

MAHARAJA INSTITUTE OF TECHNOLOGY THANDAVAPURA

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VTU Question Papers

BE-I & II semester

Jan/Feb-2023

2022 Scheme

Maharaja Institute of Technology Thandavapura Just of NH-766,Mysore-ooty highway,Thandavapura(Vill & Post),Nanjangud Taluk,Mysore District-571302.

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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.

		Madala 1	М	т	C
		Module – 1	IVI	L	C
Q.1	a.	Explain the properties and application of Aluminum and its alloys.	7	L2	CO1
	b.	Explain the process of setting and hardening of cement.	7	L2	CO1
	c.	What are Refractories? Explain the classification of Refractories based on chemical composition.	6	L2	CO1
		OR			
Q.2	a.	Explain the preparation of soda-lime glass.	7	L2	C01
	b.	Explain the testing of cement by EDTA method.	7	L2	CO1
	c.	Write a note on metal and its alloys by taking Iron as an example.	6	L2	CO1
		Module – 2	1	I	1
Q.3	a.	Describe the construction and working of photovoltaic cell.	7	L2	CO2
	b.	What are Batteries? Explain construction and working of Li-ion battery.	7	L2	CO2
	c.	Explain Electrochemical corrosion of steel in concrete.	6	L2	CO2
		OR			
Q.4	a.	Explain construction and working of Methanol-oxygen Fuel cell.	7	L2	CO2
	b.	Discuss following types of corrosion: i) Stress corrosion. ii) Differential metallic corrosion.	7	L2	CO2
	c.	Describe the following corrosion control methods: i) Anodizing of Aluminum ii) Sacrificial anode method.	6	L2	CO2
	_	Module – 3			
Q.5	a.	Describe the estimation of total hardness by using EDTA solution.	7	L2	CO3
	b.	Define Nano materials. Explain the synthesis of Nano materials by sol-gel method.	7	L2	CO3
	c.	Mention the properties and applications of graphene.	6	L2	CO3

BCHEC102

		OR				
Q.6	a.	25cm^3 of effluent requires 8.3cm^3 of 0.01M acidified $\text{K}_2 \text{Cr}_2 \text{O}_7$ for complete oxidation. Calculate the COD of effluent sample.	7	L2	CO3	
	b.	Explain the size-dependent properties of Nano materials with example i) Surface area ii) Catalytic property.	7	L2	CO3	
	c. Explain the process of water softening by Ion-exchange method.					
		Module – 4			1	
Q.7	Q.7 a. Explain the synthesis, properties and applications of Chloro Poly Vinyl Chloride (CPVC).					
	b.	Describe synthesis, properties and applications of Nylon fibers.	7	L2	CO4	
	c.	Define biodegradable polymers. Explain synthesis and applications of poly lactic acid.	6	L2	CO4	
		OR				
Q.8	a.	A polymer sample contains 100, 200, 300 and 400 molecules having molecular mass 1000, 2000, 3000 and 4000 gm/mol respectively. Calculate the Numer average and weight average molecular masses of the polymer.	7	L2	CO4	
	b.	What are polymer composities? Explain properties and applications of fiber reinforced polymer composites.	7	L2	CO4	
	6	L2	CO4			
		Module – 5				
Q.9	a.	Define the following terms with examples: i) Phase ii) Component iii) Degree of freedom.	6	L2	CO5	
	b.	Describe the applications of conductometric sensors in estimation of acid mixture.	7	L2	CO5	
	c.	Explain the determination of pH of soil sample using pH sensors.	7	L2	CO5	
		OR				
Q.10	a.	With the help of neat phase diagram describe the Lead-Silver (pb-Ag) system.	7	L2	CO5	
	b.	Write a note on phase rule and phase diagram.	6	L2	CO5	
	c.	Explain the estimation of Iron using potentiometric sensors.	7	L2	CO5	
		2 of 2				



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

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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.

		Modulo 1	М	Т	C	
0.1		$\mathbf{Widdle} = \mathbf{I}$				
Q.1	a.	Explain the classification of materials as conductors, insulators and	/	LZ	COI	
		semiconductors along with a suitable example with the help of band theory.				
	b.	Define the following with respect to polymers :	6	L1	CO1	
		i) Conducting polymers				
		ii) Number average molecular weight				
		iii) Weight average molecular weight.				
	6	Describe electroless plating of conner with both composition and reaction in	7	12	CO1	
	ι.	the manufacture of double sided printed circuit board (PCP)	/		COI	
		the manufacture of double-sided printed circuit board (PCB).				
		OR				
Q.2	a.	Discuss the production of electronic grade silicon by Czochralski(CZ)	6	L2	CO1	
		process.				
	b.	What are Polymers? In a sample of a polymer, 100 molecular have	7	L3	CO1	
		molecular mass 10^3 g/mol. 200 molecular have molecular mass 10^4 g/mol				
		and 250 molecular mass weight average molecular mass and polydisperisty				
		indev				
			_		601	
	c.	7	L2	COI		
		oxide.				
		Module – 2				
Q.3	a.	What are batteries? Explain the construction with a diagram and working of	7	L2	CO2	
-		sodium-ion battery.				
	h	What are fuel cells? Evaluin the construction with a diagram and working	7	12	CO2	
	υ.	of methanol ovvgen fuel cell	/		02	
		of memanor- oxygen ruer cen.				
L						
	c.	List out a minimum three advantages and disadvantages of solar	6	L1	CO2	
		photovoltaic cells.				

BCHEE102

		OR			
Q.4	a.	Describe the construction, and working of Vanadium redox flow battery. Mention its applications.	7	L2	CO2
	b.	Explain the construction, working and applications of Polymer Electrolyte Membrane (PEM) fuel cell.	7	L2	CO2
	c.	Discuss the construction and working of photovoltaic cell.	6	L2	CO2
<u> </u>		Module – 3	_		600
Q.5	a.	what is corrosion? Explain the electrochemical theory of corrosion taking iron as an example.	7	L2	CO3
	b.	Define corrosion penetration rate (CPR). Calculate the CPR in both mpy and mmpy for steel sheet of area 150 inch ² which experienced a weight loss of 490g after one year. Given density of steel = $7.9g/cc$.	6	L3	CO3
	c.	Discuss sources, types and effects of e-waste on environment and human health.	7	L2	CO3
	•	OR			
Q.6	a.	Demonstrate the type of corrosion taking place in the following cases : i) A steel screw in copper sheet for a long time ii) Partially buried pipeline in soil.	6	L3	CO3
	b.	What is e-waste? Explain the methods of e-waste disposal.	7	L2	CO3
	c.	Describe the extraction of copper from e-work. Mention any two advantages of recycling.	7	L2	CO3
		Module – 4			
Q.7	a.	What are nanomaterials? Explain the following size dependent properties of nanomaterials : i) Surface area ii) Catalytic property iii) Conducting property.	7	L2	CO4
	b.	Describe the synthesis of nanomaterials by sol – gel method with a suitable example.	6	L2	CO4
	c.	What are liquid crystals? Explain the classification, properties and applications of liquid crystals in display systems.	7	L2	CO4
	1	OR	1	1	1
Q.8	a.	Explain the properties and applications of nanofibers and nanosensors.	6	L2	CO4
	b.	Mention the properties and applications of : i) Organic Light Emitting Diode (OLED) ii) Quantum Light Emitting Diode (QLED).	7	L2	CO4
	c.	What are perovskite materials? Give the properties and applications of perovskite materials in optoelectronic devices.	7	L2	CO4
		2 of 3			

BCHEE102

~ ~		Module 5			
Q.9	a.	What is reference electrode? Describe the construction and working of calomel electrode.	7	L2	CO5
	b.	What are concentration cells? Explain the construction and working of electrolyte concentration cell with a suitable example.	6	L2	CO5
	c.	What are optical sensors? Explain the principle and instrumentation of colorimetric sensor.	7	L2	CO5
		OR			I
Q.10	a.	What are ion-selective electrode? Discuss the construction and working of glass electrode.	7	L2	CO5
	b.	What are potentiometric sensors? Explain working principle instrumentation and applications of potentiometric sensor.	7	L2	CO5
	c.	A concentration cell is constructed by combining two lithium electrodes immersed in lithium sulphate solution of concentration 0.1m and 0.1m at 298K. Write the cell representation, cell reaction and calculate the EMF of the cell.	6	L3	CO5
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BCHEM102

First Semester B.E./B.Tech. Degree Examination, Jan./Feb. 2023 **Chemistry for Mechanical 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	М	L	С			
01	9	Define calorific value Explain principle construction and working of bomb	7	L2	C01			
Q.1	а.	colorimeter to determine GCV and NCV of a solid fuel			COI			
		calorimeter to determine OCV and IVCV of a solid fuel.						
	b. Describe the construction and working of methanol-oxygen fuel cell.							
	c.	Explain the construction and working of photovoltaic cells and mention any	7	L3	CO1			
		two applications.						
		ØR	L					
0.2	8	What are green fuels? Explain the synthesis of bio diesel by	7	L2	CO1			
~		transisterification Write any four applications	,		cor			
		transisterification. write any four applications.						
			-	1.2	001			
	b.	Describe the construction and working of Lithium-ion battery and mention	7	L3	COI			
		any two applications.						
	c.	Define a fuel. Determine calorific value of fuels with a bomb calorimeter.	6	L2	CO1			
		Module – 2						
0.3	a.	What do you mean by metal finishing? Mention any five technological	6	L1	CO2			
~		importance	Ŭ		00-			
	h	What is correction? Explain the electrochemical theory of correction by	7	12	CO1			
	D.	what is contosion? Explain the electrochemical meory of contosion by	/	LZ	COZ			
		taking iron as an example.						
			L		~ ~ ~			
	c.	What is CPR? Calculate the CPR in both mpy and mmpy for a thick steel	7	L2	CO2			
		sheet of area 100inch ² which experiences a weight loss of 485g after one						
	~	year. (Density of steel = 7.9 g/cm ³).						
		OR						
0.4	a.	What is electroplating? Explain electroplating of chromium as hard and	7	L2	CO2			
x		decorative coatings						
	h	Explain the process of Colvenization	6	12	CO_{2}			
	D.	Explain the process of Galvanization.	U	LZ	COZ			
			-	1.0	CO			
	c.	Define electroless plating. Explain electroless plating of Nickel.	7	L2	CO2			
		1 of 2						
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BCHEM102

