CBCS SCHEME

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BPLCK105D/BPLCKD105

First Semester B.E./B.Tech. Degree Examination, Dec.2023/Jan.2024
Introduction to C++ Programming

Time: 3 hrs. Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. VTU Formula Hand Book is permitted.
3. M : Marks , L: Bloom's level , C: Course outcomes.

		Module – 1	M	L	C
Q.1	a.	What is C++? List the applications and features of the C++.	10	L1	CO1
	b.	Describe the structure of C++ program with an example.	10	L2	CO1
		OR			
Q.2	a.	Explain message passing with an example.	10	L2	CO1
	b.	What are abstract classes? Discuss with an example.	10	L2	CO1
		Module – 2			
Q.3	a.	Write a C++ program to swap 2 values by writing a C++ function that uses call by reference technique.	10	L3	CO2
	b.	Explain expressions and their types with suitable examples.	10	L2	CO2
		OR			
Q.4	a.	Write a C++ program to illustrate use of inline functions.	10	L3	CO2
	b.	Explain keywords, identifiers and constant with suitable example.	10	L2	CO2
		Module – 3			
Q.5	a.	Define constructor with syntax and explain with an example.	10	L2	CO3
	b.	Describe the importance of destructor and explain it with a suitable C++ program.	10	L2	CO3
		OR			
Q.6	a.	Suppose we have three classes vehicle, four wheeler and car. The class vehicle is the base class, the class fourwheeler is derived from it and the class car is derived from the class fourwheeler, class vehicle has a method 'vehicle' that prints 'I am a vehicle'. Class fourwheeler has a method 'fourwheeler' that prints 'I have four wheels', and class car has a method 'car' that prints 'I am a car'. So as this is a multi-level inheritance, we can have access to all the other classes methods from the object of the class car. We invoke all the methods from a car object and print the corresponding outputs of the methods. So, if we invoke the methods in this order, car( ), four wheeler( ), and vehicle( ), then the output will be I am a car I have four wheels I am a vehicle Write a C++ program to demonstrate multilevel inheritance using this.	10	L3	CO3

	b.	Explain the concept of default arguments in functions, with a concrete example.	10	L2	CO3
		Module – 4			
Q.7	a.	List the difference between text file handling and binary file handling in C++.	10	L1	CO4
	b.	Define the concept of a class hierarchy in C++ with an example that illustrate the hierarchy with at least three classes.	10	L3	CO4
		OR			
Q.8	a.	Write the various functions used to open, close, read and write in text files.	10	L2	CO4
	b.	Write a C++ program to write and read time in/from binary file using fstream.	10	L3	CO4
		Module – 5			
Q.9	a.	Define the concept of exception handling in C++. Explain how it differs from traditional error-handling methods.	10	L2	CO4
	b.	Write C++ program function which handles array of bounds exception using C++.	10	L3	CO4
		OR			
Q.10	a.	Describe the role of the throw statement in C++ exception handling.	10	L2	CO4
	b.	List and briefly explain two predefined exceptions in C++. How are these exceptions commonly used in practice?	10	L2	CO4

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MAKE-UP EXAM

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BPLCK105D/BPLCKD105

First Semester B.E./B.Tech. Degree Examination, Nov./Dec.2023
Introduction to C++ Programming

Time: 3 hrs. Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. M : Marks , L: Bloom's level , C: Course outcomes.

		Module – 1	M	L	C
Q.1	a.	Differentiate between object-based and object oriented programming. Also write the features of C++ and give reason, why C++ is not pure object-oriented programming?	6	L2	CO1
	b.	With help of first C++ program, explain the basic syntax of C++ program.	8	L1	CO1
	c.	With suitable example, explain the concept of classes and objects.	6	L1	CO1
		OR			
Q.2	a.	How objects communicate by using message passing? Explain with suitable example.	6	L2	CO1
	b.	What are abstract classes? With suitable example, explain the advantages of abstract classes.	6	L1	CO1
	c.	Describe the terms Abstraction, Encapsulation, Inheritance and Polymorphism.	8	L1	CO1
		Module – 2			
Q.3	a.	List and explain the different types of expressions supported in C++, write at least one example for each.	10	L1	CO2
	b.	What is function in C++? With syntax explain the importance of function prototyping.	4	L2	CO2
	c.	Write a C++ program to swap two integer numbers by writing a function that uses call by reference method.	6	L3	CO2
		OR			
Q.4	a.	What are inline functions in C++? When compiler ignore the request of inline function? Also write the situations when inline functions may not work.	8	L2	CO2
	b.	What do you mean by function overloading? Write a C++ program to demonstrate function overloading for the following prototypes. add(int a, int b) ; add(double a, double b) ;	8	L3	CO2
	c.	What are default arguments? When they are useful?	4	L2	CO2
		Module – 3			
Q.5	a.	What are constructors in C++? Write any six characteristics of constructors.	8	L1	CO3
	b.	With suitable example, explain default constructor and parameterized constructor.	8	L2	CO3
	c.	What are destructors in C++? Describe.	4	L1	CO3

		OR			
Q.6	**a.**	What is multiple inheritance? When ambiguity arises in multiple inheritance? Write a program to demonstrate ambiguity in multiple inheritance and to resolve the same.	**10**	**L3**	**CO3**
	b.	Create a class named shape with a function that prints "This is a shape". Create another class named polygon inheriting the shape class with the same function that prints polygon is a shape. Create two other classes named Rectangle and Triangle having the same function which prints "Rectangle is a polygon" and "Triangle is a polygon" respectively. Again make another class named square having the same function which prints "Square is a rectangle". Now, try calling the function by the object of each of these classes.	**10**	**L3**	**CO3**
		Module – 4			
Q.7	**a.**	What are C++ streams? With a neat diagram, explain C++ stream class hierarchy.	**10**	**L1**	**CO4**
	b.	Write a C++ program to create a text file, check file created or not, if created write some text into file and then read the text from the file to display on the screen.	**10**	**L3**	**CO4**
		OR			
Q.8	**a.**	With syntax explain the functions used to open, close, read data from, write data to text files and detect the end of file.	**10**	**L1**	**CO4**
	b.	Write a C++ program to write and read time to/from binary file using fstream.	**10**	**L3**	**CO4**
		Module – 5			
Q.9	**a.**	What is an exception? Write the common reasons for exception to occur and explain the exception handling mechanism in C++.	**10**	**L2**	**CO4**
	b.	Write the general format of try-catch block which invokes a function that generates exception. Write C++ program to demonstrate how a try block invokes a function that generates division by zero exception and catch it in catch block.	**10**	**L3**	**CO4**
		OR			
Q.10	**a.**	Write the general format of multiple catch statements. Write a C++ program to demonstrate multiple catch statements.	**10**	**L3**	**CO4**
	b.	With suitable example, explain generic catch statement and exception rethrowing mechanism.	**10**	**L2**	**CO4**

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CBCS SCHEME

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BPHYE102/202

First/Second Semester B.E./B.Tech. Degree Examination, Dec.2023/Jan.2024

Applied Physics for EEE Stream

Time: 3 hrs. Max. Marks: 100

Note: 1. *Answer any FIVE full questions, choosing ONE full question from each module.*
2. *VTU Formula Hand Book is permitted.*
3. *M : Marks , L: Bloom's level , C: Course outcomes.*
4. *Speed of light* $c = 3 \times 10^8$ *m/s,* $K = 1.38 \times 10^{-23}$ *J/K,* $h = 6.625 \times 10^{-34}$ *JS,* $g = 9.8$ *m/s*^{2}, $\epsilon_0 = 8.854 \times 10^{-12}$ *F/m*

		Module – 1	M	L	C
Q.1	a.	State and explain Heisenberg's uncertainty principle and show that there is no existence of electrons in the nucleus of an atom.	9	L2	CO1
	b.	What is a wave function, probability density and normalization of wave function?	7	L2	CO1
	c.	Find the lowest energy of an electron confined to move in a one dimensional potential box of length 1A in electron volts.	4	L3	CO1
		OR			
Q.2	a.	Setup time Independent Schrodinger's wave equation for a particle in one dimension.	7	L2	CO1
	b.	Discuss the wave functions, probability densities and energy for a particle in a box by considering the ground state and first two excited states.	9	L2	CO1
	c.	Calculate the de-Broglie wavelength of an electron when it is accelerated to a potential of 5000 V.	4	L3	CO1
		Module – 2			
Q.3	a.	Mention any three assumptions of quantum free electron theory. Discuss the variation of Fermi factor with temperature and energy.	9	L2	CO1
	b.	Explain the construction and working of MAGLEV vehicle.	6	L2	CO1
	c.	An elemental solid dielectric material has polarizability of 7×10^{-40} Fm^2. Assuming the internal field to be Lorentz field, calculate the dielectric constant for the material if the material has 3×10^{28} atoms/m^3.	5	L3	CO1
		OR			
Q.4	a.	What is super conductivity? Describe Type-I and Type-II superconductors.	7	L2	CO1
	b.	What is dielectric polarization? Explain various types of polarization mechanism.	8	L2	CO1
	c.	Calculate the probability of an electron occupying an energy level 0.02 eV above the Fermi level at 200 K and 400 K in a material.	5	L3	CO1
		Module – 3			
Q.5	a.	Obtain an expression for energy density of radiation under thermal equilibrium conditions in terms of Einstein's coefficients.	8	L2	CO2
	b.	What is attenuation? Explain different types of attenuation in optical fibers.	8	L2	CO2
	c.	The average output power of laser source emitting a laser beam of wave length 6328 A is 5 mW. Find the number of photons emitted per second by the laser source.	4	L3	CO2
		OR			

Q.6	a.	What is numerical aperture? Obtain an expression for numerical aperture interms of refractive indices of core and cladding of an optical fiber.	9	L2	CO2
	b.	Describe the working of a laser printer.	6	L2	CO2
	c.	The attenuation of light in an optical fiber is estimated at 2.2 dB/km. What fractional initial intensity remains after 2 km and after 6 km.	5	L3	CO2
		Module – 4			
Q.7	a.	State and prove Gauss Divergence theorem.	7	L2	CO3
	b.	Explain Faraday's laws of electromagnetic induction and amperes law. Express the same in point form.	8	L2	CO3
	c.	Determine the constant c such that the vector $\vec{A} = (x + ay)\hat{a}_x + (y + bz)\hat{a}_y + (x + cz)\hat{a}_z$ is solenoidal.	5	L3	CO3
		OR			
Q.8	a.	Derive wave equation in terms of electric field using Maxwell's equations for free space.	8	L2	CO3
	b.	Discuss continuity equation. Derive the expression for displacement current.	8	L2	CO3
	c.	Calculate the curl of $\vec{A}$ given by $\vec{A} = (1 + yz^2)\hat{a}_x + xy^2\hat{a}_y + x^2y\hat{a}_z$.	4	L3	CO3
		Module – 5			
Q.9	a.	Derive an expression for electrical conductivity in extrinsic and intrinsic semiconductors.	8	L2	CO4
	b.	Describe the construction and working of semiconductor laser with energy level diagram.	8	L2	CO4
	c.	The Hall coefficient of a specimen of a doped silicon is found to be 3.66×10^{-4} m^3/c. The resistivity of the specimen is 9.93×10^{-3} ohm-m. Find the mobility and charge carrier density assuming single carrier conduction.	4	L3	CO4
		OR			
Q.10	a.	Explain Fermi level in an intrinsic semiconductor and derive the relation between Fermi energy and energy gap for an intrinsic semiconductor.	9	L2	CO4
	b.	Explain construction and working of photo diode.	7	L2	CO5
	c.	The resistivity of intrinsic germanium at 27°C is 0.47 ohm-meter. If the electron and hole mobilities are 0.38 m^2/VS and 0.18 m^2/VS respectively. Calculate the intrinsic carrier density.	4	L3	CO4

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BPHYM102/202

First/Second Semester B.E./B.Tech. Degree Examination, Dec.2023/Jan.2024

Applied Physics for ME Stream

Time: 3 hrs. Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. VTU Formula Hand Book is permitted.
3. M : Marks , L: Bloom's level , C: Course outcomes.

		Module – 1	M	L	C
Q.1	a.	What are damped and forced oscillations? Obtain the differential equation of motion of a body undergoing forced oscillation and mention the expression for amplitude and phase of oscillation.	9	L2	CO1
	b.	Describe the construction and working of Reddy shock tube.	7	L1	CO1
	c.	In a Reddy shock tube, the time taken to travel between two sensors is 275μs. If the distance between two sensors is 140mm, calculate the Mach number. Assume the speed of sound as 340 m/s.	4	L3	CO1
		OR			
Q.2	a.	Define stiffness factor. Derive the expression for equivalent force constant for two springs connected in series and parallel combination.	9	L2	CO1
	b.	Define Mach number and Mach angle. Mention four characteristics of shock wave.	6	L2	CO1
	c.	Three springs are connected in series and 500gm object attached at one end of a spring. If spring constant $K_1 = K_2 = K_3 = 50$N/m, then calculate the change in length of the three springs. Assume accelerating due to gravity as $g = 10$ m/s^2.	5	L3	CO5
		Module – 2			
Q.3	a.	State and explain Hook's law. With neat diagram, explain the stress-strain curve for elastic materials.	8	L2	CO1
	b.	Explain differential elastic moduli and mention the relation between them.	7	L2	CO1
	c.	A rod of cross section area 15mm × 15mm and 1m long is subject to compressive load of 22.5kN. Calculate the stress and decrease in length if Young's modulus is 200×10^9 N/m^2.	5	L3	CO1
		OR			
Q.4	a.	What is Poisson's ratio? Derive the relation between bulk modulus (K). Young's modulus (Y) and Poisson's ratio (σ). What are the limiting values of Poisson's ratio?	9	L2	CO1
	b.	What is Bending moment? Discuss different types of beams and mention their engineering application.	7	L2	CO1
	c.	Calculate the Poisson, ratio for the material. Given that $Y = 12.25 \times 10^{10}$ N/m^2 and $\eta = 4.55 \times 10^{10}$ N/m^2.	4	L3	CO1
		Module – 3			
Q.5	a.	Discuss Seebeck effect and Peltier effect with their coefficients.	8	L2	CO2
	b.	Describe the construction and working of Thermo Electric Generators (TEG)	7	L2	CO2

	c.	The thermo emf (in eV) of a thermocouple, one junction of which is at 0°C is given by $e = 1600T - 4T^2$, where T is temperature of hot junction. Find the neutral temperature and Peltier coefficient.	5	L3	CO2
		OR			
Q.6	a.	Derive the expression for thermo emf in terms of T_1 and T_2.	8	L2	CO2
	b.	Explain the construction and working of thermopile. Mention four advantages.	7	L2	CO2
	c.	The thermo emf of a Cu-Fe thermocouple is 2160μV, where the cold junction is at 0°C and hot junction at 250°C. Calculate the constants a and b if the neutral temperature is 330°C.	5	L3	CO2
		Module – 4			
Q.7	a.	What is Joule-Thomson's effect? Derive the expression $\Delta T = \frac{P_1 - P_2}{C_p}\left[\frac{2a}{RT} - b\right]$ using the theory of Joule theorem effect.	8	L2	CO3
	b.	Explain briefly the application of cryogenics in aerospace and tribology.	8	L2	CO3
	c.	In Joule – Thomson's experiment, temperature changes from 100°C to 150°C for pressure change of 20MPa to 170 MPa. Calculate the Joule – Thomson coefficient.	4	L3	CO3
		OR			
Q.8	a.	Explain the construction and working of Porous plug experiment with neat diagram.	8	L2	CO3
	b.	Explain the liquefaction of Helium.	8	L2	CO3
	c.	Calculate the inversion temperature of gas. Given $a = 0.244$ atom L^2/mol^2, $b = 0.027$ L/mol, and $R = 0.0821$ L atom/K/mol.	4	L3	CO3
		Module – 5			
Q.9	a.	Explain the construction and working of X-ray diffraction meter (XRD).	7	L2	CO4
	b.	With a neat sketch, explain the principle construction and working of Transmission Electron Microscope (TEM).	9	L2	CO4
	c.	Determine the wavelength of X-rays for crystal size of 1.188×10^{-6}m. Peak width 0.5° and peak position 30° for a cubic crystal. (Given: Scherrer constant K = 0.92).	4	L3	CO4
		OR			
Q.10	a.	Describe the construction and working of X-ray photoelectron spectroscopy (XPS)	8	L2	CO4
	b.	Describe the construction and working of Atomic Force Microscopy (AFM).	8	L2	CO4
	c.	Calculate the longest wavelength that can be analyzed by using a rock salt crystal of spacing, d = 0.282nm in the second order.	4	L3	CO4

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CBCS SCHEME

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BPHYS102/BPHYS202

First/Second Semester B.E./B.Tech. Degree Examination, Dec.2023/Jan.2024
Applied Physics for CSE Stream

Time: 3 hrs. Max. Marks: 100

Note: 1. *Answer any FIVE full questions, choosing ONE full question from each module.*
2. *Draw neat sketches where ever necessary.*
3. *VTU Formula Hand Book is permitted.*
4. *M : Marks , L: Bloom's level , C: Course outcomes.*
5. *Constants: Speed of Light C = 3 × 10^8 m/s, Boltzmam const. K = 1.38×10^{-23} J/K^{-1}, Planck's const h = 6.625 × 10^{-34} JS, Acceleration due to gravity g = 9.8m/s^{-2}, Permittivity of Free space ϵ_0 = 8.854×10^{-12} Fm^{-1}*

		Module – 1	M	L	C
Q.1	a.	Define LASER and explain the interaction of radiation with matter for the induced absorption, spontaneous emission and stimulated emission.	7	L1	CO1
	b.	Discuss different types optical fibers based on modes of propagation and refractive index profile.	9	L2	CO1
	c.	Find attenuation in an optical fiber of length 500m, when a light signal of power 100mW emerges out of the fiber with a power of 90mW.	4	L3	CO1
		OR			
Q.2	a.	Obtain the expression for energy density of radiation using Einstein's co-efficient A and B and thus conclude $B_{12} = B_{21}$.	9	L2	CO1
	b.	Discuss point to point communication using optical fiber.	6	L2	CO1
	c.	In a diffraction grating experiment the LASER light undergoes second order diffraction for diffraction angle 1.48°. The grating constant d = 5.05 × 10^{-5} m and the distance between the grating and source is 0.60m, find the wavelength of LASER light.	5	L3	CO5
		Module – 2			
Q.3	a.	State and explain Heisenberg's uncertainty principle. Using the principle show that electron doesn't exist inside the nucleus.	7	L2	CO2
	b.	Set up Schrodinger's time independent wave equation in one dimension.	8	L2	CO2
	c.	A particle of mass 0.5 MeV/C^2 has kinetic energy 100 eV. Find its de-Broglie wavelength where 'C' is the velocity of light.	5	L3	CO2
		OR			
Q.4	a.	Find the Eigen values and Eigen functions for a particle in one dimensional infinite potential well.	9	L2	CO2
	b.	Discuss de-Broglie hypothesis.	6	L2	CO2
	c.	Calculate the energy of the first three states for an electron in one dimensional potential well of width 1A°.	5	L3	CO2

