PALI MAHENDERGARH**  
**I Semester Re Appear Examination Dec. 2018**  
**B. Tech. (All branches)**

**Course Code: BT HUM – 101**  
**Duration: 3hrs**

**Course Title: Communication Skills-I**  
**Max.Marks.70**

**Instructions:**

Question Number **one (PART-I)** is compulsory and carries total 14 marks (Each sub Question two Marks).

Question Number 2(two) to 5(five) carries fourteen marks each with internal choice.

**PART-I**

Q. 1 Attempt all the questions given below:

- A. What do you understand by appreciative listening?
- B. Write the introductory speech.
- C. What is the meaning of skimming?
- D. What do you mean by group discussion?
- E. Write the disadvantages of speaking from memory.
- F. What do you mean by note-taking?
- G. Write the acronyms of PFA and RSVP.

**7X2=14**

**PART-II**

**Unit-I**

- Q.2 A. Define communication its process and flow of communication. (7)
- B. Write the review of any educational movie. (7)

**Or**

- A. Write the biography of a well-known figure.
- B. Write the structure of perfect and perfect continuous future tense with two examples of each.

**Unit-II**

- Q. 3 A. Comment on Bhagvat Gita 'Effective leadership' skills. (7)
- B. What are the difference between public speech and conversation? (7)

**Or**

- A. Write critical summary of the poem 'I know why the caged bird sings' by Maya Angelou  
B. What do you understand by telephonic skills? Discuss the proper etiquette while making or receiving a telephonic call.

### Unit-III

- Q. 4 A Write antonyms of the following words: a. Ugly b. Unique c. Universal  
d. Nadir e. Hostile f. Ample g. Salient (7)  
B. Describe the difference between Skimming and Scanning. (7)

### Or

- A. Look at the words and phrases below. Rearrange them to form meaningful sentences to make readable passage  
(a) love / of others / good manners / and / win the / respect  
(b) when / best / they can / one is / be learnt / young  
(c) saves us / turns away / soft answer / anger and / a / a pitfall / from many  
(d) who is / stranger / respectful / a person / even / like  
(e) sure / in life / they / passport / are a / for success  
(f) inventions / armed / which are / has / miracles / science / man with / not less than  
(g) deadly weapons / but / science has / of warfare / also given / man

- Q. 4 B. What do you understand by email communication? Describe the advantages of email communication.

### Unit-IV

- Q. 5 Write an essay on 'Clean India Campaign' (14)

### Or

- Q.5. Define interview its various types and write techniques for a Successful Job Interview

**Central University of Haryana**  
**ODD Semester Term End Examination Dec 2018**  
**B.Tech. Programmes**  
**Branch: All Branches (Reappear)**

Course Code: **BT EIT 106**

Course Title: **Essentials of Information Technology and Computer Programming**

**Max Time: 3hrs**  
**M. M.: 70 marks**

**Instructions:**

Question Number **one (PART-I)** is compulsory and carries total 14 marks (Each sub Question carries two Marks).

Question Numbers 2(two) to 5(five) carry fourteen marks each with internal choice.

7\*2=14

**Part- I**

1. What is an Operating System? What are its Functions?
2. What is software? What are different types of software?
3. What do you mean by 'C' Identifier? Give an example.
4. What are different File operations?
5. List the String functions in C.
6. What is error handling?
7. What are bitwise operators?

2\*7=14

**Part- II**

2. a. What are input and output devices? Explain any five input devices in detail.  
b. Write an algorithm for searching an element in the array.

OR

- a. Explain compiler, assembler, linker and loader. State their relationships.
- b. What is computer? And explain the basic elements of a computer system.
3. a. What is topology? Explain different types of topologies.  
b. What is m-commerce and e-commerce and differentiate them.

OR

- a. What is internet? Explain internet addressing in detail.
- b. Explain working of e-mail and ftp.
4. a. Explain the various looping constructs. Give an example for each and explain the working of the construct.  
b. What is recursion? Write a program to print factorial of a given number using recursion.