		Module – 3					
Q.5	a. In a polymer sample, 20% of the molecules have molecular weight of 15,000g/mol, 35% of the molecules have molecular weight of 25,000g/mol and remaining molecules have molecular weight of 20,000g/mol. Calculate the number average and weight average molecular mass of the polymer.						
	b. Explain the synthesis, properties and applications of Kevlar.						
	c.	What are lubricants? Explain any four properties and applications of lubricants.	6	L2	CO3		
0(-	UR Evaluin the symthesis and evaluations of DMMA	7	1.2	CO2		
Q.0	a.	What are fibres? Explain any faur properties and applications of	1				
	D.	polystyrene.	0	LZ	05		
	c.	Explain metal matrix composite with an example. Explain any four properties and applications of metal matrix composites.	7	L2	CO3		
		Module – 4					
Q.7	a.	Explain the principle and instrumentation of optical sensor for the estimation of copper.	6	L2	CO4		
	b.	Explain the determination of pH of beverages using glass electrode.	6	L2	CO4		
	c.	Define phase rule. Explain the following terms with an example phase, components and degree of freedom.	8	L3	CO4		
		OR					
Q.8	a.	Explain the estimation of FAS potentiometrically using calomel and platinum electrode as potentiometric sensors.	6	L2	CO4		
	b.	Explain the procedure for the estimation of copper present in a solution using optical sensor.	6	L2	CO4		
	c.	Discuss the lead-silver two component system along with phase diagram.	8	L3	CO4		
		Module – 5					
Q.9	a.	What are alloys? Explain composition, properties and applications of Alnico.	7	L2	CO5		
	b.	What are perovskites? Mention any four properties and applications of perovskites.	6	L2	CO5		
	c.	What are nanomaterials? Explain any three size dependent properties of nanomaterials.	7	L2	CO5		
		OR					
Q.10	a.	Explain the synthesis of nanomaterial by sol-gel method.	7	L2	C05		
	b.	Explain composition, properties and applications of stainless steel.	6	L2	CO5		
	c.	Write a note on carbon nano tubes. Mention any four properties and applications of carbon nano tubes.	7	L2	CO5		
		* * * * *		·			
		2 of 2					
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9.	Among the following	g elements, which elen	nent is the medium thro	ugh which message is
	a) Sender	b) Channel	c) Context	d) Noise
10.	This type of commun a) Extrapersonal	ication takes place wit b) Intrapersonal	hin an individual : c) Organizational	d) Interpersonal
11.	Transcription of the v a) /tum/	vord "Tomb" is b) /tu:m/	c) tum:/	d) None of these
12.	There areso a) 44	unds in English. b) 12	c) 24	d) 8
13.	Silent letter in "Castle a) e	e". b) t	c) a	d) <i>l</i>
14.	Division of the syllab a) infor-ma-tion	le "information" is b) in-for-mation	c) in-for-ma-tion	d) info-rmat-ion
15.	How many consonant a) 4	ts are there in English? b) 12	c) 24	d) 44
16.	How many Vowels an a) 44	there in English? b) 12	c) 24	d) 20
17.	Division of the syllab a) Win-dow	ble of "window" is b) Wi-ndow	c) Wi-n-dow	d) Wind-ow
18.	Silent letter in the wo a) k	rd "Knee" is b) n	c) e	d) None of these
19.	Communication is the a) back bone	e of busine b) blood	ss. c) nerve	d) hand
20.	Identify the word wit a) grass	h one syllable in the fo b) fulfil	ollowing : c) folder	d) conquer
21.	Identify the Parts of Steve Waugh was an a) verb	Speech of the underli inspirational captain. b) proper noun	ined words : c) noun	d) adverb
22.	Abstract noun form o a) Starvation	f <u>starve</u> is b) Starve	c) Starving	d) None of these
23.	Wow! We won the ma) Adjective	atch! b) Interjection	c) Noun	d) Verb
24.	Gandhiji is known fo a) Noun	r his <u>non-violence</u> . b) Pronoun	c) Verb	d) Abstract-Noun
25.	In general hot countr comfort.	y like India, it is only	winters that one can ex	perience the Soothing
	a) Verb	b) Noun Version	c) Adjective $A - 2$ of 4	d) Adverb

• •	Choose the word that	at can fill the ga	ip approp	riately :	
26.	a) Master	b) Companion	es. c)	Creature	d) Slave
27.	I have been ill a) since	last Monda b) from	ay. c)	for	d) by
28.	A lady's purse a) Parasol	b) Pantomine	c)	Reticule	d) Vertibule
29.	One word substituti Saying things in a rou a) Circumlocution	on : indabout way. b) Straight awa	y c)	Around about	d) None of these
30.	Someone who compi a) Calligrapher	les a dictionary. b) Teetotaller	c)	both	d) Lexicographer
31.	Question Tags : They are 'reaching by a) aren't they	Tomorrow', b) are they	c)	both	d) none of these
32.	You 'told me this 'ea a) Didn't you?	rlier', b) Did you?	c)	Did they?	d) Do they?
33.	The synonym of "Ber a) yield	nefit" is b) benefit	c)	loss	d) none of these
34.	The antonyms of "Cr a) Sane	azy" is b) Insane	- c)	Unrealistic	d) (a) & (b)
35.	Please give me a peac a) peace	ce / piece of advi b) piece	ice. c)	Both (a) & (b)	d) None of these
36.	The closest meaning a) Slim	of the word <u>Slen</u> b) Sconty	u <u>der</u> is, c)	Weak	d) Poor
37.	The day of Judgemen a) Doomsday	t b) Verdict	c)	Both (a) & (b)	d) None of these
38.	She the report a) Cast away	t indignantly. b) Cast aside	c)	Cast off	d) Cast a way
39.	The sick child	while waiti b) Threw up	ing at the c c)	loctor's. Threw out	d) Threw down
40.	The suffix of the wor a) worth	d "worth" is, b) worthless	c)	worthy	d) none of these
41.	"Types of Cancer" ca a) Topical pattern c) Psychological patt	in be presented b tern	b) d)	method. Spatial pattern None of these	
	AND	v	Version A –	3 of 4	
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42.	The weak form of the $3\sqrt{3}$	e is,	22:	d) None of these
40			()	d) None of these
43.	a) CV-CV	b) CVVCV	c) CVC	d) None of these
44.	Words ending in $ dz $ a) judge	b) then	c) their	d) below
45.	Example for initial m a) Try-Dry	inimal pair isb) Set-Sat	c) Pull-Pool	d) Cab-Cap
46.	RP is known as a) Revised Pronuncia c) Both (a) & (b)	tion	b) Received Pronuncia d) None of these	ation
47.	Which of these shoul a) Confidence	d be avoided for an eff b) Clarity	fective speech? c) Pauses	d) Rudeness
48.	Which of these shoul a) Planning of speech c) Organization	d be avoided during de	elivery of speech? b) Long Pauses d) Long sentences	
49.	The acronym of 'QA a) Question & Answe c) Quality Assist	er er	b) Quality Assuranced) None of these	<i>A</i>
50.	The simple present of a) The fruit smells sw c) Both (a) & (b)	f this below sentence - veet ***	The fruit is smelling sv b) The fruit is sweet d) None of these * * - 4 of 4	veet,



First Semester B.E./B.Tech. Degree Examination, Jan./Feb. 2023 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.
- 4. Darkening two circles for the same question makes the answer invalid.
- 5. Damaging/overwriting, using whiteners on the OMR sheets are strictly prohibited.

	Identify the Parts o	of speech of the under	rlined words :	
1.	Steve Waugh was ar	n inspirational captain.		$ \leq $
	a) verb	b) proper noun	c) noun	d) adverb
•				
2.	Abstract noun form	of starve is	Stamina	d) Nama af thaga
	a) Starvation	b) Starve	C) Starving	d) None of these
3.	Wow! We won the r	natch!		
	a) Adjective	b) Interjection	c) Noun	d) Verb
		O		,
4.	Gandhiji is known fo	or his <u>non-violence</u> .		
	a) Noun	b) Pronoun	c) Verb	d) Abstract-Noun
5	In general hot count	ry like India it is onl	v winters that one can e	experience the Soothing
0.	comfort.	ir y fince finana, n is offi		sporteneo trio <u>sootining</u>
	a) Verb	b) Noun	c) Adjective	d) Adverb
			, -	
6.	"Types of Cancer" c	an be presented by	method.	
	a) Topical pattern		b) Spatial pattern	
	c) Psychological par	ttern	d) None of these	
7	The weak form of th			
<i>'</i> •			77:	
	a) 0.9	b) C	c) C =	d) None of these
8.	The syllable of the y	vord "Fauna" is		
0.	a) CV-CV	b) CVVCV	c) CVC	d) None of these
		,	,	,
	\sim	Versio	on B – 1 of 4	

0					
9.	Words ending in $ dz $				
	a) judge	b) then	c)	their	d) below
10.	Example for initial m	inimal pair is		S	
	a) Try-Dry	b) Set-Sat	c)	Pull-Pool	d) Cab-Cap
11.	RP is known as			V	
	a) Revised Pronuncia	tion	b)]	Received Pronuncia	tion
	c) Both (a) & (b)		d)]	None of these	
10	XX71 * 1 C <1 1 1		. ,.	10	7
12.	Which of these should	a be avoided for an eff	ectiv	ve speech?	d) Dudamaga
	a) Confidence	b) Clarity	c)	Pauses	a) Rudeness
13.	Which of these should	d be avoided during de	elivei	ry of speech?	
10.	a) Planning of speech	a oo a o	b)	Long Pauses	
	c) Organization		d)]	Long sentences	
	•) • • • • • • • • • • • • • • • • • •	O ř	••)		
14.	The acronym of 'QA'	is			
	a) Question & Answe	er	b) (Quality Assurance	
	c) Quality Assist		d)]	None of these	
15.	The simple present of	f this below sentence -	The	e fruit is smelling sw	veet,
	a) The fruit smells sw	reet	b) '	The fruit is sweet	
	c) Both (a) & (b)	A Y	d)]	None of these	
		· · · · · · · · · · · · · · · · · · ·			k
17	Choose the word the	it can fill the gap app	ropi	rlately:	\rightarrow
10.	Mail IS a	b) Companion	a)	Graatura	d) Clave
	a) Master	0) Companion	-0)	Creature	u) slave
17.	I have been ill	last Monday.	S		
	a) since	b) from	c)	for	d) by
			,		/ 5
18.	A lady's purse			~	
	a) Parasol	b) Pantomine	c)	Reticule	d) Vertibule
10	D 10				
19.	Proposals prepared to	or submission to the bo	SS	ŶT	1) Warting 1
	a) Opward	b) Downward	<u>c)</u>	Horizontal	d) Vertical
20	Counceling and traini	na			
20.	a) Downward	h) Unword		Vortical	d) Spiral
	a) Downward	U) Upwalu	C)	ventical	u) Spirat
21	Oral communication	is different from writte	n co	mmunication as it i	2
21.	a) Spoken and structu	ired	h) 9	Spoken and transitor	rv
	c) Spoken and Perma	nent	d) 9	Spoken and time co	nsuming
	c) spoken und i ernu		<i>a)</i> ,	sponen und time co	lisuing
22.	Who Encodes the me	ssage?			
	a) Sender	b) Receiver	c) [Fransmitting media	d) Both (a) and (b)
	() Series (()	•)		
23.	Which one of the foll	owing is not a feature	ofgi	apevine communica	ation?
	a) Rapid	b) Formal	c)	Multidirectional	d) Cluster
		,			,
	\rightarrow	Version	B – 1	2 of 4	
	<u> </u>				
	1				