		Module – 3			
Q.5	**a.**	Explain the representation of qubit using Bloch sphere.	**6**	**L2**	**CO2**
	b.	Discuss CNOT gate, matrix representation and its operation on four different input states.	**6**	**L2**	**CO2**
	c.	A linear operator X operates such that $X\|0\rangle = \|1\rangle$ and $X\|1\rangle = \|0\rangle$. Find the matrix representation of X	**8**	**L3**	**CO2**
		OR			
Q.6	**a.**	State the Pauli's metrics and apply Pauli matrices on the states $\|0\rangle$ and $\|1\rangle$ states.	**8**	**L3**	**CO2**
	b.	Elucidate the differences between classical and quantum computing.	**6**	**L2**	**CO2**
	c.	Explain matrix representation of 0 and 1 states and apply identify operator I to $\|0\rangle$ and $\|1\rangle$ states.	**6**	**L3**	**CO2**
		Module – 4			
Q.7	**a.**	Enumerate the failures of Classical Free Electron [CFET] Theory and mention the assumptions of Quantum Free Electron Theory [QFET]	**7**	**L2**	**CO3**
	b.	Describe Meissner's effect. Distinguish between Type I and Type II super conductors.	**8**	**L2**	**CO3**
	c.	Lead has a superconducting transition temperature of 7.26K. If initial field at 0K is $50 \times 10^3 Am^{-1}$, calculate the critical field at 6K.	**5**	**L3**	**CO3**
		OR			
Q.8	**a.**	Define Fermi factor. Discuss the variation of Fermi factor with temperature and energy.	**7**	**L2**	**CO3**
	b.	Explain the phenomenon of super conductivity. Discuss qualitatively BCS theory of super conductivity.	**8**	**L2**	**CO3**
	c.	Calculate the probability of occupation of an energy level 0.02eV above Fermi level at temperature 200K.	**5**	**L3**	**CO3**
		Module – 5			
Q.9	**a.**	Discuss timing in linear motion, uniform motion, slow in and slow out.	**8**	**L2**	**CO4**
	b.	Enumerate the difference between inferential and descriptive statistics.	**6**	**L2**	**CO4**
	c.	In an optical fiber experiment, the light passing through the fiber, made a spot diameter of 8mm on the screen. The distance between the end of the optical fiber cable and the screen is 0.031m. Calculate the angle of acceptance and numerical aperture of given optical fiber.	**6**	**L3**	**CO5**
		OR			
Q.10	**a.**	Describe Jumping and parts of Jump.	**8**	**L2**	**CO4**
	b.	Discuss the salient features of Normal distribution using Bell curves.	**7**	**L2**	**CO4**
	c.	While animating speeding up car animation, the total distance covered over 6 frames is 25m. Calculate the base distance.	**5**	**L3**	**CO4**

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CBCS SCHEME

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BCHEC102/202

First/Second Semester B.E./B.Tech. Degree Examination, Dec.2023/Jan.2024
Applied Chemistry for Civil Engineering Stream

Time: 3 hrs. Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. VTU Formula Hand Book is permitted.
3. M : Marks , L: Bloom's level , C: Course outcomes.

		Module – 1	M	L	C
Q.1	a.	What is Glass? Describe the preparation of Soda Lime Glass.	07	L2	CO1
	b.	Explain the various steps involved in the manufacture of cement by wet process with a flow chart.	06	L2	CO1
	c.	Define Refractories. Write the properties and applications of refractory materials.	07	L3	CO1
		OR			
Q.2	a.	What is Cement? Illustrate the process of setting and hardening of cement with chemical reactions.	07	L3	CO1
	b.	Define alloys. Write the properties and applications of Iron and its alloys.	07	L3	CO1
	c.	Write a note on additives used in the manufacture of cement.	06	L3	CO1
		Module – 2			
Q.3	a.	Illustrate the construction and working of Methanol – Oxygen fuel cell.	06	L4	CO2
	b.	Define corrosion. Describe the electrochemical corrosion of steel in concrete.	07	L2	CO2
	c.	What is anodizing? Explain anodizing of aluminium. Mention its applications.	07	L2	CO2
		OR			
Q.4	a.	Define PV cell. Illustrate the construction and working of Photovoltaic Cell.	07	L3	CO2
	b.	Explain differential metal and aeration corrosion with suitable examples.	07	L2	CO2
	c.	Explain how material selection and design can prevent corrosion.	06	L2	CO2
		Module – 3			
Q.5	a.	100 ml of a water sample required 20ml of 0.01 M EDTA for the titration with Erichrome Black-T indicator, 100 ml of the same water sample after boiling and filtering required 10 ml of 0.01 M EDTA. Calculate (i) Total hardness (ii) Permanent Hardness (iii) Temporary Hardness of the sample.	07	L3	CO3
	b.	With a neat labeled diagram illustrate the softening of hard water by ion exchange method.	07	L3	CO3
	c.	Explain the following size dependent properties of nanomaterials: (i) Catalytic property (ii) Surface area	06	L2	CO3
		OR			
Q.6	a.	What is desalination? Explain desalination of brackish water by forward osmosis.	07	L2	CO3
	b.	Define Nanomaterials. Demonstrate the synthesis of Nanomaterials by Sol-gel method.	07	L3	CO3
	c.	Write a note on use of metal-oxide nano particles in the treatment of water.	06	L3	CO3

		Module – 4			
Q.7	**a.**	Calculate the number average molecular mass (M_n) and weight average molecular mass (M_w) of a polymer in which 30% molecules have a molecular mass 20,000 ; 40% have 30,000 and the rest have 60,000.	**06**	**L3**	**CO4**
	b.	Define Fibers. Explain the synthesis, properties and applications of Nylon Fibers.	**07**	**L2**	**CO4**
	c.	Define Polymer Composites. Write the properties and applications of Fiber Reinforced Polymer (FRP) and Geo-Polymer Concrete (GPC).	**07**	**L3**	**CO4**
		OR			
Q.8	**a.**	Explain the synthesis, properties and applications of Chloropolyvinyl chloride.	**06**	**L2**	**CO4**
	b.	Define Biodegradable Polymer. Explain the steps involved in the preparation of polylactic acid and mention the applications.	**07**	**L2**	**CO4**
	c.	What are adhesives? Explain the synthesis, properties and applications of epoxy resin.	**07**	**L2**	**CO4**
		Module – 5			
Q.9	**a.**	State Phase Rule. Explain the terms involved in the phase rule with examples.	**07**	**L2**	**CO5**
	b.	With the help of a neat phase diagram, explain the Lead-Silver system.	**07**	**L2**	**CO5**
	c.	Describe the determination of pH of soil sample using pH sensors.	**06**	**L2**	**CO5**
		OR			
Q.10	**a.**	State and explain phase rule for two component system. Mention the use of phase diagram.	**06**	**L2**	**CO5**
	b.	Illustrate the principle and instrumentation of conductometric sensors.	**07**	**L2**	**CO5**
	c.	Explain the applications of potentiometric sensors in the estimation of iron.	**07**	**L2**	**CO5**

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CBCS SCHEME

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BCHEE102/202

First/Second Semester B.E./B.Tech. Degree Examination, Dec.2023/Jan.2024
Chemistry for EEE Stream

Time: 3 hrs. Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. VTU Formula Hand Book is permitted.
3. M : Marks , L: Bloom's level , C: Course outcomes.

		Module – 1	M	L	C
Q.1	a.	Explain the band diagrams for conductors and insulators.	7	L2	CO1
	b.	Describe the production of electronic grade silicon from quartz by Czochrolski method.	7	L2	CO1
	c.	Explain the preparation, properties and commercial applications of graphene oxide.	6	L2	CO1
		OR			
Q.2	a.	What are conducting polymers? Explain the mechanism of polyacetylene.	7	L2	CO1
	b.	What is electroless plating? Describe electroless plating of copper in the manufacture of double-sided PCB.	7	L2	CO1
	c.	In a polymer sample 20% of molecules have molecular mass 15000 g/mol. 45% molecules have molecular mass 25000 g/mol remaining molecules have molecular mass 27,000 g/mol. Calculate number average and weight average molecular weight of the polymer.	6	L3	CO1
		Module – 2			
Q.3	a.	What are batteries? Explain the classification of batteries with suitable examples.	7	L2	CO2
	b.	What are photovoltaic cells? Describe the construction and working of a photovoltaic cell.	7	L2	CO2
	c.	Explain the construction and working of li-polymer battery. Mention its applications.	6	L2	CO2
		OR			
Q.4	a.	Explain the construction and working of vanadium redox flow battery. Mention its applications.	7	L2	CO2
	b.	What are fuel cells? Explain the construction and working of methanol-oxygen fuel cell. Mention its applications.	7	L2	CO2
	c.	Explain the construction and working of Na-ion battery.	6	L2	CO2
		Module – 3			
Q.5	a.	What is metallic corrosion? Explain the electrochemical theory of corrosion, taking iron as an example.	7	L2	CO3
	b.	What is corrosion penetration rate? Calculate the CRR in both MPY and MMPY for a thick steel sheet of area 100 inch^2, which experience a weight loss of 485 g after one year (density of steel 7.9 g/cm^3).	7	L3	CO3
	c.	Describe the extraction of copper and gold from E-waste.	6	L2	CO3
		OR			
Q.6	a.	Write notes on: (i) Differential metal corrosion (ii) Differential aeration corrosion	7	L2	CO3
	b.	Explain the sacrificial anode method for the corrosion control.	6	L2	CO3
	c.	What is e-waste? Describe the effects of e-waste on environment and human health.	7	L2	CO3

		Module – 4			
Q.7	**a.**	What are nanomaterials? Explain the any two size dependent properties of nanomaterials.	**7**	**L2**	**CO4**
	b.	What are pervoskite materials? Mention the properties and applications of perovskite materials in opto electronic devices.	**7**	**L2**	**CO4**
	c.	Describe the synthesis of nanomaterials by co-precipitation method.	**6**	**L2**	**CO4**
		OR			
Q.8	**a.**	Explain the synthesis of nanomaterials by sol-gel method.	**7**	**L2**	**CO4**
	b.	What are QLED's? Mention its properties and applications.	**6**	**L2**	**CO4**
	c.	Write notes on: (i) Nanophotonics (ii) Nanosensors	**7**	**L2**	**CO4**
		Module – 5			
Q.9	**a.**	What are reference electrode? Explain the construction and working of calomel electrode.	**7**	**L2**	**CO5**
	b.	Explain the principle, instrumentation and applications of potentiometric sensor in the estimation of iron.	**7**	**L3**	**CO5**
	c.	The emf a cell $Ag/AgNO_{3(0.001m)}//AgNO_{3(X_m)}/Ag$ is 0.059 V at 25°C, find the value of 'X'.	**6**	**L3**	**CO5**
		OR			
Q.10	**a.**	What are ion selective electrodes? Explain the construction and working principle of glass electrode.	**7**	**L2**	**CO5**
	b.	Explain the principle and instrumentation colorimetric sensor, mention its applications.	**7**	**L3**	**CO5**
	c.	Explain how the strength of a weak acid determined using a conductometric sensor.	**6**	**L2**	**CO5**

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BCHES102/202

First/Second Semester B.E./B.Tech. Degree Examination, Dec.2023/Jan.2024
Applied Chemistry for CSE Stream

Time: 3 hrs. Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. VTU Formula Hand Book is permitted.
3. M : Marks , L: Bloom's level , C: Course outcomes.

		Module – 1	M	L	C
Q.1	a.	Explain the working principle of conductometric sensors and mention any two applications.	06	L2	CO2
	b.	Discuss the construction and working of Li-ion batteries. Mention its applications.	07	L2	CO4
	c.	Describe the application of Electrochemical gas sensors for the detection of SO_x and NO_x.	07	L3	CO3
		OR			
Q.2	a.	Explain the working principle of an Electrochemical sensor in the detection of Dissolved Oxygen (DO).	06	L2	CO2
	b.	Discuss the construction and working of Quantum Dot Sensitized Solar Cells (QDSSCs). Mention its applications.	07	L2	CO4
	c.	Describe the use of disposable sensor in the detection of herbicide Glyphosate.	07	L3	CO3
		Module – 2			
Q.3	a.	What are memory devices? Explain the classification of Electronic memory devices with examples.	07	L1 L2	CO1
	b.	What are nanomaterials? Explain any four properties of polythiophenes (P_3HT) suitable for optoelectronic devices.	07	L1 L2	CO1 CO4
	c.	Mention any three properties and applications of QLED.	06	L1	CO4
		OR			
Q.4	a.	Explain the types of organic memory. Devices by taking p-type and n-type semiconductor materials.	07	L2	CO2
	b.	What are photoactive and electroactive materials and explain their working principle in the display system.	07	L2	CO1 CO2
	c.	Mention any 3 properties and applications of LC-displays.	06	L1	CO4
		Module – 3			
Q.5	a.	Define metallic corrosion. Describe the electrochemical theory of corrosion taking.	07	L1 L2	CO1 CO2
	b.	Describe galvanizing and mention its applications.	06	L2	CO4
	c.	What is CPR? A thick brass sheet of area 400 inches exposed to moist air. After 2 years of period. It was found to experience a weight loss of 375 g due to corrosion. If the density of brass is 8.73 g/cms, calculate CPR in mpy and mmpy.	07	L2	CO1 CO3
		OR			
Q.6	a.	Explain the construction and working of the Calomel electrode.	07	L2	CO2
	b.	Explain the application of conductometric electrodes in the estimation of a weak acid.	06	L2	CO4
	c.	Define concentration cell. Derive an expression for emf of the cell.	07	L1 L2	CO1 CO3

		Module – 4			
Q.7	**a.**	A polydisperse sample of polystyrene is prepared by mixing three monodisperse samples in the following proportions. 1 g of 10000 molecular weight. 2 g of 50000 mol. wt and 2 g of 100000 mol.wt. Determine the number and weight average mol. wt.	**07**	**L2**	**CO3**
	b.	What is Green fuel (hydrogen fuel)? Mention the advantages of Green fuel.	**06**	**L1**	**CO1**
	c.	Explain the construction and working of Photovoltaic cells.	**07**	**L2**	**CO2**
		OR			
Q.8	**a.**	Discuss the conduction mechanism in polyacetylene through oxidative or reductive doping techniques (Any one).	**07**	**L3**	**CO2**
	b.	Explain the generation of hydrogen by alkaline water electrolysis.	**07**	**L2**	**CO4**
	c.	Explain the preparation, properties and applications of Kevlar.	**06**	**L2**	**CO4**
		Module – 5			
Q.9	**a.**	What is e-waste? Explain the need for e-waste management.	**07**	**L2**	**CO1**
	b.	Explain the process of recycling e-waste.	**06**	**L2**	**CO5**
	c.	Discuss the following : (i) Pyrometallurgy (ii) Hydrometallurgy	**07**	**L3**	**CO5**
		OR			
Q.10	**a.**	Explain the extraction of gold from e-waste.	**07**	**L2**	**CO2**
	b.	Write a brief note on the role of stakeholders for example: Producers, Consumers, Statutory bodies.	**07**	**L3**	**CO5**
	c.	Explain the health hazards due to exposure to e-waste.	**06**	**L2**	**CO3**

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BMATE101

First Semester B.E/B.Tech. Degree Examination, Dec.2023/Jan.2024
Mathematics – I for EEE Stream

Time: 3 hrs. Max. Marks:100

Note: *1. Answer any FIVE full questions, choosing ONE full question from each module.*
2. VTU Formula Hand Book is permitted.
3. M : Marks , L: Bloom's level , C: Course outcomes.