OR

- a. Write a program to check whether a number is prime or not.
- b. What are String literals? Write a program to check if a given string is palindrome or not?(A string which reads same whether you read it from forward or backward is called a palindrome string. (ex NAMAN)).



5. a. Define a structure called Book that would contain book name, and price of book. Write a program to read the details of 10 books with the help of a pointer.  
b. Differentiate between C and C++.

OR

- a. Differentiate between Structure and union with example.  
b. What is File Handling? Explain various file operations with the help of a C program.





**Central University of Haryana**  
1<sup>st</sup> semester Re-appear Examination Dec 2018  
B. Tech Programmes (2017-2018)

Course Code – BT VEY 110  
Course Title – Value Education and Yoga

Max. Marks 70  
Max. Time – 3 Hrs

**Part - 1**

**Question No. 1**

- (a) Write merits of Value Education.
- (b) Define Hatha Yoga.
- (c) State significance of a Peaceful Environment.
- (d) Explain "Sow a thought reap a character".
- (e) How Meditation leads to greater concentration?
- (f) Define Dhyana Yoga.
- (g) Define Karma Yoga.

**Part - 2**

**Question No. 2**

- (a) How Karma yoga can lead to stress management via working in a detached mode of consciousness

**Or**

- (b) Explain the effect moral practices and ethnic social traditions on an individual psychological development.

**Question No. 3**

- (a) How regulated habits via Dhyana yoga leads to time management and art of harnessing mind power

**Or**

- (b) How good association and reading of good literature related to value education leads to self- improvement and mental development.

**Question No. 4**

- (a) Define Meditation and how it leads to relaxed state of alertness.

**Or**

- (b) How cultivating god consciousness via buddhi yoga leads to the perfection of habits as defined in the revealed scriptures?

**Question No. 5**

- (a) What is Surya Namaskar? Define the importance of each pose?

**Or**

- (b) Explain the role of value education in transforming bad habits to good habits.





Central University of Haryana  
I Semester Term End Examination Dec. 2018  
B.Tech. Programmes (All Branches)  
(For Reappears)

Course Code: BT ECH 104  
Course Title: Engineering Chemistry-I

Max Marks: 70  
Max Time: 3 hrs

**Instructions:**

Question Number 1 (one) (PART-I) is compulsory and carries total 14 marks (Each sub question carries two marks).

Question Numbers 2 (two) to 5 (five) carry fourteen marks each with internal choice.

**PART -I**

**Question No.1**

- (a) What do you mean by second order reaction? (2)
- (b) How can you prevent the process of corrosion? (2)
- (c) Define Photochemical reactions. (2)
- (d) What is carbocation? (2)
- (e) How can you find out the presence of carbohydrates in a given sample? (2)
- (f) What is the principle of TGA? (2)
- (g) Explain the process of interstate crossing briefly? (2)

**PART -II**

**Unit-I**

**Question No.2** Derive the velocity constant for the second order reaction when the concentration of the reactant is same. (14)

Or

**Question No.2** Explain Galvanic & concentration cell corrosion in details. (14)

**Unit-II**

**Question No.3** Explain various processes occurs during a photochemical reaction with the help of a neat Jablonski diagram. (14)

Or

**Question No.3** (a) With the help of neat diagram, explain the phase diagram of one component system (water system). (14)

✓

Unit-III

Question No.4 (a) Describe the nucleophilic substitution reaction. Explain its types with mechanism in detail. (14)

Or

Question No.4 Write various tests for determining the presence of carbohydrates, proteins and lipids. (14)

Unit-IV

Question No.5 What do you understand by CFSE? Predict the CFSE value for  $d^4$  and  $d^8$  systems in octahedral environment. (14)

Or

Question No.5 What is TGA. Explain in detail. (14)