24.	Which of the followin a) Dictation	ng is oral communicati b) Brochure	on? c)	Notice	d) Letter
25.	In communication the a) Feedback	e observation of a rece b) Survey	iver c)	's response is called Channel	d) Message
26.	Badly encoded messa a) True	nge leaves its receiver of b) False	cont c)	used and not well in Both (a) and (b)	formed. d) None of these
27.	Among the following sent. a) Sender	g elements, which elen b) Channel	nent c)	t is the medium thro Context	ugh which message is d) Noise
28.	This type of commun a) Extrapersonal	ication takes place wit b) Intrapersonal	hin c)	an individual : Organizational	d) Interpersonal
29.	The synonym of "Ber a) yield	nefît" is b) benefît	c)	loss	d) none of these
30.	The antonyms of "Cr a) Sane	azy" is b) Insane	c)	Unrealistic	d) (a) & (b)
31.	Please give me a peac a) peace	ce / piece of advice. b) piece	c)	Both (a) & (b)	d) None of these
32.	The closest meaning a) Slim	of the word <u>Slender</u> is, b) Sconty	c)	Weak	d) Poor
33.	The day of Judgemen a) Doomsday	t b) Verdict	c)	Both (a) & (b)	d) None of these
34.	She the report a) Cast away	t indignantly. b) Cast aside	c)	Cast off	d) Cast a way
35.	The sick child a) Threw off	while waiting at t b) Threw up	the c)	doctor's. Threw out	d) Threw down
36.	The suffix of the wor a) worth	d "worth" is, b) worthless	c)	worthy	d) none of these
37.	One word substituti Saying things in a rou a) Circumlocution	on : undabout way. b) Straight away	c)	Around about	d) None of these
38.	Someone who compi a) Calligrapher	les a dictionary. b) Teetotaller	c)	both	d) Lexicographer
39.	Question Tags : They are 'reaching by a) aren't they	y Tomorrow', b) are they		both	d) none of these
40.	You 'told me this 'ea a) Didn't you?	rlier', b) Did you? Version	c) 1 B –	Did they? 3 of 4	d) Do they?
, k					

<i>1</i> 1	Transprintion of the	word "Tomb" is			
41.	a) /tum/	b) /tu:m/	c)	tum:/	d) None of these
12	There are so	unde in English			
74.	a) 44	b) 12	c)	24	d) 8
43.	Silent letter in "Castl	e".	C		
	a) e	b) t	c)	a	d) ℓ
44.	Division of the syllab	ole "information" is			
	a) infor-ma-tion	b) in-for-mation	c)	in-for-ma-tion	d) info-rmat-ion
45.	How many consonan	ts are there in English	?		
	a) 4	b) 12	c)	24	d) 44
46.	How many Vowels a	re there in English?		\sim	
	a) 44	b) 12	c)	24	d) 20
47.	Division of the syllal	ole of "window" is	~		1) 1177 1
	a) Win-dow	b) W1-ndow	C)	W1-n-dow	d) Wind-ow
48.	Silent letter in the wo	ord "Knee" is		2	d) Nana of these
		b) n	C)	e	d) None of these
49.	Communication is th	e of busine	ess.	horus .	d) hand
	a) back bone	b) blobd	6)	nerve	d) hand
50.	Identify the word wit	th one syllable in the form	ollov C)	ving : folder	d) conquer
	u) Bruss				u) conquer
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11.	Transcription of the w a) /tum/	vord "Tomb" is b) /tu:m/	c)	tum:/	d) None of these
12.	There areso a) 44	unds in English. b) 12	c)	24	d) 8
13.	Silent letter in "Castle a) e	e". b) t	c)	a	d) <i>l</i>
14.	Division of the syllab a) infor-ma-tion	le "information" is b) in-for-mation	c)	in-for-ma-tion	d) info-rmat-ion
15.	How many consonant a) 4	ts are there in English? b) 12	? c)	24	d) 44
16.	How many Vowels an a) 44	re there in English? b) 12	c)	24	d) 20
17.	Division of the syllab a) Win-dow	le of "window" is b) Wi-ndow	c)	Wi-n-dow	d) Wind-ow
18.	Silent letter in the wo a) k	rd "Knee" is b) n	- c)	e	d) None of these
19.	Communication is the a) back bone	e of busine b) blood	ess. c)	nerve	d) hand
20.	Identify the word with a) grass	h one syllable in the fo b) fulfil	ollov c)	ving : folder	d) conquer
21.	Identify the Parts of Steve Waugh was an a) verb	speech of the underl inspirational captain. b) proper noun	ineo c)	l words : noun	d) adverb
22.	Abstract noun form o a) Starvation	f <u>starve</u> is b) Starve	c)	Starving	d) None of these
23.	<u>Wow</u> ! We won the m a) Adjective	atch! b) Interjection	c)	Noun	d) Verb
24.	Gandhiji is known for a) Noun	r his <u>non-violence</u> . b) Pronoun	c)	Verb	d) Abstract-Noun
25.	In general hot country comfort.	y like India, it is only	wir	nters that one can ex	perience the Soothing
	a) Verb	b) Noun	c)	Adjective	d) Adverb
26.	Proposals prepared fo a) Upward	b) Downward	c)	Horizontal	d) Vertical
27.	Counseling and traini a) Downward	ng b) Upward	c)	Vertical	d) Spiral
, v		Version	ч С -	- 2 of 4	

28.	Oral communication is different from written communication as it is,				
	a) Spoken and structu	ired	b) Spoken and transito	ory	
	c) spoken und i ernia	lient	a) spoken und time ee	insuming	
29.	Who Encodes the me	ssage?			
	a) Sender	b) Receiver	c) Transmitting media	d) Both (a) and (b)	
30.	Which one of the foll	owing is not a feature	of grapevine communic	ation?	
	a) Rapid	b) Formal	c) Multidirectional	d) Cluster	
31.	Which of the following	ng is oral communicat	ion?		
	a) Dictation	b) Brochure	c) Notice	d) Letter	
32.	In communication the	e observation of a rece	viver's response is called	2	
	a) Feedback	b) Survey	c) Channel	d) Message	
33	Badly encoded messa	ge leaves its receiver	confused and not well ir	formed	
55.	a) True	b) False	c) Both (a) and (b)	d) None of these	
~ (
34.	Among the following	g elements, which eler	nent is the medium thro	ough which message is	
	a) Sender	b) Channel	c) Context	d) Noise	
35.	This type of commun	ication takes place wit	thin an individual:		
	a) Extrapersonal	b) Intrapersonal	c) Organizational	d) Interpersonal	
36.	"Types of Cancer" ca	in be presented by	method.		
	a) Topical pattern		b) Spatial pattern		
	c) Psychological patt	tern	d) None of these	$\overline{\mathbf{v}}$	
37.	The weak form of the	e is,			
	a) 8.9	b) 🗞	c) 702:	d) None of these	
38.	The syllable of the w	ord "Fauna" is			
201	a) CV-CV	b) CVVCV	c) CVC	d) None of these	
30	Wands adding in [4-]	a'v'			
59.	words ending in $ dz $	h) then	their	d) halow	
	a) judge	b) then	c) then	d) below	
40.	Example for initial m	inimal pair is			
	a) Try-Dry	b) Set-Sat	c) Pull-Pool	d) Cab-Cap	
41.	RP is known as				
	a) Revised Pronuncia c) Both (a) & (b)	tion	b) Received Pronuncia	ation	
	c) Both (a) α (b)		d) None of these		
42.	Which of these should	d be avoided for an ef	fective speech?		
	a) Confidence	b) Clarity	c) Pauses	a) Rudeness	
43.	Which of these should	d be avoided during de	elivery of speech?		
	a) Planning of speech	l	b) Long Pauses d) Long sentences		
	v) organization	Version	n C - 3 of 4		
	Y .				