		Module – 1	M	L	C
1	a.	With usual notations prove that $\tan\phi = r\frac{d\theta}{dr}$.	6	L2	CO1
	b.	Find the angle of intersection for the pair of curve $r = a(1 + \sin\theta)$, $r = b(1 - \sin\theta)$.	7	L2	CO1
	c.	Find the radius of curvature of the curve $x^3 + y^3 = 3xy$ at $\left(\frac{3}{2},\frac{3}{2}\right)$.	7	L2	CO1
		OR			
2	a.	Prove that the pair of curves $r = a\sec^2\left(\frac{\theta}{2}\right)$, $r = b\,\text{cosec}^2\left(\frac{\theta}{2}\right)$ intersect orthogonally.	8	L2	CO1
	b.	Find the Pedal equation of the curve $r^n = a^n\cos n\theta$.	7	L2	CO1
	c.	Using modern mathematical tool write a program/code to plot sine and cosine curves.	5	L3	CO5
		Module – 2			
3	a.	Expand $\log(\sec x)$ up to the term containing x^6 using Maclaurin's series.	6	L2	CO1
	b.	If $u = \tan^{-1}\left(\frac{y}{x}\right)$ where $x = e^t - e^{-t}$ and $y = e^t + e^{-t}$. Find $\frac{du}{dt}$.	7	L2	CO1
	c.	If : $u = x + 3y^2 - z^3$, $v = 4x^2yz$, $w = 2z^2 - xy$. Find $\frac{\partial(u,v,w)}{\partial(x,y,z)}$ at $(1,-1,0)$.	7	L3	CO1

		OR			
4	a.	Evaluate : i) $\lim_{x\to 0}\left(\frac{a^x+b^x}{2}\right)^{1/x}$ ii) $\lim_{x\to 0}(\sin x)^{\tan x}$.	7	L2	CO1
	b.	If u=f(y – z, z – x, x – y) prove that $\frac{\partial u}{\partial x}+\frac{\partial u}{\partial y}+\frac{\partial u}{\partial z}=0$.	8	L2	CO1
	c.	Using modern mathematical tool write a program/ code to evaluate : $\lim_{x\to\infty}\left(1+\frac{1}{x}\right)^x$.	5	L3	CO5
		Module – 3			
5	a.	Solve : $\frac{dy}{dx}+2\frac{y}{x}=\frac{y^2\log x}{x}$.	6	L2	CO2
	b.	Find the orthogonal trajectories of the family of Asteroid $x^{2/3}+y^{2/3}=a^{2/3}$.	7	L3	CO2
	c.	Solve : $p^3+2xp^2-y^2p^2-2xy^2p=0$.	7	L2	CO2
		OR			
6	a.	Solve : $y(x+y+1)dx+x(x+3y+2)dy=0$.	6	L2	CO2
	b.	Show that a DE for the current i in an electric circuit containing an inductance L and resistance R in series and acted by an electromotive force Esinωt satisfies the equation : $L\frac{di}{dt}+Ri=E\sin\omega t$. Find the value of the current at any time t, if initially there is no current in the circuit.	7	L3	CO2
	c.	Modify the equation into Clairaut's form. Hence find the general and singular solution of $xp^2-py+kp+a=0$.	7	L2	CO2
		Module – 4			
7	a.	Evaluate : $\int_{-1}^{1}\int_{0}^{z}\int_{x-z}^{x+z}(x+y+z)dydxdz$.	6	L2	CO3
	b.	Evaluate by changing the order of integration : $\int_{0}^{1}\int_{0}^{\sqrt{1-x^2}}y^2dxdy$.	7	L2	CO3
	c.	Prove that $\beta(m,n)=\frac{\Gamma(m)\cdot\Gamma(n)}{\Gamma(m+n)}$.	7	L2	CO3

		OR			
8	a.	Evaluate : $\int_0^a \int_0^{\sqrt{a^2-y^2}} y\sqrt{x^2+y^2}\,dxdy$ by changing into polar form.	**6**	**L2**	**CO3**
	b.	Find the area bounded between the parabolas $y^2 = 4ax$ and $x^2 = 4ay$ using double integration.	**7**	**L3**	**CO3**
	c.	Prove that $\int_0^{\pi/2} \sqrt{\sin\theta}\ d\theta \times \int_0^{\pi/2} \frac{d\theta}{\sqrt{\sin\theta}} = \pi$.	**7**	**L2**	**CO3**
		Module – 5			
9	a.	Find the Rank of the Matrix : $\begin{bmatrix} 1 & 0 & 2 & -2 \\ 2 & -1 & 0 & -1 \\ 1 & 0 & 2 & -1 \\ 4 & -1 & 3 & -1 \end{bmatrix}$.	**6**	**L2**	**CO4**
	b.	Solve the system of equations by Gauss – Elimination method. $2x + y + z = 10$ $3x + 2y + 3z = 18$ $x + 4y + 9z = 16$.	**7**	**L3**	**CO4**
	c.	Using Gauss – Seidel iterative method to solve : $5x + 2y + z = 12$ $x + 4y + 2z = 15$ $x + 2y + 5z = 20$ Carryout 4 iterations, taking the initial approximation to the solution as (1, 0, 3).	**7**	**L3**	**CO4**
		OR			
10	a.	Find the Rank of the matrix : $\begin{bmatrix} 4 & 0 & 2 & 1 \\ 2 & 1 & 3 & 4 \\ 2 & 3 & 4 & 7 \\ 2 & 3 & 1 & 4 \end{bmatrix}$.	**7**	**L2**	**CO4**
	b.	Solve by Gauss – Jordan method : $2x + y + 3z = 1$ $4x + 4y + 7z = 1$ $2x + 5y + 9z = 3$.	**7**	**L3**	**CO4**
	c.	Using modern mathematical tool write a program/code to test the consistency of the equations : $x + 2y - z = 1$ $2x + y + 4z = 2$ $3x + 3y + 4z = 1$.	**6**	**L3**	**CO5**

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BMATM101

First Semester B.E./B.Tech. Degree Examination, Dec.2023/Jan.2024
Mathematics – I for ME Stream

Time: 3 hrs. Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. VTU Formula Hand Book is permitted.
3. M : Marks , L: Bloom's level , C: Course outcomes.

		Module – 1	M	L	C
Q.1	a.	Prove that with usual notations $\frac{1}{p^2}=\frac{1}{r^2}+\frac{1}{r^4}(dr/d\theta)^2$	06	L1	CO1
	b.	Find the pedal equation $r^m = a^m \cos m\theta$	07	L2	CO1
	c.	Find the radius of curvature of the curve $x^4 + y^4 = 2$ at the point (1, 1).	07	L3	CO1
		OR			
Q.2	a.	Derive the radius of curvature in Cartesian form as $\rho=\frac{(1+y_1^2)^{3/2}}{y_2}$	08	L1	CO1
	b.	Show that for the curve $r = a(1 - \cos\theta)$ is $\frac{\rho^2}{r}$ = constant.	08	L3	CO1
	c.	Using modern mathematical tool write a program/code to plot the sine and cosine curve.	04	L3	CO5
		Module – 2			
Q.3	a.	Expand e^x by Maclaurin's series upto the term containing x^4.	06	L2	CO2
	b.	If $u = f(x - y, y - z, z - x)$ show that $\frac{\partial u}{\partial x}+\frac{\partial u}{\partial y}+\frac{\partial u}{\partial z}=0$	07	L2	CO2
	c.	Find the extreme values of $f(x, y) = x^3 + y^3 - 3x - 12y + 20$	07	L3	CO2
		OR			
Q.4	a.	Evaluate $\lim_{x\to 0}\left(\frac{a^x+b^x+c^x}{3}\right)^{1/x}$	08	L2	CO2
	b.	If $u = x^2 + y^2 + z^2$, $v = xy + yz + zx$, $w = x + y + z$ find $\frac{\partial(u,v,w)}{\partial(x,y,z)}$	08	L3	CO2
	c.	Using modern mathematical tool write a program/code to evaluate $\lim_{x\to 0}\left(1+1/x\right)^x$	04	L3	CO5
		Module – 3			
Q.5	a.	Solve $\frac{dy}{dx} - y\tan x = y^2 \sec x$	06	L2	CO3
	b.	Solve $(x^2 + y^2 + x)dx + xy\,dy = 0$	07	L3	CO3
	c.	Water at temperature 10°C takes 5 minutes to warm up to 20°C at room temperature of 40°. Find the temperature of the water after 20 minutes.	07	L2	CO3

		OR			
Q.6	**a.**	Solve $\frac{dy}{dx} - \frac{dx}{dy} = \frac{x}{y} - \frac{y}{x}$	**06**	**L2**	**CO3**
	b.	Find the orthogonal trajectories of cardioid $r = a(1 - \cos\theta)$	**07**	**L2**	**CO3**
	c.	Find the general solution of $xp^2 + xp - yp + 1 = 0$	**07**	**L3**	**CO3**
		Module – 4			
Q.7	**a.**	Solve $(4D^4 - 8D^3 - 7D^2 + 11D + 6)y = 0$	**06**	**L2**	**CO4**
	b.	Solve $(D^2 - 4)y = \cos 2x + e^{3x}$	**07**	**L2**	**CO4**
	c.	Solve $(D^2 + 1)y = \sec x$ by the method of variation of parameter.	**07**	**L3**	**CO4**
		OR			
Q.8	**a.**	Solve $(D^3 + 1)y = 3 + 5e^x$	**06**	**L2**	**CO4**
	b.	Solve $(D^2 + D)y = x^2 + 2x + 4$	**07**	**L2**	**CO4**
	c.	Solve $x^2\frac{d^2y}{dx^2} + 4x\frac{dy}{dx} + 2y = \log x$	**07**	**L3**	**CO4**
		Module – 5			
Q.9	**a.**	Find the rank of $\begin{bmatrix} 1 & 2 & 4 & 3 \\ 2 & 4 & 6 & 8 \\ 4 & 8 & 12 & 16 \\ 1 & 2 & 3 & 4 \end{bmatrix}$	**06**	**L2**	**CO5**
	b.	Using Gauss - Jordan method, solve $x + 2y + z = 8$, $2x + 3y + 4z = 20$, $4x + 3y + 2z = 16$	**07**	**L2**	**CO5**
	c.	Find the largest eigen value and the corresponding eigen vector of $\begin{bmatrix} 2 & -1 & 0 \\ -1 & 2 & -1 \\ 0 & -1 & 2 \end{bmatrix}$ with initial approximate eigen vector $(1, 0, 0)^T$. Carry out 4 iterations.	**07**	**L3**	**CO5**
		OR			
Q.10	**a.**	Investigate for what values of λ and μ, so that the equations $x + y + z = 6$, $x + 2y + 3z = 10$, $x + 2y + \lambda z = \mu$ gave (i) no solution (ii) a unique solution and (iii) an infinite nnumber of solutions.	**07**	**L2**	**CO5**
	b.	Solve the system of equations using Gauss-Siedel method by taking $(0, 0, 0)$ as an initial approximate root. $5x + 2y + z = 12$, $x + 4y + 2z = 15$, $x + 2y + 5z = 20$. Carry out 4 iterations.	**08**	**L3**	**CO5**
	c.	Using modern mathematical tool write a program/code to find the largest eigen value of $A = \begin{bmatrix} 1 & 1 & 3 \\ 1 & 5 & 1 \\ 3 & 1 & 1 \end{bmatrix}$ by power method.	**05**	**L3**	**CO5**

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BMATC101

First Semester B.E./B.Tech. Degree Examination, Dec.2023/Jan.2024
Mathematics – I for Civil Engineering Stream

Time: 3 hrs. Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. M : Marks , L: Bloom's level , C: Course outcomes.
3. VTU formula handbook is permitted.

		Module – 1	M	L	C
Q.1	a.	With usual notations prove that $\frac{1}{p^2}=\frac{1}{r^2}+\frac{1}{r^4}\left(\frac{dr}{d\theta}\right)^2$.	6	L2	CO1
	b.	Find the angle between the radius vector and tangent to the curve $r = a(1+\cos\theta)$ at $\theta=\frac{\pi}{3}$.	7	L2	CO1
	c.	Find the radius of curvature of the curve $y = 4\sin x - \sin 2x$ at $x = \pi/2$.	7	L2	CO1
		OR			
Q.2	a.	Find the pedal equation of the curve $r^n \cos n\theta = a^n$.	8	L2	CO1
	b.	Find the radius of curvature of the curve $r = a(1-\cos\theta)$.	7	L2	CO1
	c.	Using modern mathematical tool write α programme to plot the curve $r = 2(\cos 2\theta)$.	5	L2	CO1
		Module – 2			
Q.3	a.	Expand $\sqrt{1+\sin 2x}$ using Maclaurin's series upto the term containing x^4.	6	L2	CO2
	b.	If $Z = f(x+ct) + g(x-ct)$ prove that $\frac{\partial^2 z}{\partial t^2}=c^2\frac{\partial^2 z}{\partial x^2}$.	7	L2	CO2
	c.	Show that $f(x, y) = x^3 + y^3 - 3x - 12y + 20$ has a maximum value at the point (-1, -2) and minimum value at the point (1, 2).	7	L3	CO2
		OR			
Q.4	a.	If $U = f(2x-3y, 3y-4z, 4z-2x)$ then prove that $\frac{1}{2}\frac{\partial u}{\partial x}+\frac{1}{3}\frac{\partial u}{\partial y}+\frac{1}{4}\frac{\partial u}{\partial z}=0$.	8	L2	CO2
	b.	If $u = x^2+y^2+z^2$, $v = xy+yz+zx$, $w = x+y+z$, Find $\frac{\partial(u,v,w)}{\partial(x,y,z)}$.	7	L2	CO2

	c.	Using modern mathematical tool, write a programme to evaluate $\lim_{x\to\infty}(1+1/x)^{1/x}$.	5	L3	CO5
		Module – 3			
Q.5	a.	Solve : $\tan y \frac{dy}{dx} + \tan x = \cos y \cos^2 x$.	6	L2	CO3
	b.	Find the orthogonal trajectories of the family of curves $r = 2a\cos\theta$ where 'a' is a parameter.	7	L3	CO3
	c.	Solve $p^2 + p(x+y) + xy = 0$.	7	L2	CO3
		OR			
Q.6	a.	Solve $(x^2 + y^3 + bx)\,dx + xy^2\,dy = 0$.	6	L2	CO3
	b.	Water at temperature 10° C takes 5 minutes to warm upto 20° C in a room temperature of 40° C. Find the temperature of the water after 20 minutes.	7	L2	CO3
	c.	Solve $(px - y)(py + x) = 2p$ by reducing into Clairaut's form taking substitution $X = x^2$ and $Y = y^2$.	7	L3	CO3
		Module – 4			
Q.7	a.	Solve $\frac{d^3y}{dx^3} + \frac{d^2y}{dx^2} + 4\frac{dy}{dx} + 4y = 0$.	6	L2	CO3
	b.	Solve $(D-2)^2 y = 2(e^{2x} + \sin 2x)$.	7	L2	CO3
	c.	Solve $x^2\frac{d^2y}{dx^2} - 5x\frac{dy}{dx} + 8y = 2\log x$.	7	L2	CO3
		OR			
Q.8	a.	Solve $\frac{d^2y}{dx^2} + y = x^2 + 2x + 4$.	6	L2	CO3
	b.	Using method of variation of parameters Solve $\frac{d^2y}{dx^2} + y = \sec x$.	7	L2	CO3
	c.	Solve $(1+2x)^2\frac{d^2y}{dx^2} - 6(1+2x)\frac{dy}{dx} + 16y = 8(1+2)x$.	7	L2	CO3
		Module – 5			
Q.9	a.	Find the rank of the matrix : $\begin{bmatrix} 21 & 22 & 23 & 24 \\ 22 & 23 & 24 & 25 \\ 23 & 24 & 25 & 26 \\ 24 & 25 & 26 & 27 \end{bmatrix}$.	6	L2	CO4

	b.	Test for consistency and solve the following system of equations : $x+2y+3z=1$, $2x+3y+8z=2$, $x+y+z=3$.	7	L2	CO4
	c.	Solve the following system of equations using Gauss Jordan method : $x+y+z=9$, $2x+y-z=0$, $2x+5y+7z=52$.	7	L3	CO4
		OR			
Q.10	a.	Find he rank of the matrix $\begin{bmatrix} -2 & -1 & -3 & -1 \\ 1 & 2 & 3 & -1 \\ 1 & 0 & 1 & 1 \\ 0 & 1 & -1 & -1 \end{bmatrix}$	6	L2	CO4
	b.	Use Gauss – Seidel Iteration method to solve the system of equations $5x+2y+z=12$, $x+4y+2z=15$, $x+2y+5z=20$ (upto 3 iterations).	7	L3	CO4
	c.	Using modern mathematical tool, write a programme to find the largest eigen vector if $A=\begin{bmatrix} 6 & -2 & 2 \\ -2 & 3 & -1 \\ 2 & -1 & 3 \end{bmatrix}$.	7	L3	CO5

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MAKE-UP EXAM

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BETCK105I/BETCKI105

First Semester B.E./B.Tech. Degree Examination, Nov./Dec. 2023
Introduction to Cyber Security

Time: 3 hrs. Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. M : Marks , L: Bloom's level , C: Course outcomes.

		Module – 1	M	L	C
Q.1	a.	List and explain the different types of cyber criminals.	6	L1	CO1
	b.	Illustrate how a cyber-crime effects on individuals.	7	L2	CO1
	c.	Explain cyber crime against property.	7	L2	CO1
		OR			
Q.2	a.	Most of the cyber criminals prefer cyber cafes to carry out their activities. Justify.	7	L2	CO2
	b.	Explain how cyber criminals plan for society.	7	L2	CO2
	c.	Define the following: (i) Hacker (ii) Brute force hacking (iii) Cracker	6	L1	CO2
		Module – 2			
Q.3	a.	Explain the following with an example: (i) Phishing (ii) Spear phishing (iii) Smishing (iv) Email spoofing (v) Spamming	15	L2	CO1
	b.	What is Botnet? List the different types of Botnets.	5	L1	CO1
		OR			
Q.4	a.	With an example, explain active attackers and passive attackers.	7	L2	CO2
	b.	Explain how criminals plan for the crime.	7	L2	CO2
	c.	Define the following: (i) Malware (ii) Adware (iii) DDOS	6	L1	CO2
		Module – 3			
Q.5	a.	What are Trojan horses? Describe working behaviour of Trojan horses in a personal computer.	7	L1	CO3
	b.	Write a short note on software key loggers and hardware key loggers.	7	L1	CO3
	c.	List and explain different types of viruses in a computer.	6	L2	CO3
		OR			
Q.6	a.	Mention the password guidelines to secure our account while dealing with financial account and email account.	8	L3	CO3
	b.	What is steganography and stegnalysis? Explain.	6	L2	CO3
	c.	List and explain the different types of DOS attacks.	6	L2	CO3
		Module – 4			
Q.7	a.	What is identity theft? Explain with a suitable example.	10	L1	CO4
	b.	How to prevent being a victim of ID theft?	10	L2	CO4
		OR			

Q.8	a.	What are the different techniques of ID theft?	6	L1	CO4
	b.	Explain human based ID theft and computer based ID theft techniques.	6	L2	CO4
	c.	What is spy phishing? Explain the counter measures of phishing.	8	L2	CO4
		Module – 5			
Q.9	a.	Explain some of the best practices in handling digital evidence.	7	L2	CO5
	b.	Explain how the chain of custody concept applies in a computer/digital forensics.	7	L2	CO5
	c.	What would be the nature of evidence collected for a network forensics?	6	L1	CO5
		OR			
Q.10	a.	Explain the importance of strong documentation in cyber forensics profession.	6	L2	CO5
	b.	Mention the differences between digital forensics and computer forensics.	6	L2	CO5
	c.	What are the various phases and activities involved in the life cycle of a forensics investigation process?	8	L1	CO5

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CBCS SCHEME

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BETCK105I/ BETCKI105

First Semester B.E./B.Tech. Degree Examination, Dec.2023/Jan.2024
Introduction to Cyber Security

Time: 3 hrs. Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. M : Marks , L: Bloom's level , C: Course outcomes.

		Module – 1	M	L	C
Q.1	a.	Define the following terms : i) Cyber space ii) Cyber squatting iii) Cyber punk iv) Cyber warfare v) Cyber terrorism	10	L1	CO1
	b.	Discuss the various classifications of cyber crimes.	10	L2	CO1
		OR			
Q.2	a.	Who are cyber criminals? Discuss in detail the various types of cyber criminals.	10	L2	CO1
	b.	Explain the various classifications of cyber crimes.	10	L2	CO1
		Module – 2			
Q.3	a.	Explain the phases involved in planning a cyber crime.	10	L2	CO1
	b.	What is cyber stalking? Explain in detail how cyber stalking works.	10	L2	CO1
		OR			
Q.4	a.	Differentiate between active attacks and passive attacks.	10	L3	CO1
	b.	What are botnets? Explain how botnets can be used for gainful purposes.	10	L2	CO1
		Module – 3			
Q.5	a.	Explain the various stages of a Network attack.	10	L2	CO2
	b.	Define the following terms : i) Proxy servers and Anonymizers ii) Phising iii) Keyloggers and spywares iv) Virus and worms v) Trojans and backdoor virus	10	L2	CO2
		OR			
Q.6	a.	Explain the types of computer viruses.	10	L2	CO2
	b.	Explain the types of DOS attacks.	10	L2	CO2

		Module – 4			
Q.7	**a.**	What is Phising ? Explain the various phising techniques.	**10**	**L2**	**CO3**
	b.	Explain the types of phising scams	**10**	**L2**	**CO3**
		OR			
Q.8	**a.**	What is identity theft? Explain the types of identity theft.	**10**	**L2**	**CO3**
	b.	Discuss the techniques of identity theft.	**10**	**L2**	**CO3**
		Module – 5			
Q.9	**a.**	What is digital Forensics? Explain the roles and typical scenarios involved in digital forensics.	**10**	**L2**	**CO4**
	b.	With a aid of diagram, explain the digital forensics lifecycle.	**10**	**L2**	**CO4**
		OR			
Q.10	**a.**	Discuss the various methods for Extracting forensic evidence.	**10**	**L2**	**CO4**
	b.	Write short notes on : i) Chain of custody ii) Digital forensic science.	**10**	**L2**	**CO4**

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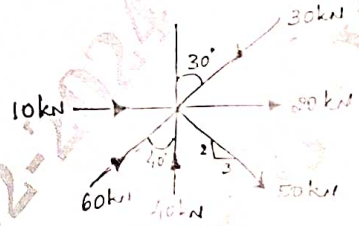
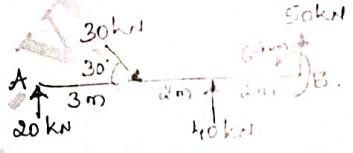
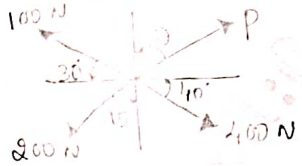
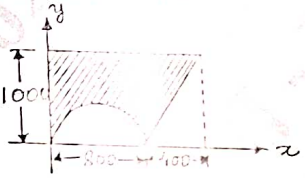
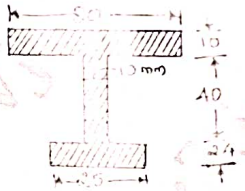
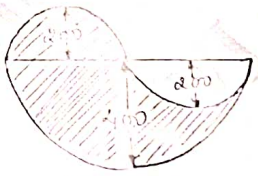
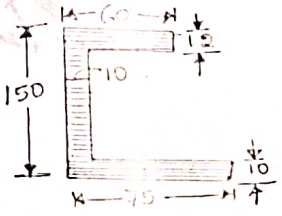
BESCK104A/BESCKA104

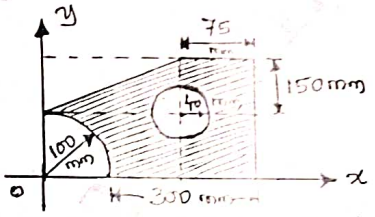
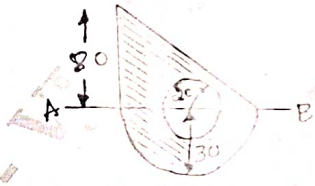
First Semester B.E./B.Tech. Degree Examination, Dec.2023/Jan.2024
Introduction to Civil Engineering

Time: 3 hrs. Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. M : Marks , L: Bloom's level , C: Course outcomes.

		Module – 1	M	L	C
Q.1	a.	Explain briefly the scope of following specification of civil engineering: i) Environmental Engineering ii) Structural Engineering	08	L1	CO1
	b.	Write the composition of cement.	06	L1	CO1
	c.	What is brick? Write the classes of bricks.	06	L1	CO1
		OR			
Q.2	a.	Differentiate Reinforced and Prestressed Concrete.	08	L1	CO1
	b.	Write a note on Construction Chemicals.	06	L1	CO1
	c.	Enumerate Structural Elements of a building.	06	L1	CO1
		Module – 2			
Q.3	a.	Discuss on salient points on sustainable development goals.	08	L1	CO2
	b.	Write a note on Smart City Concept.	06	L1	CO2
	c.	Describe Solid Waste Management.	06	L1	CO2
		OR			
Q.4	a.	Write the key points to be considered while identifying the landfills sites.	08	L1	CO2
	b.	Explain Refuse, Reuse and Recycle concepts.	06	L1	CO2
	c.	Write a note on Energy Efficient buildings.	06	L1	CO2
		Module – 3			
Q.5	a.	Explain principles of superposition with a neat sketch.	04	L2	CO3
	b.	Determine the resultant of the system of forces shown in the Fig.Q5(b) below:  Fig.Q5(b)	08	L3	CO3
	c.	Determine the resultant of non concurrent system of forces shown in the Fig.Q5(c) below:  Fig.Q5(c)	08	L3	CO3
		OR			
Q.6	a.	State and prove Varignon's theorem.	04	L2	CO3
	b.	Discuss resolution and composition of forces.	08	L2	CO3

	c.	Four forces of magnitude P, 100 N, 200 N, and 400 N are acting at a point as shown in Fig.Q6(c). Determine the magnitude and direction of force 'P' such that the force system is in equilibrium.  Fig.Q6(c)	08	L3	CO3
		Module – 4			
Q.7	a.	Derive the centroid of a triangle having base 'b' and height 'h' from the first principles.	05	L2	CO4
	b.	Locate the centroid of the shaded area shown in Fig.Q7(b) with respect to reference axis. All dimensions are in mm.  Fig.Q7(b)	08	L3	CO4
	c.	Locate the centroid of the shaded area shown in Fig.Q7(c). All dimensions are in mm.  Fig.Q7(c)	07	L3	CO4
		OR			
Q.8	a.	Derive the centroid of a rectangle of base 'b' and height 'h'.	05	L2	CO4
	b.	Determine the centroid of the shaded area shown in the Fig.Q8(b) below. All dimensions in mm.  Fig.Q8(b)	08	L3	CO4
	c.	Determine the centroid of the shaded area shown in the Fig.Q8(c). All dimensions in mm.  Fig.Q8(c)	07	L3	CO4

		Module – 5			
Q.9	**a.**	State and prove parallel axis theorem.	**05**	**L5**	**CO5**
	b.	Derive the moment of inertia of a triangle of having base 'b' and height 'h' from the first principle.	**05**	**L5**	**CO5**
	c.	Find the polar moment of inertia of the plane lamina shown in Fig.Q9(c) about the point 'O' [I_{oz}].  Note : Radius of circle is 40mm. Fig.Q9(c)	**10**	**L5**	**CO5**
		OR			
Q.10	**a.**	Derive Moment of Inertia of a circle from the first principle.	**05**	**L5**	**CO5**
	b.	Define the terms i) Moment of Inertia ii) Radius of Gyration.	**05**	**L5**	**CO5**
	c.	Compute the MI of the area shown in Fig.Q10(c) about the axis AB. All dimensions are in mm only. Radius of circle is 20mm.  Fig.Q10(c)	**10**	**L5**	**CO5**

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CBCS SCHEME

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BESCK104D/BESCKD104

First Semester B.E./B.Tech. Degree Examination, Dec.2023/Jan.2024
Introduction to Mechanical Engineering

Time: 3 hrs. Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. M : Marks , L: Bloom's level , C: Course outcomes.

		Module – 1	M	L	C
Q.1	a.	Explain the role of mechanical engineering in society.	10	L2	CO1
	b.	Explain the emerging trends and technologies in the following sectors. i) Manufacturing sector ii) Automotive sector iii) Aerospace sector iv) Marine sector.	10	L2	CO1
		OR			
Q.2	a.	With a neat sketch, explain the working principle of Hydel power plant.	10	L2	CO1
	b.	Write short notes on : i) Fossil fuels ii) Bio-fuels.	10	L2	CO1
		Module – 2			
Q.3	a.	What is lathe? With neat sketch explain the working principle of lathe machine.	6	L2	CO2
	b.	With neat sketches, explain the following lathe operations. i) Turning operation ii) Knurling operation.	8	L2	CO2
	c.	Differentiate between up milling and down milling.	6	L2	CO2
		OR			
Q.4	a.	What is CNC? With neat sketches, explain the basic components of CNC.	8	L2	CO2
	b.	List the advantages and disadvantages of CNC.	6	L1	CO2
	c.	List the advantages and disadvantages of 3D printing.	6	L2	CO2
		Module – 3			
Q.5	a.	With a neat sketch, explain the components of I.C engine.	10	L2	CO3
	b.	With a neat sketch, explain the working principle of 4-stroke petrol engine along with PV diagram.	10	L2	CO3
		OR			
Q.6	a.	What is an electric vehicle? Briefly explain the components of an electric vehicle.	10	L2	CO3
	b.	State the advantages and disadvantages of EVs and hybrid vehicles.	10	L2	CO3

		Module – 4			
Q.7	**a.**	Write the composition, properties and applications of the following materials. i) Cast iron ii) High carbon steel iii) Alluminium iv) Copper.	**10**	**L2**	**CO4**
	b.	Write short notes on : i) Polymers ii) Shape memory alloys.	**10**	**L2**	**CO3**
		OR			
Q.8	**a.**	What is Welding? With a neat sketch, explain the working principle of Electric Arc Welding.	**10**	**L2**	**CO4**
	b.	With neat sketches, explain 3 types of flames used in gas welding process.	**5**	**L2**	**CO4**
	c.	List the applications of welding.	**5**	**L2**	**CO4**
		Module – 5			
Q.9	**a.**	With the help of block diagram, explain open loop and closed-loop control systems.	**10**	**L2**	**CO5**
	b.	With neat sketches, explain four basic robot configurations.	**10**	**L2**	**CO5**
		OR			
Q.10	**a.**	What is Automation? Explain 3 types of automation.	**10**	**L2**	**CO5**
	b.	Briefly explain characteristics of I.O.T.	**10**	**L2**	**CO5**

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CBCS SCHEME

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BPOPS103

First Semester B.E./B.Tech. Degree Examination, Jan./Feb. 2023
Principles of Programming using C

Time: 3 hrs. Max. Marks: 100

Note: *1. Answer any FIVE full questions, choosing ONE full question from each module.*
2. VTU Formula Hand Book is permitted.
3. M : Marks , L: Bloom's level , C: Course outcomes.

		Module – 1	M	L	C
Q.1	a.	Explain the organization of Basic computer model with neat diagram.	8	L1	CO2
	b.	Explain Input/Output statement in C.	8	L1	CO2
	c.	List and explain any two input-output devices.	4	L1	CO2
		OR			
Q.2	a.	What are the basic datatypes available in C?	6	L2	CO2
	b.	Define variable. Explain the rules to declare a variable with example.	6	L2	CO2
	c.	With suitable example – Explain the basic structure of C program.	8	L2	CO2
		Module – 2			
Q.3	a.	What is type casting? Explain its types with suitable example.	6	L2	CO2
	b.	Write a C program to find the largest of three numbers using ternary operator.	6	L3	CO2
	c.	List and explain unconditional branching statements with example.	8	L1	CO2
		OR			
Q.4	a.	List the conditional branching statements in 'C'. Explain any two with example.	6	L1	CO2
	b.	Write a C program to compute the roots of a quadratic equation by accepting the coefficients print appropriate messages.	6	L3	CO2
	c.	Explain different types of loops in C. Justify with its syntax and example.	8	L2	CO2
		Module – 3			
Q.5	a.	Define an array. Explain with example. How to declare and initialize 2D-array.	6	L2	CO3
	b.	Write a C program to search an element using binary search technique (for numericals).	6	L3	CO3
	c.	Write a C program to perform addition of 2-dimensional matrix (consider 3×3 ordered matrices A and B).	8	L3	CO3
		OR			

Q.6	a.	Define function. Explain the type of functions based on parameters.	8	L2	CO3
	b.	Write a C program to sort the elements using bubble sort technique by passing array as function argument.	6	L3	CO4
	c.	Write a C program to find the n_{C_r}. $\left[n_{C_r} = \frac{n!}{(n-r)!r!} \right]$	6	L3	CO3
		Module – 4			
Q.7	a.	Define a string. List the string manipulation functions. Explain any two with examples.	8	L2	CO2
	b.	Write a C program to find the length of a given string without using built-in function.	6	L3	CO3
	c.	Write a C program to check whether the given string is Palindrome or not without using built in function.	6	L3	CO2
		OR			
Q.8	a.	Define Pointer. Explain how the pointer is declared and initialized with example.	6	L2	CO4
	b.	Write a C program using pointers to compute the sum, mean and standard deviation of all elements stored in an array of 'n' real numbers.	8	L3	CO4
	c.	Write a C program to replace each constant in a string with the text one except letter 'z', 'Z' and 'a''A', for the string "Corona Virus" should be modified as "DpSpoa Wjsvt".	6	L3	CO3
		Module – 5			
Q.9	a.	Differentiate between structures and Union.	6	L2	CO4
	b.	Write a C program to implement structures to read and write Book-Title, Book-Author and Book-id of n books.	8	L3	CO3
	c.	Write a note on files.	6	L3	CO4
		OR			
Q.10	a.	List and explain any four file operations in C.	6	L2	CO2
	b.	Write a C program to store and print name, USN, Subject and IA marks of students using structure.	8	L3	CO4
	c.	Write a note on enumerated data type.	6	L2	CO4

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CBCS SCHEME

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BESCK104C/BESCKC104

First Semester B.E./B.Tech. Degree Examination, Dec.2023/Jan.2024
Introduction to Electronics and Communication

Time: 3 hrs. Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. M : Marks , L: Bloom's level , C: Course outcomes.

		Module – 1	M	L	C
Q.1	a.	What is Regulated power supply? With neat block diagram, explain the individual blocks.	8	L2	CO1
	b.	What is a rectifier? With neat circuit diagram and output waveforms, explain full wave bridge rectifier with capacitor filter.	8	L2	CO1
	c.	With circuit diagram brief out the operation of voltage doubler.	4	L2	CO1
		OR			
Q.2	a.	Draw the circuit diagram of voltage regulator and explain the operation.	7	L2	CO1
	b.	Explain the concept of negative feedback amplifier with relevant equations and diagrams.	5	L2	CO1
	c.	Explain Frequency response of RC coupled amplifier.	8	L2	CO1
		Module – 2			
Q.3	a.	Explain the Barkhausen criteria for oscillations. In wein bridge oscillator if $C_1 = C_2 = 200nF$ determine the frequency of oscillation when $R_1 = R_2 = 4k\Omega$.	7	L3	CO2
	b.	With neat circuit diagram, explain the operation of ladder network oscillator.	7	L2	CO2
	c.	Explain the operation of single stage Astable multivibrator with its circuit diagram.	6	L2	CO2
		OR			
Q.4	a.	List out the Ideal characteristics of an op-amp.	7	L2	CO2
	b.	Explain the following with respect to operational amplifier, i) Inverting amplifier ii) Integrator.	8	L2	CO2
	c.	An operational amplifier operating with negative feedback produces an output voltage of 2V when supplied with an input of 400μV. Determine the value of closed – loop voltage gain and express the answer in decibels.	5	L3	CO2
		Module – 3			
Q.5	a.	Convert the following : i) $(FACE)_{16} = (\ )_{10}$ ii) $(65.45)_{10} = (\ )_2$ iii) $(1111011011011.11011)_2 = (\ )_8$ iv) $(2604.10546875)_{10} = (\ )_{16}$	8	L3	CO3

	b.	Perform the following : i) $(1010100)_2 - (1000100)_2$ using 2's compliment. ii) $(4456)_{10} - (34324)_{10}$ using 10's compliment method.	6	L3	CO3
	c.	State and prove De – Morgan's theorems with its truth table.	6	L2	CO3
		OR			
Q.6	a.	Implement the Boolean functions using logic gates. i) $F_1 = x + y'z$ ii) $x'y'z + x'yz + xy'$	6	L3	CO3
	b.	Write the step by step procedure to design a combinational circuit.	6	L2	CO3
	c.	Implement full adder circuit with its truth table and draw the logic diagram of sum and carry.	8	L3	CO3
		Module – 4			
Q.7	a.	What is an embedded system? Compare embedded system and General computing systems.	7	L2	CO4
	b.	Explain classification of embedded systems.	7	L2	CO4
	c.	What is the difference between RISC and CISC processors?	6	L2	CO4
		OR			
Q.8	a.	Discuss major application areas of embedded systems with examples.	7	L2	CO4
	b.	Write short note on : i) Transducers ii) Sensors iii) Actuators.	6	L2	CO4
	c.	Write a short note on 7-segment LED display.	7	L2	CO4
		Module – 5			
Q.9	a.	With neat block diagram, explain modern communication system.	8	L2	CO5
	b.	Write a note on Hard wired channel and soft wired channel.	6	L2	CO5
	c.	Explain with a neat diagram, the concept of Radio wave propagation and its different types.	6	L2	CO5
		OR			
Q.10	a.	Explain Amplitude Modulation (AM) and Frequency Modulation (FM) with neat waveforms.	8	L2	CO5
	b.	List out the advantages of Digital communication over Analog communication.	6	L2	CO5
	c.	Explain different multiple Access Techniques.	6	L2	CO5

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CBCS SCHEME

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BETCK105F / BETCKF105

First Semester B.E./B.Tech. Degree Examination, Dec.2023/Jan.2024
Waste Management

Time: 3 hrs. Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. M : Marks , L: Bloom's level , C: Course outcomes.