44.	The acronym of 'QA a) Question & Answe c) Quality Assist	' is er	b) Q d) N	uality Assurance one of these	
45.	The simple present o a) The fruit smells sw c) Both (a) & (b)	f this below sentence - veet	The f b) Th d) N	fruit is smelling s he fruit is sweet one of these	weet,
46.	One word substituti Saying things in a rot a) Circumlocution	ion : undabout way. b) Straight away	c) A	round about	d) None of these
47.	Someone who compi a) Calligrapher	les a dictionary. b) Teetotaller	c) b	oth	d) Lexicographer
48.	Choose the word the Man is a a) Master	at can fill the gap app of circumstances. b) Companion	c) C	ately : Freature	d) Slave
49.	I have been ill a) since	last Monday. b) from	c) fo	or	d) by
50.	A lady's purse a) Parasol	b) Pantomine	c) R	leticule	d) Vertibule
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First Semester B.E./B.Tech. Degree Examination, Jan./Feb. 2023 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.
- 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 word that can fill the gap appropriately :									
1.	Man is a	of circumstances.								
	a) Master	b) Companion	c)	Creature	d) Slave					
2	I have hear ill	last Manday								
2.	n have been m	b) from		for	d) by					
	a) since	0) 110111	()		u) by					
3.	A lady's purse									
	a) Parasol	b) Pantomine	c)	Reticule	d) Vertibule					
4.	The synonym of "Ben	nefit" is	``		1) C (1					
	a) yield	b) benefit	c)	loss	d) none of these					
5.	The antonyms of "Cr	azy" is	\geq	>						
	a) Sane	b) Insane	c)	Unrealistic	d) (a) & (b)					
) ,	,							
6.	Please give me a peac	ce / piece of advice.								
	a) peace	b) piece	c)	Both (a) & (b)	d) None of these					
7	The closest meaning	of the word Slender is								
/•	a) Slim	b) Sconty	c)	Weak	d) Poor					
	•) 21111		•)		u) 1001					
8.	The day of Judgemen	nt								
	a) Doomsday	b) Verdict	c)	Both (a) & (b)	d) None of these					
0	Cho the report	t indianantly								
9.	she the repor	t indignantiy.	-)	Coot off	1) Contractor					
	a) Cast away	b) Cast aside	c)	Cast off	u) Cast a way					
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10.	The sick child a) Threw off	while waiting at the by Threw up	the c)	doctor's.	d) Threw down
			-)		.,
11.	The suffix of the wor a) worth	d "worth" is, b) worthless	c)	worthy	d) none of these
12.	"Types of Cancer" ca a) Topical pattern c) Psychological patt	n be presented by	b) d)	method. Spatial pattern None of these	
13.	The weak form of the a) کی	e is, b) *	c)	82:	d) None of these
14.	The syllable of the war a) CV-CV	ord "Fauna" is, b) CVVCV	c)	CVC	d) None of these
15.	Words ending in dz a) judge	b) then	c)	their	d) below
16.	Example for initial m a) Try-Dry	inimal pair is b) Set-Sat	c)	- Pull-Pool	d) Cab-Cap
17.	RP is known as a) Revised Pronuncia c) Both (a) & (b)	tion	b) d)	Received Pronuncia None of these	tion
18.	Which of these should a) Confidence	d be avoided for an eff b) Clarity	ècti c)	ive speech? Pauses	d) Rudeness
19.	Which of these shoul a) Planning of speech c) Organization	d be avoided during de	live b) d)	ery of speech? Long Pauses Long sentences	
20.	The acronym of 'QA a) Question & Answe c) Quality Assist	er is	b) d)	Quality Assurance None of these	
21.	The simple present of a) The fruit smells sw c) Both (a) & (b)	f this below sentence - eet	Th b) d)	e fruit is smelling sw The fruit is sweet None of these	veet,
22.	Transcription of the v a) /tum/	vord "Tomb" is b) /tu:m/	c)	tum:/	d) None of these
23.	There areso a) 44	unds in English. b) 12	c)	24	d) 8
24.	Silent letter in "Castle a) e	e". b) t	c)	a	d) <i>l</i>
25.	Division of the syllab a) infor-ma-tion	le "information" is b) in-for-mation Version	c) D -	in-for-ma-tion - 2 of 4	d) info-rmat-ion
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26.	How many consonant a) 4	s are there in English? b) 12	c)	24	d) 44
27.	How many Vowels an a) 44	e there in English? b) 12	c)	24	d) 20
28.	Division of the syllab a) Win-dow	le of "window" is b) Wi-ndow	c)	Wi-n-dow	d) Wind-ow
29.	Silent letter in the wo a) k	rd "Knee" is	c)	e	d) None of these
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31.	Identify the word with a) grass	n one syllable in the fo b) fulfil	llov c)	ving : folder	d) conquer
32.	Question Tags : They are 'reaching by a) aren't they	Tomorrow', b) are they	c)	both	d) none of these
33.	You 'told me this 'ear a) Didn't you?	lier', b) Did you?	c)	Did they?	d) Do they?
34.	Identify the Parts of <u>Steve Waugh was an</u> a) verb	speech of the underli inspirational captain. b) proper noun	nec c)	l words : noun	d) adverb
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38.	In general hot countricomfort. a) Verb	y like India, it is only b) Noun	wir c)	ters that one can ex Adjective	perience the <u>Soothing</u> d) Adverb
39.	One word substitution Saying things in a rout a) Circumlocution	on : indabout way. b) Straight away	c)	Around about	d) None of these
40.	Someone who compil a) Calligrapher	es a dictionary. b) Teetotaller	c)	both	d) Lexicographer
41.	Proposals prepared fo a) Upward	r submission to the bo b) Downward	ss c)	Horizontal	d) Vertical
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42.	Counseling and training a) Downward	ing b) Unward	c)	Vertical	d) Spiral
	d) Downward	b) opward	0)	verticut	d) opnar
43.	Oral communication	is different from writte	en co	ommunication as it i	S,
	c) Spoken and Perma	nent	d)	Spoken and time co	nsuming
					~
44.	a) Sender	b) Receiver	c)	Transmitting media	d) Both (a) and (b)
			C		
45.	a) Rapid	b) Formal	of g c)	Multidirectional	d) Cluster
	u) itupiu		•)		u) cluster
46.	Which of the following	ng is oral communicati	ion?		1) T
	a) Dictation	b) Brochure	c)	Notice	d) Letter
47.	In communication the	e observation of a recei	iver	's response is called	,
	a) Feedback	b) Survey	c)	Channel	d) Message
18	Badly encoded messa	nge leaves its receiver o	cont	ised and not well in	formed
40,	a) True	b) False	c)	Both (a) and (b)	d) None of these
			,		,
49.	Among the following	g elements, which elen	nent	is the medium thro	ugh which message is
	a) Sender	b) Channel	c)	Context	d) Noise
=0					
50.	a) Extrapersonal	b) Intrapersonal	(hin	an individual :	d) Internersonal
	()p •				<i>a)</i>
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First Semester B.E./B.Tech. Degree Examination, Jan./Feb. 2023 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	Μ	L	С
Q.1	a.	Explain briefly civil engineering disciplines.	10	L1	CO1
	b.	List the qualities of good building stone.	10	L1	CO1
		OP			
01		UR UR	10	Τ1	COL
Q.2	а.	(i) Reinforced Cement Concrete (RCC)	10	LI	COI
		(i) Pre-Stressed Concrete (PSC)			
		(iii) Construction Chemicals			
	b.	Explain different types of foundations, briefly.	10	L1	CO1
		Module – 2			
Q.3	a.	Explain concept of (i) Smart city (ii) Clean city	10	L1	CO2
	b.	Explain management of (i) Urban air pollution (ii) Solid waste	10	L1	CO2
	-	OR	Γ	r	
Q.4	a.	Explain: (i) Energy Efficient Buildings	10	L1	CO2
		(11) Temperature Control in Buildings			
	b.	Explain: (i) Security System (ii) Smart Buildings	10	L1	CO2
		Module – 3		l	
Q.5	a.	Explain classification of force system with neat sketches.	10	L1	CO3
	_				
	b.	Determine magnitude and direction of "P" for the system shown in	10	L3	CO3
		Fig.Q5(b). Four coplanar forces acting at a point. One of the forces is			
		unknown. The resultant has a magnitude of 500 N and is acting along			
		A-0A15.			
		P X 200 H			
		θ (45° × ×			
		x 30 k K= 500 N			
		500 N			
		\bigvee_{y}			

BESCK104A/BESCKA104

		OR			
Q.6	a.	State and prove Varignon's theorem of moments.	10	L3	CO3
	b.	Find the magnitude, direction and position of the resultant force with respect to point 'A' as shown in Fig.Q6(b). A^{00} N 100 N 100 N M	10	L3	CO3
	-	Module – 4			
Q.7	а.	Explain the following terms:(i) Centroid(ii) Axis of symmetry(iv) Centroidial axis(v) Centre of gravity	10	L1	CO4
	b.	Determine the centroid of the Fig.Q7(b) shown below:	10	L1	CO4
		40 mm 40 mm 24 mm Fig.Q7(b)			
		OR	10	T 4	COA
Q.8	a.	Prove that for a semicircle $\overline{Y} = \frac{4R}{3\pi}$.	10	LI	CO4
	b.	Determine the centroid of area shown in Fig.Q8(b).	10	L1	CO4
		80 mm 1 80 mm X Fig.Q8(b)			
		2 of 3			

BESCK104A/BESCKA104

		Madala 5			
	2	Module – 5	10	T 1	COF
Q.9	a.	state and prove paramet axis theorem.	10	LI	005
	b.	Determine moment of inertia about horizontal centroidal axis for the Fig.Q9(b).	10	L2	CO5
		100 mm			
		100 mm			
		20 mm			
		Fig.Q9(b)			
		OR			
Q.10	a.	Derive the moment of inertia equation for a rectangle.	10	L1	CO5
	b.	Determine the moment of inertia of the section shown in Fig.Q10(b) with respect to horizontal to horizontal centroidal axis (Ixx).	10	L2	CO5
		41			
		30 mm			
		0 25 mm			
		K SO mm - X SO mm - X			
		Fig.Q10(b)			

		3 of 3			



First Semester B.E./B.Tech. Degree Examination, Jan./Feb. 2023 Introduction to Electrical Engineering

Time: 3 hrs.

N.

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	Μ	L	С
Q.1	a.	With the help of single line diagram, explain the electrical power transmission and distribution system.	6	L2	CO2
	b.	Explain the working of hydro power generation using relevant block diagram.	8	L2	CO1
	c. A resistance R is connected in series with a parallel circuit comprising of two resistance 12Ω and 8Ω . The total power in the circuit is 70W, when the applied voltage is 20V. Calculate R.				CO1
		OR			
Q.2	a.	State Kirchhoff's law for DC circuits. Illustrate with an example.	6	L2	CO1
	b.	With the help of block diagram, explain the working of Solar power generation.	8	L2	CO1
	c.	For the circuit shown in Fig. Q2(c), find the current supplied by each battery and power dissipated in 1 Ω resistor. Fig. Q2(c) $+ \frac{12\nu}{12\nu} + \frac{12\nu}{1$	6	L3	CO2
Module – 2					
Q.3	a.	A pure inductor excited by sinusoidal varying AC voltage, show that the average power consumed by inductor is zero.	8	L2	CO1
	b.	Define i) Real power ii) Reactive power iii) Apparent power iv) Power factor.	6	L1	CO1
	c.	The current in a circuit is $(8 - j10)A$, when the applied voltage is $(50 + j25)$ volts. Determine i) The magnitude of the current ii) Impedance iii) The circuit elements iv) Power factor v) Power.	6	L3	CO2
		OR	1	-	
Q.4	a.	Develop an equation for the power consumed by a $R - C$ series circuit. Draw the waveform of voltage, current and power.	8	L2	CO3
	b.	With relevant diagrams, explain the concept of line values of voltage and current and phase values of voltage and currents in 3 ϕ star and delta connections.	6	L2	CO3
		1 of 3			

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	c.	A circuit having a resistance of 12Ω on inductors of 0.15H and a capacitance of 100μ F in series is connected across a 100V, 50Hz supply. Calculate i) Impedance ii) Current iii) Power factor iv) Phase difference between the current and supply voltage v) Power.	6	L3	CO3
<u> </u>	T	Module – 3			60
Q.5	a.	With the help of neat diagram, explain the construction of DC generator.	8	L2	CO4
	b.	With usual notations, derive the torque equation of a DC motor.	6	L2	CO4
	c.	A d.c. shunt generator has a shunt field winding resistance of 100Ω , it is supplying a load of 5kW at a voltage of 250V. If its armature resistance is 0.22Ω and per brush voltage drop is 1 volt. Calculate the induced e.m.f of generator.	6	L3	CO4
Q.6	a.	Give the classification of DC generator. Obtain the expression for EMF equation of a DC generator.	8	L2	CO4
	b.	With neat diagrams, explain the speed control of DC shunt motor.	6	L2	CO4
	c.	A 4 pole dc shunt motor takes 22 A from 220V supply. the armature and field resistances are respectively 0.5Ω and 100Ω . The armature is lap connected with 300 conductors. If the flux per pole is 20 mwb, calculate i) Speed ii) Gross torque.	6	L3	CO4
Q.7	a.	Explain the working principle of single phase transformer and its necessity in power system.	8	L1	CO1
	b.	Explain the concept of rotating magnetic field in a 3 – phase induction motor with neat vector diagrams.	6	L2	CO2
	c.	The maximum efficiency at full load and unity power factor of a single – phase 25KVA, 500V/1000V, 50Hz, transformer is 98%. Determine its efficiency at i) 75% load, 0.9 p.f. ii) 50% load, 0.8 p.f.	6	L3	CO2
		OR			
Q.8	a.	With relevant diagrams, explain the construction of 3 – phase induction motors.	8	L2	CO2
	b.	Derive an EMF equation of single phase transformer with usual notation.	6	L2	CO2
	¢,	A 3 – phase, 50Hz, 4 pole induction motor, its rotor induced e.m.f is 1.5 Hz frequency. Calculate i) Synchronous speed ii) Full load slip iii) Actual speed.	6	L3	CO3
		Module – 5			
Q.9	a.	List the types of wiring system used for domestic / industry. Explain suitable wiring used for staircase, give the schematic / circuit diagram.	6	L1	CO5
	b.	What is Earthing? With a neat diagram, explain plate earthing.	8	L2	CO5
	c.	Define Unit and Tariff. Explain the two port tariff with its merits and demerits.	6	L2	CO5
	·	2 of 3	•	ı	

BESCK104B/BESCKB104

		OR				
Q.10	a.	What is Fuse? With neat diagram, explain the working principle of fuse.	6	L2	CO5	
	b.	Define Electric shock. What are the safety precaution to be taken against to avoid electric shock?	8	L2	CO5	
	c.	An electric boiler draws 6A current at 230V for 4 hrs. The electricity costs Rs 3/- per unit. Determine the total cost.	6	L3	CO5	
		White Mile will will will will will will will w				



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BESCK104D/BESCKD104

First Semester B.E./B.Tech. Degree Examination, Jan./Feb. 2023 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			L	С
Q.1	a.	Difference between renewable and non-renewable energy sources.	6	L2	CO1
	b.	Briefly explain the role of Mechanical Engineering in Industries and	6	L2	CO1
		Society.			
	c.	Illustrate the operation of liquid flat plate collector and solar-photo-voltaic	8	L2	CO1
		cells with neat sketch.	Ŭ		001
		OR			
Q.2	a.	Briefly describe the Emerging Trends and Technologies in any two sectors.	6	L2	CO1
					601
	b.	With neat sketch, explain the working of Hydel Power Plant.	6	L2	COI
	c.	Illustrate the operation of Wind Mill with neat sketch.	8	L2	CO1
		Module – 2			•
Q.3	a.	Define lathe. With neat sketch and explain the following machining	10	L2	CO2
		operations.			
		i) Turning ii) Facing			
		iii) Knurling iv) Boring			
	h	Define CNC. With block diagram, explain the different components used in	10	1.2	CO2
		CNC.	10		002
	OR				
Q.4	a. Define milling machine. With neat sketch, explain the following machining			L2	CO2
		operations:			
		i) Drilling ii) Reaming			
		iii) Plane-Milling iv) Slot Milling			
	h	Write the advantages and applications of CNC	6	1.2	<u>CO2</u>
	υ.	white the datantages and approaches of erve.	Ŭ		
	c.	Define 3-D printing and classify.	4	L2	CO2
	<u> </u>	Module – 3	L	1	1
Q.5	a.	With neat sketch and explain the working of 4-stroke petrol engine. And	10	L2	CO3
		also write its P-V diagram.			
	b.	Define EV (Electric Vehicle). With block diagram, explain the different	10	L2	CO3
		components used in EV. Also write benefits of EV in current trend.			
1	1		1	I	1

BESCK104D/BESCKD104

OR						
Q.6	a.	With neat sketch and explain the working of 4-stroke diesel engine. And also write its P-V diagram.	10	L2	CO3	
	b.	Define HEV (Hybrid Electric Vehicle). With block diagram, explain the	10	L2	CO3	
		different components used in HEV. Also write limitations of EV's in				
		current trend.				
0.5			10		COL	
Q.7	a.	Define Engineering Material. Briefly explain the classifications of ferrous	10	L2	CO4	
		and non-terrous metals.				
	b.	Define welding. With neat sketch, explain the working of Electric Arc	10	L2	CO4	
		Welding.				
	1	OR	1	1		
Q.8	a.	Define the following terms:	10	L1	CO4	
		1) Ceramic 11) Graphite				
		iii) Polymers iv) Shape Memory Alloy				
	b.	Define Soldering. With neat sketch, explain the working of Gas welding	10	L2	CO4	
		and name the different types of flames used in oxy-acetylene welding.				
	1	Module – 5				
Q.9	a.	With a neat sketch, explain the open-loop and closed-loop mechatronic	10	L2	CO5	
		systems.				
	b.	Define Automation, Explain the classifications of automation.	10	L2	CO5	
	~.		10		000	
		OR				
Q.10	a.	Define Industrial Robot. Explain the different configurations of Robot with	10	L2	CO5	
		neat sketch.				
	h	Define IOT Priefly explain the characteristics of IOT	6	12	CO5	
	υ.	Define for. Brieffy explain the characteristics of for.	U	LZ	003	
	c.	Explain the logical design of IOT.	4	L2	CO5	

		2 of 2				
		C				



First Semester B.E./B.Tech. Degree Examination, Jan./Feb. 2023 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			L	С
Q.1	a.	Define solid wastes. Explain the source based classification of solid wastes.	10	L1	CO1
	b.	Explain the various functional elements of solid waste management system.	10	L1	CO1
		OR			
Q.2	a.	List out the various factors affecting solid waste management system.	10	L6	CO1
		Explain any two in detail.			
	b.	Write short notes on Indian scenario of management of solid waste.	10	L6	CO1
	•	Module – 2		-	
Q.3	a.	Enumerate the various field investigations involved in waste stream	10	L2	CO1
	_	assessment.			
	b.	What are the various factors which affect the quantity and composition of	10	L1	CO2
		solid wastes? Explain.			
	1	OR			~~~
Q.4	a.	Explain the physical characteristics of solid wastes.	10		CO2
	b.	Describe the environmental effects of inadequate and improper waste	10	L1	CO2
		management.			
0.5		$\mathbf{Module} = \mathbf{J}$	10	Т 1	CO2
Q.5	а.	explain the various conection components that influences the waste	10	LI	CO2
	h	What is a Transfer station? Explain its types based on its size	10	12	CO3
OR					05
0.6 a Describe the various options of disposal of solid wastes 10 12 0					
Q.0	a. h	Explain the various stages involved in sanitary land filling	10	LJ	CO3
	υ.	Explain the various stages involved in sumary fund mining.	10	1/1	COS
Module – 4					
0.7	a	Explain volume reduction or compaction of solid wastes and its types.	10	L1	CO3
X ••	b.	Enumerate any three methods of component separation technique.	10	L3	CO3
	4	OR			
0.8	a.	What is source Reduction? How do we monitor waste Reduction?	10	L1	CO3
	b.	Describe the different elements of Recycling programme.	10	L3	CO3
		Module – 5			
Q.9	a.	Explain the various characteristics of Hazardous wastes.	10	L1	CO4
	b.	Describe the five general categories of Hazardous wastes.	10	L3	CO4
		OR	•		
Q.10	a.	List out the various physical and chemical treatment of hazardous wastes.	10	L6	CO4
_		Explain any two.			
	b.	Write short notes on pollution prevention and waste minimization.	10	L1	CO4



First Semester B.E./B. Tech Degree Examination, Jan./Feb. 2023 Indian Constitution

Time: 1 hrs.

A

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.

1.	The Indian Constitution is			
	a) Based on Conventions	b)	A brief document	
	c) An evolved constitution	d)	Written and bulky document	
•				
2.	a) August 15, 1047 b) November 26, 1040	onsti	Itution on Jonuary 26, 1050 d) January 26, 1048	,
	a) August 15, 1947 b) November 20, 1949	0).	January 20, 1930 d) January 20, 1948	
3.	The Constitution of India declares India as			
	a) A Unitary State	b)	A Federation	
	c) A Quasi federal State	d)	A Union of States	
		/		
4.	The Constitution of India is			
	a) Levitary in form but federal in spirit	b)	Levitary with strong federal bias	
	c) Is full of strong levitary features	d)	Federal in form, but levitary in spirit	
5	Chairman of the Drafting Committee was			
	a) Dr. B. R. Ambedkar	b)	Dr. Rajendra Prasad	
	c) Jagajeevan Ram	d)	Jawaharlal Nehru	
6.	What is the present number of Articles in Indian	Con	nstitution?	
	a) 395 b) 376	c)	445 d) 448	
7	Which Amended Act added the word "Secular"	in C	onstitution of India?	
/•	a) 42^{nd} Amendment b) 44^{th} Amendment	c)	45^{th} Amendment d) 46^{th} Amendment	Ċ
		•)		
8.	The Government of India Act 1935 provided for	-		
	a) Diarchy at the center	b)	Establishment of federal court	
	c) Provincial Autonomy	d)	All of the above	
0	The Constituent Assembly of India started its w	ork i	in 1946 and completed its work in	
9.	a) November 1949 b) Jan 1949		Dec 1948 d) Jan 1950	
		0)		
10.	The Preamble of the Constitution of India has be	een a	amended so far	
	a) Four times b) Thrice	c)	Twice d) Once	
			1 64	
	Version –	- A -	- 1 of 4	
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BICOK107