		Module – 1	M	L	C
Q.1	a.	Define Solid Waste. Explain the classification of the same based on sources.	10	L2	CO1
	b.	With a neat flow chart, explain the functional elements of solid waste management system.	10	L2	CO1
		OR			
Q.2	a.	Write short notes on ESSWM (Environmentally Sound Solid Waste Management) and EST (Environment Sound Technology)	10	L2	CO1
	b.	Explain the various factors affecting Solid Waste Management.	10	L2	CO1
		Module – 2			
Q.3	a.	Describe the Rationale for analysis for Waste Stream Assessment and steps involved in Field investigation.	10	L2	CO1
	b.	Explain the various factors causing variation in waste quantity and composition of solid wastes.	10	L2	CO1
		OR			
Q.4	a.	Enumerate the various chemical characteristics of solid wastes.	10	L2	CO1
	b.	Explain the various environmental effects due to inadequate and improper waste management.	10	L2	CO1
		Module – 3			
Q.5	a.	Outline the various factors that influence the waste collection system.	10	L2	CO2
	b.	Write short notes on : i) Collection vehicle routing ii) Transfer station	10	L2	CO2

		OR			
Q.6	**a.**	Explain the various disposal options of solid wastes.	**10**	**L2**	**CO2**
	b.	Describe the different processes for the feasibility of disposal of solid waste through sanitary hand-filling.	**10**	**L2**	**CO2**
		Module – 4			
Q.7	**a.**	Explain the process of mechanical volume Reduction.	**10**	**L2**	**CO2**
	b.	List out different components separation techniques used in solid waste management system and explain any two in detail.	**10**	**L1**	**CO2**
		OR			
Q.8	**a.**	Write a note on Drying and Dewatering operations used in SWM.	**10**	**L2**	**CO3**
	b.	What are the various recycling programmes elements used in SWM and explain any two?	**10**	**L2**	**CO3**
		Module – 5			
Q.9	**a.**	Describe the various characteristics of Hazardous wastes.	**10**	**L2**	**CO4**
	b.	Explain the different classification of Hazardous wastes.	**10**	**L2**	**CO4**
		OR			
Q.10	**a.**	Explain the different treatment methods used for Hazardous wastes.	**10**	**L2**	**CO4**
	b.	Write a note on pollution prevention and waste minimization.	**10**	**L2**	**CO4**

* * * * *

CBCS SCHEME

BIDTK158/BIDTK258/22BD16

USN | | | | | | | | | |

Question Paper Version : A

First/Second Semester B.E./B.Tech./B.Des. Degree Examination,Dec.2023/Jan.2024

Innovation and Design Thinking

Time: 1 hrs.] [Max. Marks: 50

INSTRUCTIONS TO THE CANDIDATES

1. Answer all the **fifty** questions, each question carries one mark.
2. Use only **Black ball point pen** for writing / darkening the circles.
3. **For each question, after selecting your answer, darken the appropriate circle corresponding to the same question number on the OMR sheet.**
4. Darkening two circles for the same question makes the answer invalid.
5. **Damaging/overwriting, using whiteners** on the **OMR** sheets are strictly prohibited.

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1. The stages of the design thinking process in order are
   a) Understand > Draw > Ideate > Crate > Test
   b) Empathize > Define > Ideate > Prototype > Test
   c) Empathize > Design > Implement > Produce > Test
   d) Understand > Define > Ideate > Produce > Try

2. The comprehensive principle of design thinking does not include
   a) Relationship b) Collaboration
   c) Communication d) Suppliers

3. Design Thinking typically help in _____.
   a) Innovation b) Data Analysis
   c) Marketing Management d) Operation Management

4. Mr. ABC wants to design a new bed that he can sell to nursing homes to use with their patients. However, Mr. ABC doesn't want anything to do with older adults or people with disabilities. According to the design thinking process, Mr. ABC will face problems because he is missing.
   a) Empathy b) Creativity c) Practicality d) Imagination

5. The three I's of design thinking do not include
   a) Interest b) Implementation c) Inspiration d) Ideation

6. In design, where does the information used to put together a problem statement come from?
   a) The design stage b) The ideate stage
   c) The define stage d) The testing stage

7. Collecting _____ is an important portion of testing a prototype in the test stage of design.
a) Pictures b) Money c) Feedback d) E mails

8. A pototype is a simple experimental model of a proposed solution used to
a) Test ideas b) Validate ideas
c) Both d) None of these

9. Identify the correct statement
a) To derive the power of design thinking, individuals, teams and organizations must have a leap of faith about the existence of a solution.
b) Leap of faith is the page in the manual of design thinking containing the core philosophy about design thinking
c) Design thinking presupposes that some people are inherently creative and become successful in creative product development. The team should have atleast one such person.
d) None of these

10. Which is not basic modes of thinking?
a) Analytical b) Judical c) Critical d) Synthetic

11. Design thinker in an organization are
a) People b) Employees
c) Managers d) All of these

12. What is the main objective of the empathize stage in design thinking?
a) Understanding the problem b) Generating ideas
c) Identifying the user needs d) Building prototypes

13. Mind mapping diagram provides information about
a) Customer and product interaction
b) Idea and its interaction among other ideas
c) Visualization of problem statement
d) None of these

14. Value chain analysis process provides
a) Better understanding of customer expectations
b) Uncover the information about partners capabilities
c) Better market analysis
d) All of these

15. Which one of the below helps in generating hypothesis about potential new business opportunities?
a) Prototype b) Rapid concept development
c) Ideate d) Learning launches

16. A visualization activity was performed by the employees of a bulb manufacturing company which included information in the form of
a) Images of various types of bulbs produced by the company
b) Its application suitability to the customers in the form of stories
c) Clears or reduces the possibilities of unmatched mental models/pictures
d) All of the above

17. The goal of the prototype phase is
a) To understand what component of your idea didn't work
b) To understand what component of your idea worked
c) Both of them
d) None of them

18. _____ is a tool to use the design details and terms to develop new business opportunities.
a) Visualization
b) Journey mapping
c) Rapid concept development
d) None of these

19. Which tool is used for feasibility check of assumptions of the new business ideas?
a) Value chain analysis
b) Rapid concept development
c) Prototype
d) Assumption testing

20. Identify the process that brings users and designers together to work towards a shared goal.
a) Problem statement formulation
b) Customer co-creation
c) Value chain analysis
d) None of these

21. Which process is a quick and inexpensive learning test to collect market driven data?
a) Learning launches
b) Prototyping
c) Customer co-creation
d) None of these

22. What is an example of a method for conducting user research?
a) Surveys
b) Usability testing
c) Design sprints
d) All of these

23. What is the process of collecting and analyzing data on how users interact with a design in real time called?
a) Real Time design interaction capture
b) Real Time design analysis
c) Real Time design interaction analysis
d) Real Time design interaction capture and analysis

24. What is the main goal of enabling efficient collaboration in digital space?
a) To create a digital environment where team members can easily share ideas, provide feedback and work together on projects in real time.
b) To develop a project management software for team members
c) To train team members on how to use design collaboration software
d) To implement video conferencing tools for remote team members

25. What is the purpose of user testing?
a) To gather feedback and identify areas for improvement in a product or service
b) To create a user-centered design
c) To create empathy map
d) To conduct user research

26. Which one of the following is not a part of various business process model steps?
a) Process maps
b) Process detection
c) Process imitation
d) Process termination

27. An employer Mrs. ABC divides her business processes into basic components based on their functions and performance for the business is called:
    a) Building Product Management
    b) Business Product Management
    c) Business Process Modelling
    d) Basic Product Management

28. What is the main focus of design thinking in IT?
    a) Efficiency
    b) Cost effectiveness
    c) User-centeredness
    d) Innovation

29. Which stage in Design Thinking Process allows for the collaboration between designers, developers and stakeholders?
    a) Empathize
    b) Define
    c) Ideate
    d) Test

30. Which one of the following are advantages of Business Process Modeling?
    a) Align operations with business strategy
    b) Improves process communication
    c) Improves operational efficiencies
    d) All of these

31. How can Design Thinking in IT improve product services and processes?
    a) By identifying user needs and pain points
    b) By considering different perspectives
    c) By rapid prototyping and testing
    d) All of these

32. Which one of the following is part of Agile Virtual collaboration approach?
    a) Allow openness
    b) Establish a culture of continuous communication
    c) Develop a culture of courage and flexibility
    d) All of these

33. What is the main benefit of using a design?
    a) Efficiency
    b) Cost-effectiveness
    c) Improved user satisfaction
    d) Innovation

34. Business process modeling replaced the organization's previous effective packages
    a) Time and motion study
    b) Total quality management
    c) a and b
    d) None of these

35. Which method can be used to design complex software programs based on models, both structural and behavioural models?
    a) Scenario based prototype
    b) Agile discussion
    c) Simple prototype
    d) None of these

36. For a website development project in an industry, the software developers divide the main project into many smaller projects and adopt an iterative approach to incorporate any changes needed as per frequent customer feedback. This type of approach is found in
    a) Agile method
    b) Waterfall method
    c) Sprints
    d) All of these

37. A time boxed iteration of continuous development cycle for a planned amount of work that has to be completed by the team and made ready for review is called
a) Prototyping
b) Sprint
c) Experience Design
d) Business Model Design

38. Which one is the process of setting goals, procedures and objectives in order to make a company or organization more competitive?
a) Visualization
b) Strategic management
c) Group discussion
d) Prototype

39. Which one of the following is not part of any type of innovation?
a) Disruptive
b) Radical
c) Conceptual
d) Architectural

40. Which innovation type is related to new concept, product or service which will create new value to the existing market and also create a completely new market?
a) Incremental
b) Sustaining
c) Disruptive
d) Radical

41. Duration of design thinking workshop can be
a) 2 hrs
b) 2 days
c) one week
d) Depends on the context of the workshop

42. Which one of the following are part of the scope of strategic innovation?
a) Managed innovation process
b) Strategic Alignment
c) Industries foresight and implementation
d) All of these

43. 'The willingness to try something by building, it is the evidence of experimentation'. The statement refers to
a) Story telling
b) Prototyping
c) Mind mapping
d) Conceptualizing

44. How does experience design relate to humanization in product development?
a) Experience design focuses on creating a positive user experience while, humanization focuses on making products more user friendly.
b) Experience design and humanization are unrelated.
c) Experience design and humanization focuses on creating a positive user experience
d) None of these

45. Which one is not part of planning stage of design thinking workshop?
a) Learning goals
b) Pre-meeting
c) Developing flow of activity
d) Idea testing

46. _____ innovation happens when a new technology completely disrupts existing business or economy and creates a new business model.
a) Incremental
b) Sustaining
c) Disruptive
d) Radical

47. Which of the following is not consideration while representing the story of the product?
a) The central idea of the product
b) Engaging the participants
c) Other products in market
d) Incorporate adequate detail

48. A company collects, analyses and rework by considering negative feedback to learn and improve to create a solution that is
a) Desirable to customer
b) Feasible to implement
c) Viable for long term success
d) All of these

49. What step of the design process was not considered for this tea pot?

a) Research and Design
b) Prototype and Testing
c) Design and Manufacturing
d) All of these

50. Mr. XYZ is starting a clothing company. Instead of making clothing that fits models, he wants to start thinking about what non models/common people/end users need and plan his design around them. Accordingly, he is engaging in
a) Design thinking
b) Model design
c) End user generation
d) Model thinking

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CBCS SCHEME

BSFHK158/258

USN | | | | | | | | | | |

Question Paper Version : A

First/Second Semester B.E./B.Tech. Degree Examination, Dec.2023/Jan.2024

Scientific Foundation of Health

Time: 1 hr.] [Max. Marks: 50

INSTRUCTIONS TO THE CANDIDATES

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1. Being inactive form of life style is called as _____
   a) Sedentary life style b) Spirited life style
   c) Busy life style d) Lively

2. A person who is able to serve himself , his nation and his community is called as?
   a) Gangster b) Sick person c) Healthy d) Saddest

3. Balance in exercise , balanced nutrition and adequate rest is referred as
   a) Social health b) Physical health c) Emotional health d) Intectual health

4. Individual who do not think they will get flue are less likely to get a yearly flue short is an example of_____
   a) Negative belief b) Uncertainity c) Healthy belief d) None of the above

5. Emotional health brings an ability in individual to ____
   a) React to the situation b) Respond to the situation
   c) Withdraw from the situation d) None of the above

6. A person has ability to bounce back after difficult experiences and adapt to adversity is called as ____ health.
   a) Mental health b) Financial health c) Social health d) Physical health

7. The prime factor which influences psychological health is _____
   a) Positive mindset b) Gloomy outlook c) Dim view d) All the above

8. One who suffer from mental illness always see himself as
   a) Happy and Active b) Gloomy & Pessimist
   c) Unhappy and Worried d) Both (b) & (c)

9. Spiritual wellness involves
   a) Developing compassion, caring and forgiving
   b) Peace of mind, happiness and mercy full
   c) Human values, honesty and self realization d) All the above

10. Lack of physical health for longer time affects
    a) Productivity and performance of Individual
    b) Financial health of individual
    c) Mental health of individual
    d) All the above

11. An increased intake of energy dense foods that are high in fat and sugar leads to ____
    a) Cancer
    b) Obesity and overweight
    c) Brain hemorrhage
    d) Visual disability

12. Mindfulness of eating means
    a) Chewing food
    b) Enjoying food
    c) Creating positive vibration to food
    d) Both (b) & (c)

13. What should be the proper proportion of fats in every meal?
    a) Equal to carbohydrates, vitamins and minerals
    b) Greater than carbohydrates, vitamins and minerals
    c) Less than carbohydrates, vitamins and minerals
    d) None of the above

14. Anorexia nervosa, Bulimia nervosa and Binge eaters are belongs to _____
    a) Eating disorders
    b) Breathing disorders
    c) Sleeping disorders
    d) All the above

15. The fundamental cause of obesity and over weight is
    a) Balance in calori intake and calori spent
    b) Imbalance in calori intake and calori spent
    c) Calori spent is more than calories consumed
    d) None of the above

16. Excessive intake of nutrients which creates a stress on bodily function called as ___
    a) Malnutrition
    b) Over nutrition
    c) Modified nutrition
    d) Moderate nutrition

17. Which of the following is Non Communicable Diseases (NCD's)?
    a) Stroke
    b) Cold
    c) Cough
    d) Fever

18. The following is an example for saturated fat
    a) Pork
    b) Chicken
    c) Butter
    d) Cheese

19. Excess of BMI (Body Mass Index) in a person leads to
    a) Cancer
    b) Obesity
    c) Sugar
    d) Weight loss

20. Physical fitness in an index of
    a) Perfect height & weight ratio
    b) Perfect body structure
    c) Perfect body composition
    d) All the above

21. Which of the following is behavioral addiction?
    a) Nicotine
    b) Alcohol
    c) Drugs
    d) Gambling

22. The key strand to overcome from addiction
    a) Stop using substances
    b) A powerful and positive mindset
    c) Poverty
    d) None of the above

23. Which of the following statement is true :
    a) Addiction leads to physical disorders which in turn leads to mental disorder
    b) Addiction which affects only physical health
    c) Addiction which affects only mental health
    d) All the above

24. A major effect and health hazards from substance addiction is _____
a) Loss of self control
b) Injury
c) Cardio vascular disorder
d) Fetal damage

25. Addiction not only impairs a range of bodily function but also changes the way a person thinks is referred as _____
a) Physiological complication
b) Psychological complication
c) Biological complication
d) None of the above

26. _____ is an example for substance addiction.
a) Shopping b) Video games c) Tobacco d) Using internet

27. Depression, Anxiety , Loneliness are the effects of
a) Substance addiction
b) Behaviour addiction
c) Both (a) & (b)
d) None of the above

28. What is SUD stands in addiction?
a) Subjective unit of distress
b) Substance unit of distress
c) Substance use disorder
d) None of the above

29. The purpose of using drugs are
a) To detoxify the body
b) To feel high pleasure, relieve stress , forget problems
c) To boost physical health
d) All the above

30. Addiction not only damages physical and mental health but also affects _____
a) Relationships & Financial status
b) Only friend circle
c) Only economic status
d) None of the above

31. A good listener is the one who
a) Non judgmental
b) More talkative
c) Make uncomfortable
d) Create stress

32. The value of good relationship depends on
a) Self care
b) Mutual respect
c) Mutual money exchange
d) None of the above

33. The art of transmitting information , ideas and attitudes from one person to another is referred as _____
a) Tradition b) Obstruction c) Communication d) None of the above

34. Goals of Communication are
a) Sending and receiving of information
b) Inform, to persuade and to build relationships
c) Encode and decoding of information
d) All the above

35. One of the step to increase vocal clarity is _____
a) Slow down the conversation
b) Fasten the conversation
c) Stop the conversation
d) None of the above

36. Communication is the key to healthy relationships because it
a) Avoid misunderstanding
b) Create misunderstanding
c) Brings expectation
d) None of the above

37. "Wearing seat belt while driving" is an example for
a) Unhealthy behavior through social engineering
b) Healthy behavior through social engineering
c) Social responsibility
d) Both (b) & (c)

38. _____ influence people mindset to both positive and negative.
a) Social gathering b) Travelling c) Media d) All the above

39. Dress code of individual is an example of _____ communication.
a) Spoken b) Verbal c) Non - verbal d) None of the above

40. An unhealthy relationship cause _____
a) Lot of stress b) Trust in each other
c) Harmony in each other d) All the above

41. How to maintain better quality of life in chronic illness?
a) Good medical advice, living healthy life style and negative mindset.
b) Good medical advice and positive mindset
c) Good medical advice and living healthy life style.
d) Good medical advice, living healthy life style and positive mindset.