11.	Which of the following writ is issued by the Supreme Court if it sends an order to restrain a person from acting in an office to which he is not entitled.			
	a) Habeas corpus b) Prohibition c) Cestiorari d) Quo warranto			
12.	 Which of the following right mentioned in the Indian Constitution is absolute in nature? a) Right to Equality b) Right to Freedom of Religion c) Right to Constitutional Remedies d) Right to get equal pay for equal work 			
13.	Which of the following Articles of the Constitution of India covers the Right to Freedom?a) Articles 19 to 22b) Articles 29 to 30c) Article 32d) Articles 14 to 18			
14.	During National emergency which of the following provision stands suspended.a) DPSPb) Amendment proceduresc) Fundamental Rightsd) Judicial Review			
15.	Which Fundamental Right ceased to be a Fundamental Right and became a Legal Right under the44 th Amendment of the Indian Constitution.a) Right to Propertyb) Right to Primary Educationc) Right to Informationd) Right to Life			
16.	Fundamental Rights in the Indian Constitution have been taken from thea)Russian Constitutionb)US Constitutionc)British Constitutiond)Act of 1935			
17.	Who among the following headed the nine Judge Constitutional bench that declared the Right toPrivacy as a Fundamental Right?a) J.S Kheharb) Dipak Misrac) H.J Kariad) T.S Jhakar			
18.	Article 21A of the Constitution of India provides Right toa) Workb) Privacyc) Equalityd) Education			
19.	 In the Indian Constitution as per Fundamental Rights, Abolition of Untouchability is a			
20.	Directive Principles of State policy is borrowed from which Country. a) Japan b) Ireland c) America d) Russia			
21.	In which part of the Constitution , DPSP are mentioned?a) Part IIIb) Part IVc) Part VIId) Part VIII			
22.	Promoting Education and Economic interests of weaker sections of the society, especially the SC			
- A	 a) Fundamental Rights b) Directive Principles of State Policy c) Fundamental Duties d) Fifth Schedule 			
23.	 Which of the following statement is not correct about the Directive Principles of State Policy? a) It determines to establish a "Welfare State" b) It is the duty of the Citizen to apply DPSP Principles in making laws c) To secure Uniform Civil Code for Citizen d) To Ensure Equal pay for both Men and Women at Work. 			
24.	 Which one among of the subsequent isn't the Directive Principles of State Policy? a) Socialistic Directives b) Gandhian Directives c) Liberal Intellectual Directives d) Intellectual Directives 			
	Version – A - 2 of 4			
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25.	Who is the Present Vice President of India?			
201	a) Droupadi Murmu	b)	Ramnath Kovind	
	c) M. Venkaiah Naidu	d)	Jagdeep Dhankar	
26.	With reference to the Constitution of India, w a) The Prime Minister shall be appointed by t b) Council of Ministers are appointed by the c) Council of Minister shall be collectively re d) Ministers hold office during the plasure of	hich o the Pro Prime espons	f the following state esident Minister ible to Lok Sabha President	ment is not correct?
	d) whilisters hold office during the pleasure of		resident.	
27.	The Chancellor for all the Universities in the	State i	s	
	a) Chief Minister	b)	Education Minister	ſ
	c) Governor of the State	d)	High Court Chief J	lustice
20	What is the age limit to contest for Lok Sabha	Floot		
20.	a) 25 years b) 26 years		74 vears	d) 30 years
	a) 25 years 0) 20 years	0)	24 years	d) 50 years
29.	What is the age limit for Rajya Sabha contesta	ant?		
	a) 30 years b) 35 years	c)	25 years	d) 31 years
		~		
30.	Who is the present Lok Sabha Speaker?	$\overline{}$	0 0 1	
	a) Birla b) Shri Birla	c)	Om Birla	d) GD Birla
21	When is the Budget Session month hannens is	n Lok	Sabha?	
51.	a) July to September	h)	Saulia : February to May	
	c) April to May	d)	November to Janua	rv
		u)		- ,
32.	What is the minimum total Quorum to be pres	sent du	ring the Lok Sabha	Sessions?
	a) $\frac{1}{2}$ th b) $\frac{1}{2}$ th	c)	1_{th}	d $\frac{1}{2}$ th
	$\frac{1}{12}$ $\frac{1}{10}$ $\frac{1}{10}$ $\frac{1}{10}$	0)	50 th	15
		0	•	
33.	who is the present Chief Justice of India?		Jagdoon Dhankar	d) None of these
	a) D. I. Chandrachud D) N.V. Kamana		Jagueep Dhankai	u) None of these
34.	Karnataka has bicameral system of State Legi	slature	e. Bicameral means	
	a) Two Cameras	b)	Lok Sabha and Ra	iya Sabha
	c) Vidhan Sabha and Vidhan Parishad	d)	Only Vidhan Sabh	ia
35.	How many Highcourts are there in India?	``		1) 10
	a) 29 b) 25	()	24	d) 18
36	Under a single integrated hierarchical ludic	ial sys	tem the High Court	s in the states are directly
20.	under the	ui byb	teni, the high court	is in the states are uncerry
	a) President	b)	Governor of the St	tate
	c) Union Parliament	d)	Supreme Court	
37.	The Supreme Court was set up under	1 \		
	a) Pitts India Act a) Indian Council Act 1861	b) d)	Regulating Act	at 1802
	c) Indian Council Act 1801	u)	Indian Councils A	Ct 1092
38.	A Judge of the Supreme Court will be rer	noved	on the basis of vi	iolation of Constitutional
	principles through			
	a) Impeachment \checkmark b) Retirement	c)	Appointment	d) Judgment
20	When is the Derivet Common of Kommon land			
39.	who is the Present Governor of Karnataka?	b)	Thowar Chand Ca	hlat
	a) Kalila Devi c) Vajubbajwala	(U d)	HR Bhardwai	liiot
	C) Vajunonarwara	$n = \Delta$	- 3 of A	
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40.	Original Jurisdiction of the Supreme Court inclua)Appeals in Civil casesc) Interstate disputes	udes : b) Appeals in Criminal cases d) All of these
41.	Chief Election Commissioner of India can be rea) Both of houses of Parliamentc) President of India	b) Union Council of Ministerd) Both a and b option combined
42.	Who among the following was the first Chief Ela) K. V. K Sundaramc) M. Patanjali Sastri	lection Commissioner of India b) Sukumar Sen d) S. P. Sen Verma
43.	Who is the Present Chief Election Commissione a) Sunil Arora b) Suohil Chandra	er in India? c) Rajiv Kumar d) Om Prakash Rawat
44.	The Emergency Provisions of Indian Constitution a) Germany b) Japan	on have been borrowed from c) USSR d) USA
45.	How many types of emergencies are there in Co a) 1 b) 2	c) 3 d) 4
46.	President can Proclaim a Financial Emergency (a) Article 350 b) Article 352	under which among the following Articles? c) Article 356 d) Article 360
47.	Which among the following Articles gives the emptive action to protect any State against Exter a) Article 355 b) Article 358	e power to the Central Government to take Pre – ernal aggression and Internal disturbances? c) Article 356 d) Article 360
48.	Enact means a) Single chapter c) Past a Law	b) Single actiond) Rectify the mistakes in the Law
49.	Election Commission does not conduct Electiona) The office of the Presidentc) The office of the Speaker of Lok Sabha	 a to b) The office of the Vice – President d) State Legislature and Union Territory
50.	Once the Proclamation of Financial Emergence continues for a) Another six months b) One Year	cy is declared or approved by the Parliament itc) Two Yearsd) Indefinitely
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4	Version – A	- 4 of 4

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First Semester B.E./B. Tech Degree Examination, Jan./Feb. 2023 Indian Constitution

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.
- 4. Darkening two circles for the same question makes the answer invalid.
- 5. Damaging/overwriting, using whiteners on the OMR sheets are strictly prohibited.

1.	Chief Election Commissioner of India can be remo	oved from the office by
	a) Both of houses of Parliament b) Union Council of Minister
	c) President of India d) Both a and b option combined
2.	Who among the following was the first Chief Elec	tion Commissioner of India
	a) K. V. K Sundaram b) Sukumar Sen
	c) M. Patanjali Sastri 🦰 d) S. P. Sen Verma
2	Who is the Present Chief Floation Commissioner	n India?
з.	a) Supil Arora b) Supil Chandra	n mula: Raijy Kumar d) Om Prakash Rawat
		d) Oni i Takash Kawat
4.	The Emergency Provisions of Indian Constitution	have been borrowed from
	a) Germany b) Japan c)) USSR d) USA
-		
5.	How many types of emergencies are there in Cons	titution of India? (1)
		u) 4
6.	President can Proclaim a Financial Emergency und	der which among the following Articles?
	a) Article 350 b) Article 352 c) Article 356 d) Article 360
	which among the following Articles gives the po	ower to the Central Government to take Pre –
	a) Article 355 b) Article 358 c) Article 356 d) Article 360
8.	Enact means	
	a) Single chapter b) Single action
	c) Past a Law d) Rectify the mistakes in the Law
0	Election Commission does not conduct Election to	
).	a) The office of the President b) The office of the Vice – President
	c) The office of the Speaker of Lok Sabha d) State Legislature and Union Territory
10.	Once the Proclamation of Financial Emergency continues for	is declared or approved by the Parliament it
	a) Another six months b) One Year c) Two Years d) Indefinitely
	Version – E	3 – 1 of 4
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BICOK107

11.	When is the Budget Session month happen	s in Lok Sabha?	
	a) July to September	b) February to May	
	c) April to May	d) November to January	
12.	What is the minimum total Quorum to be p	present during the Lok Sabha Sess	ions?
	a) $\frac{1}{12}$ th b) $\frac{1}{10}$ th	c) $\frac{1}{50}$ th d)) $\frac{1}{15}$ th
13.	a) D Y Chandrachud b) N V Ramana	e) Jagdeen Dhankar d	None of these
14.	Karnataka has bicameral system of State L	egislature. Bicameral means	Sahha
	c) Vidhan Sabha and Vidhan Parishad	d) Only Vidhan Sabha	Saona
15	How many Highcourts are there in India?		
13.	a) 29 b) 25	c) 24 d)) 18
16	Under a single integrated hierarchical lu	dicial system the High Courts in	the states are directly
10.	under the	areiar system, the ringh courts in	the states are uncerty
	a) President	b) Governor of the State	
	c) Union Parliament	a) Supreme Court	
17.	The Supreme Court was set up under		
	a) Pitts India Actc) Indian Council Act 1861	d) Indian Councils Act 18	392
10			
18.	A Judge of the Supreme Court will be principles through	removed on the basis of violati	ion of Constitutional
	a) Impeachment b) Retirement	c) Appointment d)) – Judgment
19.	Who is the Present Governor of Karnataka	?	$\overline{\mathbf{a}}$
	a) Rama Devi	b) Thawar Chand Gehlot	7
	c) Vajuhbhaiwala	d) HR Bhardwaj	
20.	Original Jurisdiction of the Supreme Court	includes :	
	a) Appeals in Civil cases	 b) Appeals in Criminal cas d) All of these 	ses
	c) interstate disputes	d) Thirdf these	
21.	Which of the following writ is issued by person from acting in an office to which he	the Supreme Court if it sends a	an order to restrain a
	a) Habeas corpus b) Prohibition	c) Cestiorari d)) Quo warranto
22	Which of the following right mentioned in	the Indian Constitution is absolut	e in nature?
	a) Right to Equality	b) Right to Freedom of R	eligion
	c) Right to Constitutional Remedies	d) Right to get equal pay	for equal work
23.	Which of the following Articles of the Cor	stitution of India covers the Right	t to Freedom?
	a) Articles 19 to 22 b) Articles 29 to	30 c) Article 32 d)) Articles 14 to 18
24.	During National emergency which of the f	ollowing provision stands suspend	led.
	a) DPSP a) Eurodemontal Pichts	b) Amendment procedures	5
	c) Fundamental Rights	u) Judiciai Keview	
25.	Which Fundamental Right ceased to be a I 44^{th} Amendment of the Indian Constitution	Fundamental Right and became a l	Legal Right under the
	a) Right to Property	b) Right to Primary Educa	ttion
	c) Right to Information	d) Right to Life	
	Vers	ion - B - 2 of 4	
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26.	Fundamental Rights in the Indian Const a) Russian Constitution	titution have b)	been taken from the US Constitution		
	c) British Constitution	d)	Act of 1935		
27.	Who among the following headed the r Privacy as a Fundamental Right?	nine Judge C	onstitutional bench t	hat d	leclared the Right to
	a) J.S Khehar b) Dipak Misra	a c)	H.J Karia	d)	T.S Jhakar
28.	Article 21A of the Constitution of India a) Work b) Privacy	provides Ri c)	ght to Equality	d)	Education
29.	In the Indian Constitution as per Funda	mental Right	s, Abolition of Untou	ıchat	oility is a
	a) Right to Equalityc) Right against Exploitation	b) d)	Right to Freedom of Right to Constitutio	Relinal R	igion Remedy
30.	Directive Principles of State policy is be a) Japan b) Ireland	orrowed from c)	n which Country. America	d)	Russia
31.	The Indian Constitution is	41			
	a) Based on Conventionsc) An evolved constitution	b) d)	A brief document Written and bulky d	ocun	nent
32.	The Constituent Assembly adopted the a) August 15, 1947 b) November 2	Indian Const 26, 1949 c)	itution on January 26, 1950	d)	January 26, 1948
33.	The Constitution of India declares India a) A Unitary State c) A Quasi federal State	as b) d)	A Federation		~
		u)	A billon of States	Ś	
54.	a) Levitary in form but federal in spinc) Is full of strong levitary features	rit b) d)	Levitary with stron Federal in form, bu	g fed ut lev	eral bias ritary in spirit
35.	Chairman of the Drafting Committee w	as			
	a) Dr. B. R. Ambedkar c) Jagajeevan Ram	b) d)	Dr. Rajendra Prasad Jawaharlal Nehru	1	
36.	What is the present number of Articles	in Indian Co	nstitution?	I)	440
	a) 395 b) 376	c)	445	d)	448
37.	Which Amended Act added the word "S a) 42 nd Amendment b) 44 th Amend	Secular" in C lment c)	Constitution of India? 45 th Amendment	d)	46 th Amendment
38.	The Government of India Act 1935 provaa) Diarchy at the centerc) Provincial Autonomy	vided for b) d)	Establishment of fe All of the above	deral	l court
39.	The Constituent Assembly of India start a) November 1949 b) Jan. 1949	ted its work (c)	in 1946 and complete Dec. 1948	d its: d)	work in Jan. 1950
40.	The Preamble of the Constitution of Ind a) Four times b) Thrice	lia has been a c)	amended so far Twice	d)	Once
41.	In which part of the Constitution , DPSI a) Part III b) Part IV	P are mention c)	ned? Part VII	d)	Part VIII
	v	ersion – B	- 3 of 4		
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42.	Promoting Education and Economic interests and ST comes under which of the following?	of weaker sections of the society, especially the	SC
	a) Fundamental Rights	b) Directive Principles of State Policy	
	c) Fundamental Duties	d) Fifth Schedule	
43.	Which of the following statement is not correct	ct about the Directive Principles of State Policy?	
	b) It is the duty of the Citizen to apply DPS	P Principles in making laws	
	 c) To secure Uniform Civil Code for Citize d) To Ensure Equal pay for both Men and V 	n Vomen at Work	
4.4	Which are among of the subconvertion? the b	Directive Drinciples of State Deliev?	
44.	a) Socialistic Directives	b) Gandhian Directives	
	c) Liberal Intellectual Directives	d) Intellectual Directives	
45.	Who is the Present Vice President of India?		
	a) Droupadi Murmuc) M. Venkaiah Naidu	b) Ramnath Kovind d) Jagdeep Dhankar	
16	With reference to the Constitution of India wi	high of the following statement is not correct?	
46.	a) The Prime Minister shall be appointed by t	he President	
	b) Council of Ministers are appointed by the l	Prime Minister	
	d) Ministers hold office during the pleasure o	f the President.	
47.	The Chancellor for all the Universities in the S	State is	
	a) Chief Minister	b) Education Minister	
	c) Governor of the state	d) High Court Chief Justice	
48.	What is the age limit to contest for Lok Sabha a) 25 years b) 26 years	c) 24 years d) 30 years	
49.	What is the age limit for Rajya Sabha contesta	int?	
	a) 30 years b) 35 years	c) 25 years d) 31 years	
50.	Who is the present Lok Sabha Speaker? a) Birla b) Shri Birla	c) Om Bitla d) GD Bitla	
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Question Paper Version : C

First Semester B.E./B. Tech Degree Examination, Jan./Feb. 2023 Indian Constitution

Time: 1 hrs.

USN

Max. Marks: 50

INSTRUCTIONS TO THE CANDIDATES

- Answer all the fifty questions, each question carries one mark 1.
- 2. Use only **Black ball point pen** for writing / darkening the circles.
- For each question, after selecting your answer, darken the appropriate 3. 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.
- In which part of the Constitution, DPSP are mentioned? 1. a) Part III b) Part IV c) Part VII d) Part VIII 2. Promoting Education and Economic interests of weaker sections of the society, especially the SC and ST comes under which of the following?
 - a) **Fundamental Rights**
- b) Directive Principles of State Policy
- **Fundamental Duties** c)

- d) Fifth Schedule
- Which of the following statement is not correct about the Directive Principles of State Policy? 3.
 - It determines to establish a "Welfare State" a)
 - It is the duty of the Citizen to apply DPSP Principles in making laws b)
 - To secure Uniform Civil Code for Citizen c)
 - d) To Ensure Equal pay for both Men and Women at Work.

4. Which one among of the subsequent isn't the Directive Principles of State Policy?

- Socialistic Directives a)
- Gandhian Directives b)
- Liberal Intellectual Directives c)
- d) Intellectual Directives
- Who is the Present Vice President of India?
 - a) Droupadi Murmu
 - c) M. Venkaiah Naidu

Chief Minister

a)

- Ramnath Kovind d) Jagdeep Dhankar
- With reference to the Constitution of India, which of the following statement is not correct? 6. a) The Prime Minister shall be appointed by the President
 - b) Council of Ministers are appointed by the Prime Minister
 - c) Council of Minister shall be collectively responsible to Lok Sabha
 - d) Ministers hold office during the pleasure of the President.
- The Chancellor for all the Universities in the State is 7.
 - b) Education Minister
 - c) Governor of the State d) High Court Chief Justice
- What is the age limit to contest for Lok Sabha Elections 8. a) 25 years b) 26 years c) 24 years d) 30 years

Version -C - 1 of 4

9.	What is the age limit for Rajya Sabha contestan a) 30 years b) 35 years	nt? c) 25 years	d) 31 years
10.	Who is the present Lok Sabha Speaker? a) Birla b) Shri Birla	c) Om Birla	d) GD Birla
11.	 Chief Election Commissioner of India can be real a) Both of houses of Parliament c) President of India 	emoved from the officeb) Union Council od) Both a and b opt	by f Minister ion combined
12.	Who among the following was the first Chief Ea) K. V. K Sundaramc) M. Patanjali Sastri	Election Commissioner b) Sukumar Sen d) S. P. Sen Verma	of India
13.	Who is the Present Chief Election Commission a) Sunil Arora b) Suohil Chandra	ner in India? c) Rajiv Kumar	d) Om Prakash Rawat
14.	The Emergency Provisions of Indian Constituti a) Germany b) Japan	ion have been borrowed c) USSR	from d) USA
15.	How many types of emergencies are there in C a) 1 b) 2	c) 3	d) 4
16.	President can Proclaim a Financial Emergency a) Article 350 b) Article 352	under which among the c) Article 356	e following Articles? d) Article 360
17.	Which among the following Articles gives the emptive action to protect any State against External a) Article 355 b) Article 358	e power to the Central ernal aggression and Int c) Article 356	Government to take Pre – ernal disturbances? d) Article 360
18.	Enact means a) Single chapter c) Past a Law	b) Single actiond) Rectify the mista	kes in the Law
19.	Election Commission does not conduct Electiona) The office of the Presidentc) The office of the Speaker of Lok Sabha	n to b) The office of the d) State Legislature	Vice – President e and Union Territory
20.	Once the Proclamation of Financial Emergen continues for	ncy is declared or appr	roved by the Parliament it
21	a) Another six months b) One year	C) I wo Years	d) Indefinitely
21.	a) July to Septemberc) April to May	b) February to Mayd) November to Janu	ary
22.	What is the minimum total Quorum to be prese	ent during the Lok Sabh	a Sessions?
	a) $\frac{1}{12}$ th b) $\frac{1}{10}$ th	c) $\frac{1}{50}$ th	d) $\frac{1}{15}$ th
23.	Who is the present Chief Justice of India?a) D.Y. Chandrachud b) N.V. Ramana	c) Jagdeep Dhankar	d) None of these
24.	Karnataka has bicameral system of State Legisla) Two Camerasc) Vidhan Sabha and Vidhan Parishad	lature. Bicameral means b) Lok Sabha and R d) Only Vidhan Sab	s Lajya Sabha Dha
	Version	– C – 2 of 4	

A.

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25.	How many Highcourts are there in India? a) 29 b) 25	c) 24 d) 18
26.	Under a single, integrated, hierarchical Judicia under thea) Presidentc) Union Parliament	l system, the High Courts in the states are directlyb) Governor of the Stated) Supreme Court
27.	The Supreme Court was set up under a) Pitts India Act c) Indian Council Act 1861	b) Regulating Actd) Indian Councils Act 1892
28.	A Judge of the Supreme Court will be remeprinciples througha) Impeachmentb) Retirement	oved on the basis of violation of Constitutionalc) Appointmentd) Judgment
29.	Who is the Present Governor of Karnataka?a) Rama Devic) Vajuhbhaiwala	b) Thawar Chand Gehlotd) HR Bhardwaj
30.	Original Jurisdiction of the Supreme Court incla) Appeals in Civil casesc) Interstate disputes	udes : b) Appeals in Criminal cases d) All of these
31.	Which of the following writ is issued by the person from acting in an office to which he is n a) Habeas corpus b) Prohibition	Supreme Court if it sends an order to restrain a not entitled. c) Cestiorari d) Quo warranto
32.	 Which of the following right mentioned in the l a) Right to Equality c) Right to Constitutional Remedies 	 Indian Constitution is absolute in nature? b) Right to Freedom of Religion d) Right to get equal pay for equal work
33.	Which of the following Articles of the Constitu a) Articles 19 to 22 b) Articles 29 to 30	tion of India covers the Right to Freedom? c) Article 32 d) Articles 14 to 18
34.	During National emergency which of the follow a) DPSP c) Fundamental Rights	ving provision stands suspended.b) Amendment proceduresd) Judicial Review
35.	 Which Fundamental Right ceased to be a Fund 44th Amendment of the Indian Constitution. a) Right to Property c) Right to Information 	amental Right and became a Legal Right under theb) Right to Primary Educationd) Right to Life
36.	Fundamental Rights in the Indian Constitutiona) Russian Constitutionc) British Constitution	have been taken from the b) US Constitution d) Act of 1935
37.	Who among the following headed the nine Juc Privacy as a Fundamental Right? a) J.S Khehar b) Dipak Misra	lge Constitutional bench that declared the Right to c) H.J Karia d) T.S Jhakar
38.	Article 21A of the Constitution of India provide a) Work b) Privacy	es Right to c) Equality d) Education
39.	In the Indian Constitution as per Fundamental Ia) Right to Equalityc) Right against Exploitation	 Rights, Abolition of Untouchability is a b) Right to Freedom of Religion d) Right to Constitutional Remedy
	Version	– C – 3 of 4
A.		