42. The disease which cannot be cured but it can be managed is called as
a) Acute illness b) Infection disease c) Chronic illness d) Allergy

43. The following is an example for chronic disease :
a) Diabetes b) Cold c) Cough d) Head ache

44. Following are the measures required in maintaining Quality of life in chronically ill state.
a) Emotional support b) Understanding the medication
c) Reliable information about diseases, its treatment and management
d) All the above

45. The following are the steps to avoid transmitted infections :
a) Good hygiene b) Vaccinations c) Temperature d) Both (a) & (b)

46. Virus, Bacteria, Fungus are means of transmission of _____ disease.
a) Infection b) Cancer c) Stroke d) Obesity

47. Health compromising behavior are commonly seen in _____ class of people.
a) High b) Middle c) Low d) None of these

48. Which of the following health communication style makes use of the patients knowledge and experience?
a) Doctor – centered communication b) Patient – centered communication
c) Practitioner – centered communication d) None of these

49. Health has intimacy with _____
a) Behaviour b) Society c) Personality d) All the above

50. What is a sign of toxic friendship?
a) Lack of empathy b) Understanding c) Being supportive d) None of these

* * * * *

CBCS SCHEME

BICOK107/207

USN | | | | | | | | | | |

Question Paper Version : A

First/Second Semester B.E. Degree Examination, Dec.2023/Jan.2024
Indian Constitution

Time: 1 hr.] [Max. Marks: 50

INSTRUCTIONS TO THE CANDIDATES

1. Answer all the **fifty** questions, each question carries one mark.
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3. **For each question, after selecting your answer, darken the appropriate circle corresponding to the same question number on the OMR sheet.**
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1. The idea of a Constituent Assembly for India was put forwarded by
   a) B.G. Tilak b) M. K. Gandhi c) M. N. Roy d) Motilal Nehru

2. In Which year, did the Indian National Congress for the first time demand a Constituent Assembly?
   a) 1934 b) 1935 c) 1936 d) 1937

3. First time Constituent Assembly Constituted under the scheme formulated by the _____
   a) Cabinet Mission Plan b) Mount Batten Plan
   c) Non – Cooperation Movement d) None of these

4. Members of the Constituent Assembly were____
   a) All Elected b) All Nominated
   c) Partly elected and partly nominated d) Selected

5. Constituent Assembly hold its first meeting on _____
   a) Nov. 9, 1946 b) Dec. 9, 1946 c) Nov. 9, 1947 d) Dec. 9, 1947

6. When did "Objective Resolution" was adopted by the Constituent Assembly?
   a) 1946 b) 1948 c) 1947 d) 1950

7. First Draft of the Constitution was published on
   a) Jan. 24, 1950 b) Jan. 24, 1948 c) Aug. 15, 1947 d) Feb. 1948

8. Drafting Committee had _____ number of members.
   a) 10 b) 15 c) 07 d) 05

9. Provincial Constitution Committee was head by _____
   a) Dr. Rajendra Prasad b) Dr. B. R. Ambedkar
   c) Sardar Vallabhai Bhai Patel d) Jawaharlal Nehru

10. The concept of "A Union of States" in the Indian Constitution has been derived from
    a) The American Declaration b) The Australian Constitution
    c) The British North American Act d) The Swiss Constitution

11. India can make its own laws because, India is
a) Independent b) Sovereign c) Secular d) Democratic

12. Preamble is
a) Part of the Constitution b) Amendable part
c) Non – Amendable d) Both 'a' and 'c'

13. Fundamental Rights are _____
a) Enforceable b) Absolute c) Extraterritorial d) None of these

14. "Rights are not only the privileges, they are the weapons in hands of citizens to control the Arbitrary Government" – who gave this statement?
a) Dr. Baby Rajendra Prasad b) S.V. Patel
c) J. L. Nehru d) Dr. B. R. Ambedkar

15. The Preamble to the Constitution declares India as _____
a) Sovereign , Democratic , Republic
b) Sovereign, Socialist, Secular, Democratic, Republic
c) Socialist , Democratic , Republic
d) Sovereign , Democratic , Republic , Secular.

16. The Preamble aims to secure _____
a) Fundamental Rights b) Fundamental Duties
c) Dignity of the Individual d) Security of the People

17. Freedom to form an Assembly can be restricted on the ground
a) Public order b) Morality c) Health d) Wealth

18. Fundamental Rights are not applicable to
a) Foreigner b) Criminals
c) Members of Armed Forces d) Both 'a' & 'c'

19. For enforcement of Fundamental Rights Supreme Court can issue
a) An order b) Direction c) Writs d) All the these

20. Provisions of Art. 20 applicable only in
a) Criminal cases b) Civil cases c) Administrative cases d) Military cases

21. It is a law passed to give effect to directive principles of State Policy.
a) Equal Pay for Equal Work Act b) Right to Information Act
c) Juvenile Delinquency Act d) Passport Act

22. Fundamental Duties are _____
a) Enforceable b) Absolute c) Restricted d) Non - enforceable

23. Free Legal Aid is applicable to
a) APL Families b) Financial Incapable Persons
c) NRI Families d) CPI Families

24. It shall be duty of the every Citizen of India
a) Value our Culture b) Renounce Foreign Culture
c) Impose our Culture d) Preserve Western Culture

25. Fundamental Rights and Directive Principles are
a) Complementary to each other
b) Opposite to each other
c) Extension to each other
d) None of these

26. All the Executive powers of Union shall vest with
a) The Prime Minister b) The President c) The Parliament d) The People

27. Who is Competent Authority in India to declare War?
a) Defense Minister b) Prime Minister c) Chief of the Army d) President

28. Union Legislature shall be _____
a) Bi Cameral b) Uni Cameral c) Tri Cameral d) Any Cameral

29. There shall not be more than _____ gap between two sessions of the Parliament.
a) 6 months b) 6 weeks c) 6 days d) 6 years

30. The Prime Minister is _____
a) Elected b) Appointed c) Nominated d) Both (a) & (b)

31. Maximum strength of the Lok – Sabha is
a) 550 b) 550 + 2 c) 545 d) 600

32. Which House of the Parliament is known as Elders and Knowledge House?
a) Lok - Sabha b) Raj - Sabha c) Both d) None of these

33. How many time is President can return the Bill for consideration to Parliament?
a) Once
b) Twice
c) Thrice
d) Any number of times

34. Which of the following non – member of Parliament has the right to address it?
a) Auditor General of India
b) Chief Justice of India
c) Attorney General of India
d) Chief Election Commissioner

35. Sovereignty of Indian Parliament is restricted by
a) Powers of the President
b) Judicial Review
c) Leader of the opposition
d) Power of the Prime - Minister

36. Which one of the following Bills must be passed by each House of the Indian Parliament separately by special majority?
a) Ordinary Bill
b) Money Bill
c) Finance Bill
d) Constitutional Amendment Bill

37. To be recognized as an official opposition party in the Parliament, how many seats should it have to win?
a) 1/3rd of total strength
b) 1/4th of total strength
c) 1/10th of total strength
d) 1/6th of total strength

38. This is not the Committee of the Parliament.
a) Standing Committee
b) Public Account Committee
c) Estimates Committee
d) Welfare of Minorities

39. The Salary of the President and Vice – President is charged on
a) Contingency Fund b) P.M's Fund
c) Parliament Fund d) Consolidated Fund

40. The Parliament of India exercises control over the functions of the Council of Ministers through
a) Adjournment motion b) Question hour
c) Supplementary question d) All of these

41. Which among the following is the final authority to interpret the Constitution?
a) President b) Supreme Court c) Council of Minister d) Parliament

42. A Governor holds office
a) For Five years b) For a period specified by the Parliament
c) During the pleasure of the President d) None of these

43. Chairman of Legislative Council is
a) Appointed by the Governor b) The Governor
c) Elected by the members of the Legislative Council
d) Appointed by the Speaker

44. Election Commission is a
a) Elected body b) Constitutional body
c) Statutory body d) None of these

45. A proclamation of National Emergency must be placed before the Parliament for its approval.
a) Within 1 month b) Within 2 month c) Within 6 month d) Within 1 year

46. President's Rule can be imposed for a maximum period of
a) 1 year b) 2 years c) 6 month d) 3 years

47. Which Constitutional Act made elementary education a Fundamental Right?
a) 86th CAA 2002 b) 87th CAA 2003 c) 91st CAA 2003 d) 100th CAA 2013

48. Who summons, prorogues and dissolves the State Legislative?
a) Chief Minister b) Speaker
c) Governor of the State d) President of India

49. Minimum and Maximum strength of the Legislative Assembly is
a) 60 and 500 b) 40 and 100 c) 70 and 700 d) 100 and 1000

50. _____ number of people represents graduate Constituency in the Vidhan Parishyadh
a) 1/10th b) 2/3rd c) 1/2th d) 1/5th

* * * * *

CBCS SCHEME

BPWSK106/206

USN | | | | | | | | | | |

Question Paper Version : A

First/Second Semester B.E./B.Tech. Degree Examination, Dec.2023/Jan.2024
Professional Writing Skills in English

Time: 1 hr.] [Max. Marks: 50

INSTRUCTIONS TO THE CANDIDATES

1. Answer all the **fifty** questions, each question carries one mark.
2. Use only **Black ball point pen** for writing / darkening the circles.
3. **For each question, after selecting your answer, darken the appropriate circle corresponding to the same question number on the OMR sheet.**
4. Darkening two circles for the same question makes the answer invalid.
5. **Damaging/overwriting, using whiteners** on the **OMR** sheets are strictly prohibited.

Choose the Appropriate Answer from the given options : (Q. No.1 to Q.No.10).

1. Which of these qualities are important in group discussion?
   a) Emotional stability b) Hostility
   c) Ignorance d) Aggressiveness

2. The first objective in a group discussion is to :
   a) prove your superiority b) acts as a self – appointed a group
   c) create subgroup d) catch the groups attention

3. In an interview when you do not know an answer, you should :
   a) bluff b) keep guessing
   c) admit you do not know the answer d) remain quiet

4. A summary placed at the beginning of the CV acts as
   a) Synopsis b) Statement of Objectives
   c) Preface d) Letter of recommendation

5. The application letter is :
   a) a foreword
   b) a description of your core strength and suitability for the Job
   c) statement of your Job objective
   d) a summary of your qualification and experiences.

6. The best way to apply for a Job is to submit a resume that is :
   a) Self - recommending b) Suitable for any Job
   c) Specifically written for the particular Job
   d) Full of personal information.

7. Which kind of interview includes a process in which the employability of the Job applicant is evaluated?
   a) stress interview
   b) screening interview
   c) group interview
   d) behaviour interview

8. "Tease" or "Stress" questions are intended to judge :
   a) how the candidate handles them
   b) the candidate's intelligence quotient
   c) the candidate's stress level
   d) the candidates technical skills

9. The left part of our brain controls :
   a) emotions b) creativity c) imagination d) logic & reasoning

10. When should you arrive for you interview?
   a) at the time it is schedules
   b) 5 – 10 minutes after the scheduled time
   c) 5 – 10 minutes before the scheduled time
   d) go after 10 minutes

11. A panel interview is known as :
   a) panel interview
   b) face to face interview
   c) boards interview
   d) telephone interview

12. What are the successful strategies for interviews?
   a) Personal rapport
   b) good eye contact
   c) clear ideal of the key point
   d) all of the above

13. A precise should be written in _____ person :
   a) third person b) second person c) first person d) none of the above

14. What are the types of paragraph writing?
   a) narrative, persuasive
   b) descriptive
   c) expository
   d) all of these

15. Anticipating tone can promote.
   a) fear b) excitement c) aggression d) none of these

16. If the speaker uses the word, "but", he is making a point of _____
   a) Background b) Theme c) Setting d) Conflict

Choose the Appropriate Verb (subject verb agreement) that agrees with the subject (Q.No. 17 to Q.No 19)

17. A neon and organge T – shirt _____ chosen by me at the boutique.
   a) is b) was c) were d) are

18. Everyone in the family _____ been questioned about the theft.
   a) has b) were c) have d) is

19. Each of the six boys in the class _____ their task.
   a) was completed b) were completed c) have completed d) has completed

Select the correct meaning of the underline idioms (Q.No. 20 to Q.No. 22)

20. He is leaving the Country <u>for good</u>.
a) for better prospects
b) for a good cause
c) for ever
d) for other's good

21. Companies producing a good <u>play to the gallery</u> to boost their sales.
a) advertises
b) caters to the public taste
c) attempt to appeal to popular taste
d) depend upon the public for approval

22. It was he who put a spoke in my wheel.
a) tried to cause an accident
b) destroyed the plan
c) helped in the execution of the plan
d) thwarted in the execution of the past

Choose the appropriate answer from the given options (Q.No. 23 to Q.No. 25)

23. Which of the below statements is correct in the case of the title of the blog post?
a) it should describe the content
b) it should be catchy
c) it should contain a focus keyword
d) all of the above

24. Creating and publishing video content on a blog is called.
a) Vlog
b) News
c) Media Blog
d) All of these

25. What are the 4 headings of a memo?
a) From, date, to, subject
b) To, from, date, subject
c) Subject, to, date, from
d) None of these

Choose the appropriate phrases from the given option to fill in the blanks : (Q.No. 26 to Q.No. 28)

26. "You can have my seat. I am _____ at the next stop", said a young girl to me in the local train.
a) getting in
b) getting down
c) getting away
d) getting up

27. I _____ all the instructions, still was not happy.
a) carries away
b) carried off
c) carried on
d) carried out

28. The union has _____ the strike.
a) called of
b) called off
c) called in
d) called into

Choose the appropriate answer from the given options (Q.No. 29 to Q.No 30)

29. Which cannot come at the end of the sentence?
a) a period
b) a colon
c) an exclamatory mark
d) none of these

30. Which of these sentences has the comma in the right place?
a) Please get me, some eggs milk and some butter.
b) Please get me some eggs, milk and some butter
c) Please get me some eggs milk, and some butter
d) Please get me some eggs milk and, some butter

Choose the correct tenses from the given option to fill in the blanks (Q.No. 31 to Q.No. 32)

31. Most workers _____ as labourers in factories where their wages were fixed.
a) is employed b) has employed c) were employed d) was employed

32. It _____ in Delhi since morning.
a) rained b) had been raining c) is raining d) has been raining

Read each sentence below and find out whether there is an error. The error, if any will be one of the part of the sentence which are marked as 1, 2, 3 and 4 (Q.No. 33 to Q.No 35)

33. Recently I visited (1) / Singapore and found (2) / the sceneries to be (3) / breath – taking (4).
a) 1 b) 2 c) 3 d) 4

34. The present datas (1) / shows that the (2) / death rate (3) / has fallen (4).
a) 1 b) 2 c) 3 d) 4

35. Darts are (1) / played by (2) / men as well (3) / as women (4).
a) 1 b) 2 c) 3 d) 4

Choose the appropriate answer from the given option (Q.No. 36 to Q.No 37)

36. The executive summary in technical writing is another name.
a) Cover letter b) Introduction c) Discussion d) All of these

37. A proposal is a medium aimed at _____
a) instruction b) persuasion c) pre vention d) advice

Choose the appropriate answer for the given option (Q.No. 38 to Q.No. 40)

38. They will rebuild the entire block.
a) the entire block id being rebuilt b) the block may be rebuilt entirely
c) the entire block will have to be rebuilt d) the entire block will be rebuilt

39. The captain said to his men, "Stand at ease".
a) the captain urged his men to stand at ease
b) the captain wanted his men to stand at ease
c) the captain told his men that they should stand at ease
d) the captain commanded his men to stand at ease.

40. The future of women in India is quite bright and let us hope that they will justify their abilities by rising to the occasion. Napoleon was right when he declared that by educating women, we can educate the whole nation. Because a Country can never rise without the contribution of 50% of its population.
The passage best supports the statement that :
a) India is striving hard for the emancipation of women
b) All women should be well educated
c) A Nation can progress only when women are given equal rights and opportunities as men
d) Women ought to be imparted full freedom to prove their worth and contribute to the progress of the Nation.

Choose the appropriate answer for the given option (Q.No. 41 to Q.No. 50)

41. Which of these is the right format for writing the date in all the formats or a business letter?
a) 23/03/2023 b) 23rd March, 2023 c) March 23, 2023 d) both (b) and (c)

42. How is a complaint letter signed off?
a) Looking forward to getting prompt delivery
b) Looking forward to getting prompt and positive action
c) Looking forward to getting timely delivery of goods
d) None of these

43. How should a business letter look like?
a) It has to be professional and effective by using the template
b) It should be written using east words so that an illiterate can also understand
c) It has to be written similarly to an informal letter
d) It should be written brief and short.

44. What is the sender's address of this letter?
a) Adidas India Pvt. Ltd. b) M/S Ram Prasad and Sons, Rewa (M.P)
c) Senders address not given d) None of these

45. _____ allows the user to send a file with an e – mail.
a) draft b) sent c) messenger d) attachments

46. What is the use of Carbon Copy (CC)?
a) recipient are invisible to all of the other recipients of the message in CC
b) recipients are visible to all of the other recipients of the message in the CC.
c) recipients are invisible to only one recipient of the message in the CC.
d) None of the above.

47. Positive gestures are body signals that make you look.
a) arrogant b) nervous c) relaxed d) hurtful

48. If a speaker winks after saying something it suggests to the audience that the subject is
a) non - serious b) incredible c) series d) true

49. In, a presentation which things play an equal role?
a) context and voice b) text and font c) time and size d) sort and intent

50. Which of these is not a step in the listening process?
a) to stop talking b) receiving c) misinterpreting d) responding

* * * * *

CBCS SCHEME

BENGK106/BENGK206/22BD17

USN | | | | | | | | | |

Question Paper Version : A

First/Second Semester B.E./B.Tech./B.Ds. Degree Examination, Dec.2023/Jan.2024
Communicative English

Time: 1 hr.] [Max. Marks: 50

INSTRUCTIONS TO THE CANDIDATES

1. Answer all the **fifty** questions, each question carries one mark.
2. Use only **Black ball point pen** for writing / darkening the circles.
3. **For each question, after selecting your answer, darken the appropriate circle corresponding to the same question number on the OMR sheet.**
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5. **Damaging/overwriting, using whiteners** on the **OMR** sheets are strictly prohibited.

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1. 'Communication' The word originates from Laten word
   a) Communicm b) Communico c) Communicative d) None of these

2. Communication is a _____ process.
   a) one way b) two - way c) three - way d) None of these

3. In order to achieve the production target for a particular month, the discussion held between the production manager and supply manager will certainly be a perfect instance of _____ Communication.
   a) Vertical b) Spiral c) Cross wises d) Horizontal

4. 'Poor Printing' it is a type of Barrier____
   a) Verbal barrier b) Psychological barrier
   c) Physiological barrier d) Physical barrier

5. 'Transcendental meditation' is example of _____ Communication.
   a) Extrapersonal b) Interpersonal c) Intrapersonal d) Non - verbal

6. The most straight forward, basic interpersonal communication meaning is _____ Communication.
   a) Mass Communication b) Interpersonal
   c) Extrapersonal d) None of these

7. Flashing eyes, avoiding eye contact may also cause _____ to effective Communication.
   a) Vernal barrier b) Listening barrier
   c) Psychological barrier d) Non – Verbal barrier

8. In general oral Communication is the interchange of _____between the sender and the receiver.
   a) cues and clues b) speaking c) gestures d) verbal messages

9. 'Follows a set pattern such as sequence of elements in a report' this is _____ Communication.
a) Professional b) General c) Personal d) None of these

10. In Organizations, informal communication also permeates. This informal communication is called _____
a) Personal b) Professional c) Grapevine d) None of thee

11. One native regional accent that has gained social prestige is the _____ of English.
a) Received pronunciation b) Reverse perception
c) Transcription d) None of these

12. A vowel sound whose quality does not change over the duration of the vowel is called_____
a) Vowel b) Diphthong c) Pure vowel d) Consonant

13. The consonant sounds that come before vowel sound are called _____
a) Coda b) Onset c) Medical d) None of these

14. What is the division of syllables of word 'Information'?
a) in-form-ation b) inform-ation c) in-formation d) in – for - ma - tion

15. Transcribe the word 'daughter'.
a) / 'dɔ : t ə / b) / dɔ 't ə / c) / dɔ : tr / d) / d 3 : t ə /

16. 'No. The women with the plastic bag'. In this sentence which words are having falling tone?
a) No, The woman b) Plastic bag c) No. bag d) None of these

17. Find the silent letter in the word 'though'
a) th b) ou c) ugh d) gh

18. In the word 'Sheep' often mispronounced sound is
a) / ʃ / b) / S / c) ee d) p

19. Correct the spelling of the following word :
a) Renumeration b) Remuneration c) Remunation d) Remuration

20. How to pronounce the word 'Next'?
a) nekast b) nekest c) nekist d) nekst

21. I have _____ to buy a car. (Use appropriate noun)
a) no rupees b) no notes c) no money d) no moneys

22. _____ and _____ want to purchase a yacht. (fill with suitable pronoun).
a) He. I and you b) You, he and I c) I, he and you d) You, I and he

23. The flower smells _____. (Appropriate Adjective is)
a) sweet b) sweetly c) sweeter d) sweetest

24. It is _____ hotter today, (place an adverb).
a) most b) very c) more d) much

25. Hardly had he arrived ______ the portico crumbled. (Choose correct conjunction)
a) than b) then c) when d) None of these

26. We could barely do anything. (suitable question Tag).
a) Couldn't we? b) Could we? c) Can we? d) None of these

27. A Person who believes in God, we call him
a) Theist b) Atheist c) Eccentric d) Spinster

28. 'I saw a man' in this sentence which is pronounced with a weak verb, without any special emphasis.
a) I b) man c) saw d) a

29. Flour is made ______ wheat. (suitable preposition)
a) of b) by c) from d) in

30. ________ Humanity is in danger. (Choose the correct option).
a) A b) An c) The d) Not needed any article

Fill in the banks with appropriate prefixes :

31. The army people _____ attacked the enemy.
a) in - b) Inter c) Counter d) Un

32. My research Supervisor is ______critical about everything.
a) hyper b) un c) mono d) intra

Choose the pairs of word / phrases :

33. Archive : Document
a) Warehouse : merchandise b) Library : Shelves
c) Theater : Plays d) Cinema : Projector

34. Coal : Mineral
a) Oxygen : Water b) river : dam c) gold : metal d) silver : mine

Choose the correct subject – verb concord in the sentences :

35. Diabetes _____ a silent killer.
a) is b) are c) were d) None of these

36. The Jury gave ______ verdict in an unbiased manner.
a) their b) them c) its d) None of these

Complete the sentence with appropriate tense from :

37. Sir, I _____ passed my B.Tech in 2003
a) have b) has c) was d) Not required

38. We _____ finished our assignment just now.
a) have b) has c) had d) None of these

Choose the correct option :

39. ______ was visible at this late hour.
a) No man b) No c) No men d) None of these

40. The tycoon had expired before the _____
a) Physician arrives b) Physician arriving
c) Physician arrived d) Physician had arrived

41. When _____, I will tell him everything.
a) he is coming b) he comes c) he will come d) None of the above

42. Which of these must be avoided in Presentation?
a) Proper grammar b) Complex words c) Short sentence d) Clear voice

43. Which of these can be used to break the monotony in a speech?
a) Humour b) Constant tone c) Low voice d) Sad story

44. Mother tongue influence can be effectively minimized in the classroom by ____
a) using the mother tongue more often b) giving examples from the mother tongue
c) giving a lot of exposure in the target language
d) giving inputs from the target language in a simple graded manner.

45. The art of clear and concise manner of speaking, with clarity of meaning and thought called _____
a) Elocution b) Latency c) Extempore d) Story telling

Read Comprehension : Read the passage carefully and select the suitable answer from the given options :

Quite recently India laid the foundation stone for one of its most sought – after projects running a Bullet Train. It was very well considered as a dream project of the Honorable Prime Minister. Entire India felt proud of having its first ever bullet train scheduled to run between Mumbai and Ahmedabad, a distance of 508 km in about 2 hours 35 minutes. In his own words, "To grow, one needs to expand one's dreams and decide one's strength to achieve that. It's the New India which has to fly high". "Bullet Train is a project that will provide pace to development. Along with new technology, it will also bring results faster", he added. According to Achal Khare, the Managing Director of the National High speed Rail Corporation, the project would be completed by December 2005.

46. The _____ for the Bullet Train project was laid recently.
a) railway track b) signaling system c) foundation stone d) None of these

47. The bullet train will take about _____ to run between both the States.
a) 3 hrs, 25 min b) 2 hr, 55 min c) 2 hr, 35 min d) None of these

48. According to Prime Minister, the two benefits that the bullet train will bring are to provide pace to _____ to faster _____.
a) travel , trains b) train, travel, results
c) development, trains d) development, results

49. The bullet train schedule to run between _____ and _____
a) Mumbai and Ahmedabad b) Mumbai and Delhi
c) Mumbai and Gujarat d) None of these

50. The project is expected to be _____ by December 2023.
a) completed b) operationalised c) started d) None of these

* * * * *

CBCS SCHEME

BKBKK107/207

USN | | | | | | | | | | |

Question Paper Version : A

First/Second Semester B.E./B.Tech. Degree Examination, Dec.2023/Jan.2024

Balake Kannada

(COMMON TO ALL BRANCHES)

Time: 1 hrs.] [Max. Marks: 50

INSTRUCTIONS TO THE CANDIDATES

1. Answer all the **fifty** questions, each question carries one mark.
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3. **For each question, after selecting your answer, darken the appropriate circle corresponding to the same question number on the OMR sheet.**
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Fill in the blanks with suitable words given:

1. niinu
   a) yaaru b) adu c) yaake d) avaru

2. adu _____ pustaka?
   a) yaara b) enu c) niivu d) avaru

3. idu _____ Kaaleju
   a) niivu b) avaru c) avaLa d) yaake

4. avaru _____gurugaLu.
   a) enu b) yaake c) namma d) elli

5. _____ nanna Amma
   a) avaLu b) avanu c) yaake d) idu

Write appropriate words to fill the blank and make sentence meaningful.

6. idu _____ mane.
   a) enu b) avaLa c) huDuga d) yaake

7. naanu _____bandenu.
   a) Kaalejige b) avana c) avara d) enu

8. niivu _____ hoguttiddira?
   a) ellige b) enu c) avara d) avana

9. ivaru _____ akka.
a) nanna b) naNNa c) enu d) Nanna

10. adu yaara _____.
a) Mane b) mane c) enu d) nanna

Change the word as per the model:
(Ex : doDDa + avanu = doDDavanu)

11. SaNNa _____.
a) sannavanu b) saNNavanu c) SaNNavaNu d) SANNAVANu

12. Chikka ____
a) ChikkavaLu b) Chikkavanu c) CHIkkavanu d) CiKKaVNu

13. KeTTa
a) kettavanu b) KeTTavanu c) KeTTavaNu d) KettavaNu

14. ettara
a) ettaradavanu b) ettaravanu c) Ettaradavanu d) ETTaradavanu

15. mane
a) maneyavanu b) Maneyavanu c) ManeYavanu d) maneyavaNu

Transform the following words of Kannada as per the given model.
(SaNNa - SaNNadu)

16. DoDDa _____
a) DoDDadu b) doDDadu c) doddadu d) DODDADU

17. avara _____
a) avaradu b) Avaradu c) avaraDu d) AVARADU

18. namma _____
a) nammadu b) NammaDu c) nammaDu d) NaMMaDu

19. hoSa _____
a) hoSadu b) Hosadu c) HoSaDu d) hoSaDu

20. avaLa _____
a) avaLadu b) AvaLadu c) avaladu d) avanadu

Transform the following words of Kannada as per the given model:
(mane – maneyalli)

21. raSte _____
a) raSteyalli b) Rasteyalli c) RasTeyalli d) raSteYalli

22. pustaka _____
a) pustakadalli b) pustakaDalli c) Pustakadalli d) PUSTAKADalli

23. angaDi _____
a) angaDiyalli b) Angadiyalli c) angadiyalli d) angaDiyalli

24. byag _____
a) byaginalli b) byagiNalli c) byagalli d) byaGalli

25. daari
a) daariyalli b) daariYalli c) daarinalli d) Daariyalli

Fill in the blanks with suitable words to make the sentence meaningful:

26. avaLu nimma _____
a) akka b) Akka c) anna d) tamma

27. avara _____ yaavudu?
a) aane b) mane c) MANE d) Mane

28. nimma hesaru _____?
a) enu b) yavadu c) yaake d) Enu

29. avaLu nanna _____
a) snehite b) snehita c) geleya d) huDuga

30. Kaalejige hoguva _____ yaavadu?
a) Daari b) daari c) DAARI d) DaaRi

Change the word as per the model given:
(KuDi – KuDiyiri)

31. tinni _____
a) tinniri b) tinniyiri c) tindiri d) tandiri

32. ese _____
a) eseyiri b) eseiyiri c) Eseyiri d) eseiri

33. nuDi _____
a) nuDiyiri b) Nudisiri c) NUDIYIRI d) nudiyiri

34. Savi _____
a) Saviyiri b) Savida c) Satya d) Sullu

35. mare _____
a) mareyiri b) Kareyiri c) MAREYIRI d) Mariri

Fill in the blanks using the correct form of the Kannada word to make sentence meaningful one.

36. niinu _____ (who)
a) yaaru b) Yaaru c) YAARu d) yaru

37. indu _____ uurige hogoNavaa? (we)
a) naavu b) Naavu c) NAAvu d) Naau

38. idu _____ pustaka. (her)
a) avaLa b) avana c) avara d) nanna

39. _____ nanna snehita. (He)
a) AvaLu b) Avanu c) Avara d) Namma

40. indu _____ Kaalejige baruttiyaa? (You)
a) niinu b) Ninu c) neenu d) Neenu

Transform the following words into Kannada as per the model: (ondu – ondaneya)

41. eradu _____
a) eradaneya b) ondaneya c) HattaNeya d) Mooraneya

42. muuru _____
a) muuraneya b) Muraneya c) MuuRaneya d) MUURANEYa

43. Aidu _____
a) aidaneya b) Aidaneya c) aiduaneya d) AIDANEya

44. aaru _____
a) aaraneya b) aaraneYa c) Araneya d) AAraneya

45. enTu _____
a) enTaneya b) Entaneya c) entaneya d) EnTaneya

Translate following words as per model: (iru – irutteve)

46. baru _____
a) barutteve b) Barutteve c) Bartivi d) bartivi

47. hogu _____
a) hogutteve b) hoguTTeve c) Hogutteve d) HOGUTTEVE

48. tinnu _____
a) tinnutteve b) Tinnutteve c) TinnuTTeve d) TINNUTTEVE

49. KoDu _____
a) Kodutteve b) KoDutteve c) KoDUtteve d) KODUTTEVE

50. maadu _____
a) maadutteve b) maaduTTeve c) maaDutteve d) maaDuTTeve

* * * * *

BKSKK107/207

USN | | | | | | | | | | |

Question Paper Version : A

First/Second Semester B.E/B.Tech. Degree Examination, Dec.2023/Jan.2024

ಸಾಂಸ್ಕೃತಿಕ ಕನ್ನಡ

(COMMON TO ALL BRANCHES)

Time: 1 hrs.] [Max. Marks: 50

ಸೂಚನೆಗಳು

1. ಎಲ್ಲ ೫೦ ಪ್ರಶ್ನೆಗಳಿಗೂ ಉತ್ತರಿಸಿರಿ. ಪ್ರತಿ ಪ್ರಶ್ನೆಗೆ ಒಂದು ಅಂಕ.
2. ಓ.ಎಂ.ಆರ್ ಉತ್ತರ ಪತ್ರಿಕೆಯಲ್ಲಿ ಯು.ಎಸ್.ಎನ್ ಸಂಖ್ಯೆ ಹಾಗೂ ಪಶ್ನೆ ಪತ್ರಿಕೆಯ ಶ್ರೇಣಿಯನ್ನು ಅಂದರೆ A, B, C ಅಥವಾ D ಯನ್ನು ತಪ್ಪಿಲ್ಲದಂತೆ ಕಡ್ಡಾಯವಾಗಿ ಗುರುತಿಸುವುದು ಅಭ್ಯರ್ಥಿಯ ಜವಾಬ್ದಾರಿಯಾಗಿರುತ್ತದೆ.
3. ಓ.ಎಂ.ಆರ್ ಉತ್ತರ ಪತ್ರಿಕೆಯಲ್ಲಿ ನಿಗದಿಪಡಿಸಿರುವ ಸ್ಥಳದಲ್ಲಿ ಭರ್ತಿಮಾಡದೆ ಹಾಗೆಯೇ ಬಿಟ್ಟಲ್ಲಿ ಅಥವಾ ಭರ್ತಿಮಾಡಿದ ಮಾಹಿತಿಯಲ್ಲಿ ಯಾವುದೇ ವ್ಯತ್ಯಾಸವಿದ್ದಲ್ಲಿ ಅಂತಹ ಉತ್ತರ ಪತ್ರಿಕೆಗಳನ್ನು ರದ್ದು ಪಡಿಸಲಾಗುವುದು.
4. ಕೇವಲ ಒಂದು ಉತ್ತರವನ್ನು ಮಾತ್ರ ಉತ್ತರ ಪತ್ರಿಕೆಯಲ್ಲಿ ಗುರುತಿಸತಕ್ಕದ್ದು. ಒಂದೆ ಪ್ರಶ್ನೆಗೆ ಎರಡು ಉತ್ತರವನ್ನು ಗುರುತಿಸುವುದು ಅಮಾನ್ಯ.
5. ಎಲ್ಲಾ ಉತ್ತರಗಳನ್ನು ನಿಮಗೆ ಒದಗಿಸಲಾದ ಓ.ಎಂ.ಆರ್ ಉತ್ತರ ಪತ್ರಿಕೆಯ ಹಾಳೆಯ ಮೇಲೆ ಕಪ್ಪು ಅಥವಾ ನೀಲಿ ಶಾಹಿಯ ಬಾಲ್‌ಪಾಯಿಂಟ್ ಪೆನ್ನಿನಿಂದ ಗುರುತು ಮಾಡಬೇಕು.

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1. "ಪರಿಸರ, ಪರಂಪರೆ ಹಾಗೂ ಪ್ರತ್ಯಕ್ಷ ಜೀವನದ ಅನೇಕ ಸಂಸ್ಕಾರಗಳ ಮೂಲಕ ಮನುಷ್ಯನ ಅಂತರಂಗ ಪಡೆಯುವ ಪರಿಪಕ್ವತೆ" ಇದನ್ನು ಹಂಪ ನಾಗರಾಜಯ್ಯನವರು ಏನೆಂದು ಕರೆದಿದ್ದಾರೆ?

   a) ಸಂಸ್ಕೃತಿ b) ಆಚರಣೆ c) ಸಮನ್ವಯ d) ಸೌಂದರ್ಯ

2. ಕೆಳಗಿನವುಗಳಲ್ಲಿ ಅಂಡಯ್ಯ ಕವಿಯ ಕಾವ್ಯ ಯಾವುದು?

   a) ಕಾವ್ಯ ಮೀಮಾಂಸೆ b) ಕಬ್ಬಿಗರ ಕಾವ್ಯ
   c) ಕರ್ನಾಟಕ ಗತವೈಭವ d) ಶ್ರೀರಾಮಾಯಣ ದರ್ಶನಂ

3. ರಾಜರಾಜರಲ್ಲಿ ಯುದ್ಧಗಳು ಏಕೆ ನಡೆಯಯತ್ತಿದ್ದವು?

   a) ರಾಜ್ಯ ರಕ್ಷಣೆ b) ಸಾಹಸ ಮನೋವೃತ್ತಿ c) a) ಮತ್ತು b) d) ಯಾವುದು ಅಲ್ಲ

4. ಕವಿರಾಜ ಮಾರ್ಗದಲ್ಲಿ ಹೇಳಿರುವಂತೆ ಕನ್ನಡಿಗರು ಎಂತಹವರು?

   a) ಕೀರ್ತಿವಂತರು b) ಗುಣಶಾಲಿಗಳು c) ಸ್ವಾಭಿಮಾನಿಗಳು d) ಎಲ್ಲವೂ ಸರಿ

5. "ನಿಘಂಟು ತಜ್ಞ" ಎಂದು ಹೆಸರಾದ ಕನ್ನಡದ ಲೇಖಕರು ಯಾರು?
   a) ಪ್ರೊ.ಜಿ. ವೆಂಕಟಸುಬ್ಬಯ್ಯ b) ಬಿ.ಎಂ.ಶ್ರೀ
   c) ಕುವೆಂಪು d) ಪು.ತಿ.ನ

6. "ಕರ್ನಾಟಕ ಗತವೈಭವ" ಕೃತಿಯನ್ನು ರಚಿಸಿದವರು ಯಾರು?
   a) ಶ್ರೀರಂಗ b) ಆಲೂರು ವೆಂಕಟರಾಯರು
   c) ಮಾಸ್ತಿ ವಂಕಟೇಶ ಅಯ್ಯಂಗಾರ್ d) ಸಿದ್ದಯ್ಯ ಪುರಾಣಿಕ

7. ರಾಯಚೂರಿನಲ್ಲಿ 1955 ರಲ್ಲಿ ನಡೆದ ಕನ್ನಡ ಸಾಹಿತ್ಯ ಸಮ್ಮೇಳನದ ಅಧ್ಯಕ್ಷರು ಯಾರು?
   a) ಕೆ. ಎಸ್. ನರಸಿಂಹಸ್ವಾಮಿ b) ದ.ರಾ.ಬೇಂದ್ರೆ
   c) ಶ್ರೀರಂಗ d) ಡಿ.ವಿ.ಜಿ

8. ಕನ್ನಡ ಭಾಷೆಯನ್ನು ವಿವಿಧ ರೂಪಗಳಲ್ಲಿ ಸುಮಾರು ಎಷ್ಟು ಜನರು ಆಡುನುಡಿಯಾಗಿ ಬಳಸುತ್ತಿದ್ದಾರೆ?
   a) 30 ದಶಲಕ್ಷ b) 40 ದಶಲಕ್ಷ c) 80 ದಶಲಕ್ಷ d) 60 ದಶಲಕ್ಷ

9. ವಿನೋಬಾ ಭಾವೆಯವರು ಕನ್ನಡ ಭಾಷೆಯ ಲಿಪಿಯನ್ನು ಏನೆಂದು ಕರೆದಿದ್ದಾರೆ?
   a) ಲಿಪಿಗಳ ರಾಣಿ b) ಯುವರಾಣಿ c) ಯುವರಾಜ d) ಲಿಪಿಗಳ ರಾಜ

10. ಭಾಷೆಯ ಸಮ್ಮತವಾದ ನಿಯಮಗಳನ್ನು ತಿಳಿಸುವ ಶಾಸ್ತ್ರಕ್ಕೆ ಏನನ್ನುತ್ತಾರೆ?
    a) ವಿಮರ್ಷೆ b) ವ್ಯಾಕರಣ c) ನಿಘಂಟು d) ಕಾಗುಣಿತ

11. ಶರಣ ಚಳವಳಿಯ ಪ್ರೇರಕ ಶಕ್ತಿ ಯಾರು?
    a) ಬಸವಣ್ಣ b) ಬಿಜ್ಜಳ ಮಹಾರಾಜ c) ಅಲ್ಲಮಪ್ರಭು d) ಅಕ್ಕಮಹಾದೇವಿ

12. "ರಾಮನಾಥ" ಅಂಕಿತದೊಡನೆ ವಚನಗಳನ್ನು ರಚಿಸಿದ ವಚನಕಾರ ಯಾರು?
    a) ಆಯ್ದಕ್ಕಿ ಮಾರಯ್ಯ b) ಜೇಡರದಾಸಿಮಯ್ಯ c) ಅಲ್ಲಮಪ್ರಭು d) ಆಯ್ದಕ್ಕಿ ಲಕ್ಕಮ್ಮ

13. ಅಕ್ಕಮಹಾದೇವಿಯ ವಚನಗಳ ಅಂಕಿತ ಯಾವುದು?
    a) ಅಮರೇಶ್ವರ ಲಿಂಗ b) ಗುಹೇಶ್ವರ c) ಚೆನ್ನಮಲ್ಲಿಕಾರ್ಜುನ d) ಕೂಡಲಸಂಗಮದೇವ

14. ಗುರು, ಲಿಂಗ ಮತ್ತು ಜಂಗಮ ಈ ಮೂರಕ್ಕಿಂತ ಯಾವುದು ಅತ್ಯಂತ ಶ್ರೇಷ್ಠವೆಂದು ಆಯ್ದಕ್ಕಿ ಮಾರಯ್ಯ ತನ್ನ ವಚನದಲ್ಲಿ ಹೇಳಿದ್ದಾರೆ?

a) ವಿದ್ಯ b) ದಾನ c) ಬುದ್ಧಿ d) ಕಾಯಕ

15. "ಅದರಿಂದೇನು ಫಲ, ಇದರಿಂದೇನು ಫಲ" ಈ ಕೀರ್ತನೆಯನ್ನು ರಚಿಸಿದವರು ಯಾರು?

a) ಪುರಂದರ ದಾಸರು b) ವಿಜಯದಾಸರು c) ಕನಕದಾಸರು d) ಗೋಪಾಲದಾಸರು

16. ಕನಕದಾಸರ ಆರಾಧ್ಯದೈವ ಯಾರು?

a) ಚೆನ್ನಕೇಶವ b) ಆದಿಕೇಶವ c) ಸೋಮೇಶ್ವರ d) ಪುರಂದರ ವಿಠಲ

17. ಹಲವು ಕಾಲ ಕಲ್ಲು ನೀರೊಳಗಿದ್ದರೆ ನೆನೆದು ಅದು ------ ಆಗುವುದೆ?

a) ಶಿಲಾಮಂದಿರ b) ತಕ್ಷಶಿಲೆ c) ಅಮೃತಶಿಲೆ d) ಯಾವುದು ಅಲ್ಲ

18. ನವಿಲಿಗೆ ------ ಬರೆದವರು ಯಾರು ಎಂದು ಕನಕದಾಸರು ತಮ್ಮ ಕೀರ್ತನೆಯಲ್ಲಿ ಕೇಳುತ್ತಾರೆ?

a) ಕುಡಿ b) ಚಿತ್ತಾರ c) ಬಣ್ಣ d) ಚಿತ್ರ

19. ಶಿಶುನಾಳ ಶರೀಫರು ತಮ್ಮ ತತ್ವಪದದಲ್ಲಿ ಮಣ್ಣನ್ನು ಯಾವುದಕ್ಕೆ ಹೋಲಿಸಿದ್ದಾರೆ?

a) ಚೆನ್ನ b) ಬೆಳ್ಳಿ c) ವಜ್ರ d) ತಾಮ್ರ

20. ಎಂತಹ ಬೆಂಕಿಯನ್ನು ಹಚ್ಚಿ ಕುಂಬಾರಕಿ ಕೊಡಗಳ ಸುಡುತ್ತಾಳೆ ಎಂದು ಶರೀಫರು ಹೇಳುತ್ತಾರೆ?

a) ಆಚಾರ b) ಅರಿವು c) ಧ್ಯಾನ d) ಭಕ್ತಿ

21. ಹುಲ್ಲಾಗಿ ಬೆಟ್ಟದಡಿ, ಮನೆಗೆ ಏನಾಗು ಎಂದು ಕವಿ ಡಿ.ವಿ.ಜಿಯವರು ಹೇಳುತ್ತಾರೆ?

a) ಮಲ್ಲಿಗೆಯಾಗು b) ಕನಕಾಂಬರವಾಗು c) ಸೇವಂತಿಗೆಯಾಗು d) ಗುಲಾಬಿಯಾಗು

22. ನಗುವು ಸಹಜದ ಧರ್ಮ, ನಗಿಸುವುದು ಎಂತಹ ಧರ್ಮ ಎಂದು ಕವಿ ಹೇಳುತ್ತಾರೆ?

a) ಅಂತರಂಗದ ಧರ್ಮ b) ಪರಧರ್ಮ c) ಬಹಿರಂಗದ ಧರ್ಮ d) ಯಾವುದು ಅಲ್ಲ

23. ಋಷಿ ವಾಕ್ಯದೊಡನೆ ಯಾವ ಕಲೆ ಸೇರಿದರೆ ಜನಜೀವನ ಸುಖಕರವಾಗಿರುವುದೆಂದು ಕವಿ ಹೇಳುತ್ತಾರೆ?

a) ತಂತ್ರಜ್ಞಾನ b) ತಂತ್ರಾಂಶ c) ವಿಜ್ಞಾನ d) ಅಂತರ್ಜಾಲ

24. ಕೆಳಗಿನವುಗಳಲ್ಲಿ ಯಾವುದು ಡಿ.ವಿ.ಜಿ ಯವರ ಕಾವ್ಯ ಅಲ್ಲ?
a) ನಿವೇದನ b) ಉಮರನ ಒಸಗೆ c) ಕೇತಕಿವನ d) ಕೊಳಲು

25. ದ.ರಾ.ಬೇಂದ್ರೆಯವರ ಕಾವ್ಯನಾಮ ಏನು?
a) ಅಂಬಿಕಾತನಯದತ್ತ b) ಆನಂದಕಂದ c) ಕುವೆಂಪು d) ಶ್ರೀನಿವಾಸ

26. "ಕುರುಡು ಕಾಂಚಾಣ" ಎಂಬ ಪದ್ಯವನ್ನು ಬೇಂದ್ರೆಯವರ ಯಾವ ಕವನ ಸಂಕಲನದಿಂದ ಆಯ್ದುಕೊಳ್ಳಲಾಗಿದೆ?
a) ಅರಳುಮರಳು b) ನಾದಲೀಲೆ c) ಗರಿ d) ಸಖೀಗೀತ

27. ಅಂಗಡಿಯೊಳಗೆ ಕಾಂಚಾಣದ ಸದ್ದು ಹೇಗಿದೆ ಎಂದು ಕವಿ ಹೇಳುತ್ತಾರೆ?
a) ಗಣಣ b) ತನನ c) ಝಣ ಝಣ d) ತೋಂ ತೋಂ

28. ಕೆಳಗಿನ ಕೃತಿಗಳಲ್ಲಿ ಕುವೆಂಪು ಅವರ ಕಾದಂಬರಿಯನ್ನು ಗುರುತಿಸಿ.
a) ಚಿತ್ರಾಂಗದಾ b) ದುರ್ಗಾಸ್ತಮಾನ c) ಸಂದ್ಯಾರಾಗ d) ಮಲೆಗಳಲ್ಲಿ ಮದುಮಗಳು

29. ಸರ್ವರಿಗೆ ಸಮಬಾಳು ! ಸರ್ವರಿಗೆ -------- ಎಂದು ಕವಿ ಕುವೆಂಪು ಹೇಳಿದ್ದಾರೆ?
a) ಸಮಪಾಲು ! b) ಸಹಬಾಳ್ವೆ ! c) ಸಮಾನ ಪಾಲು ! d) ಯಾವುದು ಅಲ್ಲ

30. "ವಿಪ್ಲವ" ಪದದ ಅರ್ಥವೇನು?
a) ಶಬ್ದಕೋಶ b) ಕ್ರಾಂತಿ c) ಚಿತ್ರ d) ವಿಶ್ವ

31. ಮಂಡ್ಯ ಜಿಲ್ಲೆಗೆ ನೀರನ್ನು ಒದಗಿಸುವ ಕೃಷ್ಣರಾಜಸಾಗರದ ಯೋಜನೆಯನ್ನು ತಯಾರಿಸಿದವರು ಯಾರು?
a) ಡಾ. ವಿಶ್ವೇಶ್ವರಯ್ಯ b) ಥಾಮಸ್ ಮನ್ರೊ c) ರಾ.ಹ.ದೇಶಪಾಂಡೆ d) ಯಾರು ಅಲ್ಲ.

32. ------ ಜಿಲ್ಲೆಯ ಸೌಂದರ್ಯದಲ್ಲಿ ವಿಶ್ವೇಶ್ವರಯ್ಯ ಜೀವಂತರಾಗಿದ್ದಾರೆ.
a) ದಕ್ಷಿಣ ಕನ್ನಡ b) ಮಂಡ್ಯ c) ರಾಮನಗರ d) ಚಿಕ್ಕಮಂಗಳೂರು

33. ಡಾ. ವಿಶ್ವೇಶ್ವರಯ್ಯನವರು ಪ್ರವಾಸ ಹೊರಟಾಗ ಅವರ ಸೂಟ್ ಕೇಸಿನಲ್ಲಿ ಯಾವ ಪುಸ್ತಕದ ಪ್ರತಿಯನ್ನು ಇಟ್ಟುಕೊಳ್ಳುತ್ತಿದ್ದರು.
a) ವೇದ b) ಉಪನಿಷತ್ತು c) ಭಗವದ್ಗೀತೆ d) ರಾಮಾಯಣ

34. ಕೆಳಗಿನವುಗಳಲ್ಲಿ ಯಾವುದು ವಿಶ್ವೇಶ್ವರಯ್ಯನವರು ಸ್ಥಾಪಿಸಿದ ಸಂಸ್ಥೆ.
a) ಕಬ್ಬಿಣ ಮತ್ತು ಉಕ್ಕಿನ ಕಾರ್ಖಾನೆ, ಭದ್ರಾವತಿ b) ಮೈಸೂರು ಬ್ಯಾಂಕ
c) ಮೈಸೂರು ವಿಶ್ವವಿದ್ಯಾಲಯ d) ಎಲ್ಲವೂ ಸರಿ

35. "ಎಷ್ಟೊಂದು ಶಕ್ತಿ ಪೋಲಾಗುತ್ತಿದೆ" ಈ ಮಾತನ್ನು ವಿಶ್ವೇಶ್ವರಯ್ಯನವರು ಯಾವ ಜಲಪಾತವನ್ನು ನೋಡಿ ಹೇಳಿದ್ದರು?
a) ಜೋಗ b) ಶಿವನಸಮುದ್ರ c) ಹೆಬ್ಬೆ d) ಅರಶಿನ ಮಕ್ಕಿ

36. ಬಟ್ಟೆಗಳಿಗೆ ಬಣ್ಣಕಟ್ಟುವ ಕಲೆಗೆ ಏನೆಂದು ಹೆಸರು?
a) ಚಮ್ಮಾರಿಕೆ b) ಬಣ್ಣಗಾರಿಕೆ c) ಹೈನುಗಾರಿಕೆ d) ಮಾತುಗಾರಿಕೆ

37. ಭಾರತದಲ್ಲಿ ತಯಾರಾಗುತ್ತಿದ್ದ ಬಟ್ಟೆಗಳಿಗೆ ಕೆಳಗಿನ ಯಾವ ದೇಶದಲ್ಲಿ ಬೇಡಿಕೆ ಇತ್ತೆಂದು ಲೇಖಕರು ಹೇಳುತ್ತಾರೆ?
a) ಶ್ರೀಲಂಕಾ b) ಪಾಕಿಸ್ತಾನ c) ಗ್ರೀಸ್ d) ಯಾವುದು ಅಲ್ಲ

38. ಪರಿಸರದಲ್ಲಿ ಸಿಗುತ್ತಿದ್ದ ಕಚ್ಚಾ ವಸ್ತುಗಳ ಮುಖಾಂತರ ಕುಶಲಕರ್ಮಿಯ ------ ಪ್ರತಿಫಲಿತವಾಗುತ್ತಿತ್ತು ಎಂದು ಲೇಖಕರು ಹೇಳುತ್ತಾರೆ?
a) ಕೈಕೌಶಲ್ಯ b) ನೈಪುಣ್ಯ c) ಸೌಂದರ್ಯ ಪ್ರಜ್ಞೆ d) ಎಲ್ಲವೂ ಸರಿ

39. ಸಾಂಪ್ರದಾಯಿಕ ಕರಕುಶಲ ಕಲೆಗಳ ಮೇಲೆ ಭಾರಿ ಪೆಟ್ಟು ಬಿದ್ದದ್ದು ಯಾವಾಗ?
a) ಕೈಗಾರಿಕಾ ಕ್ರಾಂತಿಯ ಪರಿಣಾಮ b) ಯಂತ್ರಗಳ ಆವಿಷ್ಕಾರ
c) ಬೇಡಿಕೆ ಕಡಿಮೆಯಾದದ್ದು d) ಯಾವುದೂ ಅಲ್ಲ

40. ಭಾರತದಲ್ಲಿ ಬೇರೆ ಬೇರೆ ಬಣ್ಣಗಳನ್ನು ನೀಡುವ ಸುಮಾರು ಎಷ್ಟು ಗಿಡಗಳಿವೆ ಎಂದು ಅಂದಾಜಿಸಲಾಗಿದೆ?
a) 100 b) 300 c) 200 d) 350

41. "ಯುಗಾದಿ" ಕಥೆಯನ್ನು ಬರೆದ ಕನ್ನಡದ ಲೇಖಕರು ಯಾರು?
a) ವಸುಧೇಂದ್ರ b) ಪಿ.ಲಂಕೇಶ್ c) ವೈದೇಹಿ d) ವಸುಂಧರಾ ಭೂಪತಿ

42 ಯುಗಾದಿ ಕಥೆಯಲ್ಲಿ ಚಿತ್ರಿತವಾಗಿರುವ ಹಿರಿಯಜೀವಿ ಗೋಪಣ್ಣನವರ ವೃತ್ತಿ ಏನು?
a) ವೈದ್ಯ b) ಶಿಕ್ಷಕ c) ಅಭಿಯಂತರ d) ಗುಮಾಸ್ತ

43. ಗೋಪಣ್ಣನವರ ಮಗ ಪ್ರಹ್ಲಾದ ಯಾವ ಪದವಿ ಪಡೆದ?

a) ಬಿ.ಎಸ್ಸಿ b) ವೈದ್ಯ c) ಇಂಜಿನಿಯರಿಂಗ್ d) ಬಿ.ಕಾಂ

44. ಗೋಪಣ್ಣ ಮಾಸ್ತರರನ್ನು ಭೇಟಿಯಾಗಲು ಊರಿನಿಂದ ಬಂದ ಅವರ ಗೆಳೆಯ ಯಾರು?

a) ಇಸ್ಮಾಯಿಲ್ b) ನಚಿಕೇತ c) ಸಾದಿಕ್ d) ಕಾಸಿಂಸಾಬರು

45. ಸರ್ಕಾರಿ ಆಸ್ಪತ್ರೆಯಲ್ಲಿ ಗೋಪಣ್ಣ ಮಾಸ್ತರರನ್ನು ಗುರುತಿಸಿದ ಅವರ ಶಿಷ್ಯ ಯಾರು?

a) ರಾಧಾ b) ರುಕ್ಮಿಣಿ c) ರೇಖಾ d) ರೂಪಾ

46. ಡಾ.ಹಿ.ಚಿ.ಬೋರಲಿಂಗಯ್ಯ ಅವರ ಬುಡಕಟ್ಟು ಜೀವನವನ್ನು ಕುರಿತ ಕಾದಂಬರಿ ಯಾವುದು?

a) ಬುಡಕಟ್ಟು ದೈವಾರಾಧನೆ b) ಆನೆಕಾಡು

c) ಕಾಡು ಕಾಂಕ್ರಿಟ್ d) ಉಜ್ಜನಿ ಚೌಡಮ್ಮ

47. ಕಾಸಿಂಸಾಬರ ಮಗಳು

a) ಚಿತ್ರ b) ವಂದನಾ c) ಚಾಂದನಿ d) ತಸೀಮಾ

48. ಹಾಡುವಳ್ಳಿಯ ಹಿಂದಿನ ಹೆಸರೇನು?

a) ಸಂಸ್ಕೃತಿಪುರ b) ಸಾಹಿತ್ಯಪುರ c) ಸಂಗೀತನಗರ d) ಸಂಗೀತಪುರ

49. ಸಹ್ಯಾದ್ರಿ ಶ್ರೇಣಿಯ "ಮೆಗಾನೆ" ಎಂಬ ಹಳ್ಳಿಯಲ್ಲಿರುವ ಜನಾಂಗ ಯಾವುದು?

a) ಕುಣಬಿ b) ಗೊರವ c) ದೀವ d) ಗೊಂಡ

50. ಮಾರ್ಗದರ್ಶಕ ಕುಪ್ಪಯ್ಯ ಹೆಗಲಿಗೆ ಏನನ್ನು ಏರಿಸಿಕೊಂಡದ್ದ?

a) ಬಿಲ್ಲು b) ನಾಡಕೋವಿ c) ಶಲ್ಯ d) ಲಾಟೀನು

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