40.	Directive Principles of State policy is borrowed from which Country. a) Japan b) Ireland c) America d) Russia
41.	The Indian Constitution isa) Based on Conventionsc) An evolved constitutionb) A brief documentd) Written and bulky document
42.	The Constituent Assembly adopted the Indian Constitution on a) August 15, 1947 b) November 26, 1949 c) January 26, 1950 d) January 26, 1948
43.	The Constitution of India declares India asa) A Unitary Stateb) A Federationc) A Quasi federal Stated) A Union of States
44.	 The Constitution of India is a) Levitary in form but federal in spirit c) Is full of strong levitary features b) Levitary with strong federal bias d) Federal in form , but levitary in spirit
45.	Chairman of the Drafting Committee wasa) Dr. B. R. Ambedkarc) Jagajeevan Ramb) Dr. Rajendra Prasadd) Jawaharlal Nehru
46.	What is the present number of Articles in Indian Constitution?a) 395b) 376c) 445d) 448
47.	Which Amended Act added the word "Secular" in Constitution of India? a) 42 nd Amendment b) 44 th Amendment c) 45 th Amendment d) 46 th Amendment
48.	The Government of India Act 1935 provided fora) Diarchy at the centerb) Establishment of federal courtc) Provincial Autonomyd) All of the above
49.	The Constituent Assembly of India started its work in 1946 and completed its work in a) November 1949 b) Jan. 1949 c) Dec. 1948 d) Jan. 1950
50.	The Preamble of the Constitution of India has been amended so far a) Four times (b) Thrice (c) Twice (d) Once
	a) Four times b) Thrice c) Twice d) Once
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First Semester B.E./B. Tech Degree Examination, Jan./Feb. 2023 Indian Constitution

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.

1.	When is the Budget Session month happens in	1 Lok Sabha?
	a) July to September	b) February to May
	c) April to May	d) November to January
2.	What is the minimum total Quorum to be pres	ent during the Lok Sabha Sessions?
	a) 1 th b) 1 th	a + 1 the $d + 1$ the
	a) $\frac{12}{12}$ m b) $\frac{10}{10}$ m	$\frac{1}{50}$ $\frac{1}{15}$ $\frac{1}{15}$ $\frac{1}{15}$
_		
3.	Who is the present Chief Justice of India?	
	a) D.Y. Chandrachud b) N.V. Ramana	c) Jagdeep Dhankar d) None of these
4.	Karnataka has bicameral system of State Legi	slature Bicameral means
	a) Two Cameras	b) Lok Sabha and Rajya Sabha
	c) Vidhan Sabha and Vidhan Parishad	d) Only Vidhan Sabha
5.	How many Highcourts are there in India?	
	a) 29 b) 25	c) 24 d) 18
6. 4	Under a single integrated hierarchical Judici	al system the High Courts in the states are directly
	under the	
97	a) President	b) Governor of the State
Y	c) Union Parliament	d) Supreme Court
7	The Suprome Court was not up under	
7.	a) Pitts India Act	b) Regulating Act
	c) Indian Council Act 1861	d) Indian Councils Act 1892
		.,
8.	A Judge of the Supreme Court will be rer	noved on the basis of violation of Constitutional
	principles through	
	a) Impeachment b) Retirement	c) Appointment d) Judgment
9	Who is the Present Governor of Karnataka?	
	a) Rama Devi	b) Thawar Chand Gehlot
	c) Vajuhbhaiwala	d) HR Bhardwaj
	Version	n – D - 1 of 4
	C. A.	
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10.	Original Jurisdiction of the Supreme Court inclu a) Appeals in Civil cases	ludes : b) Appeals in Criminal cases
	c) Interstate disputes	d) All of these
11.	The Indian Constitution is	
	a) Based on Conventionsc) An evolved constitution	d) Written and bulky document
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	a) Four times b) Thrice	c) Twice d) Once
21.	Chief Election Commissioner of India can be re	removed from the office by
4	a) Both of houses of Parliament	b) Union Council of Minister
	c) President of India	d) Both a and b option combined
22.	Who among the following was the fist Chief Ele	lection Commissioner of India
Y	a) K. V. K Sundaram c) M Pataniali Sastry	b) Sukumar Sen d) S P Sen Verma
23.	a) Sunil Arora b) Suohil Chandra	c) Raijy Kumar d) Om Prakash Rawa
24.	a) Germany b) Japan	c) USSR d) USA
25.	a) 1 b) 2	$\begin{array}{cccc} c & c \\ c & c \\ \end{array} \begin{array}{cccc} c & d \\ c & d \\ \end{array} \begin{array}{cccc} d \\ d $
26.	a) Article 350 b) Article 352	y under which among the following Articles?
	Version -	u – D - 2 of 4
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27.	Which among the following Articles gives the emptive action to protect any State against External Article 355 b) Article 358	e power to the Central Government to take Pre- rnal aggression and Internal disturbances? c) Article 356 d) Article 360
28.	Enact meansa) Single chapterc) Past a Law	b) Single actiond) Rectify the mistakes in the Law
29.	Election Commission does not conduct Electiona) The office of the Presidentc) The office of the Speaker of Lok Sabha	 to b) The office of the Vice – President d) State Legislature and Union Territory
30.	Once the Proclamation of Financial Emergen continues for a) Another six months b) One Year	cy is declared or approved by the Parliament i c) Two Years d) Indefinitely
31.	In which part of the Constitution , DPSP are me a) Part III b) Part IV	ntioned? c) Part VII d) Part VIII
32.	Promoting Education and Economic interests o and ST comes under which of the following?a) Fundamental Rightsc) Fundamental Duties	f weaker sections of the society, especially the SOb) Directive Principles of State Policyd) Fifth Schedule
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34.	Which one among of the subsequent isn't the Da) Socialistic Directivesc) Liberal Intellectual Directives	irective Principles of State Policy?b) Gandhian Directivesd) Intellectual Directives
35.	Who is the Present Vice President of India?a) Droupadi Murmuc) M. Venkaiah Naidu	b) Ramnath Kovindd) Jagdeep Dhankar
36.	With reference to the Constitution of India, whi a) The Prime Minister shall be appointed by the b) Council of Ministers are appointed by the Pr c) Council of Minister shall be collectively resp d) Ministers hold office during the pleasure of	ch of the following statement is not correct? e President ime Minister oonsible to Lok Sabha the President
37.	The Chancellor for all the Universities in the Sta) Chief Ministerc) Governor of the State	ate is b) Education Minister d) High Court Chief Justice
38.	What is the age limit to contest for Lok Sabha E a) 25 years b) 26 years	c) 24 years d) 30 years
39.	What is the age limit for Rajya Sabha contestan a) 30 years b) 35 years	t? c) 25 years d) 31 years
40.	Who is the present Lok Sabha Speaker? a) Birla b) Shri Birla	c) Om Birla d) GD Birla
	Version -	- D - 3 of 4
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41.	Which of the following writ is issued by the person from acting in an office to which he is a) Habeas corpus b) Prohibition	a Supreme Court if it sends an order to restrain a not entitled.b) Cestioraric) Cestiorarid) Quo warranto
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45.	 Which Fundamental Right ceased to be a Fur 44th Amendment of the Indian Constitution. a) Right to Property c) Right to Information 	adamental Right and became a Legal Right under theb) Right to Primary Educationd) Right to Life
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49.	In the Indian Constitution as per Fundamentaa) Right to Equalityc) Right against Exploitation	 l Rights, Abolition of Untouchability is a b) Right to Freedom of Religion d) Right to Constitutional Remedy
50.	Directive Principles of State policy is borrow a) Japan b) Ireland * * * * * * Version –	ed from which Country. c) America d) Russia * *



10.	A Prototype is a simp a) Test ideas	ble experimental mode b) Validate ideas	el of a c)	a proposed solution both	on used to, d) None of these
11.	What is your First maa) Draft	odel/design of a produ b) Rough Draft	ct ca c)	lled? Prototype	d) Practice Design
12.	The final step in the a) Test	Design process is to _ b) Define	c)	Ideate	d) Empathize
13.	was II a) Deep-Design	DEO's first expression b) Deep-Dive	of de c)	esign thinking. Deep-Structure	d) Study-Dive
14.	Frank Robinson defin a) Design thinking	ned and coined the ter b) Mind mapping	m. c)	MVP	d) Hypothesis
15.	Which of the below i a) Peprico has turned b) Air BnB avoided l c) Google has a 3 ste d) All of the above a	is incorrect? I Design Thinking into pankruptcy and turned p process to bring abo re correct	its s prof ut ne	trategy. itable using Desi w innovation	gn Thinking
16.	At what step do you a) Empathy	want to complete the l b) Prototype	POV- c)	-Point Of View? Define	d) Ideate
17.	The initial design bri a) Designer	ef iS provided by, b) User	c)	Both of them	d) Client
18.	What Element of use a) Interaction Design c) User Research	er Experience Design v	voulc b) d)	the design strate Experience strate Information Arch	egy fall under, egy nitecture
19.	When testing a new pdetect the main usabia) The more Personac) 10 Persons per Personal	prototype, how many p ility issues? the better prsona	peop b) d)	le do you need to 20 Persons per P Five Persons per	interview per Persona to ersona Persona
20.	 Readiness of the organization for strategic innovation means, a) Changing innovation process in the organization b) Ready for the change in the organization c) Ready for change in the capabilities of the organization d) All of the above 				
21.	What is the usual orc a) Try, Reflect, Prepa c) Try and Reflect	ler of problem solving are, Define	proc b) F d)	eess? Prepare, Try Defin Define, Prepare,	ne, Reflect Try, Reflect
22.	 Reframing a Design Challenge - a) Changes the Conceptual view point to an individual perspective b) Helps us come up with the Right Problem to solve. c) Challenges us to design to a marketing focus d) None of these 				
A.		Version	n A –	2 of 5	

- 23. Which of the following is true?
 - a) By Empathizing one can define a Problem Well, Conceive a creative solution resulting in break through innovation.
 - b) Empathy makes you a better human, but innovation requires out of the box thinking and not Empathy
 - c) Inventions are sudden Eureka moments and is not really part of the long-term Research or Exploration.
 - d) You become an innovator by Questioning the status Quo.
- 24. Malini is in the Ideate phase. What is her goal?
 - a) To Come up with one or two great ideas
 - b) To come up with us many ideas as possible, good and bad.
 - c) To test his best idea.
 - d) To figure out which problem he's going to solve
- 25. During which stage would you : start looking for a alternative ways of viewing the problem.
 - a) Prototype b) Define c) Ideate d) Empathize
- 26. Design Thinkers create low-fidelity prototypes to :
 - a) Test concepts quickly and cheaply with potential users.
 - b) Validate concepts for the market.
 - c) Build Production-Ready products.
 - d) Estimate the price of production
- **27.** Which of the following well known consulting firms are offering Design Thinking as a solution?
 - a) McKinsey & Co.
 - c) Bain & Co.

- b) BCGd) All of above
- 28. Design Thinking is sometimes visualized as a linear process, but it is actually :a) Impactfulb) Incapacitatingc) Intentionald) Iterative
- 29. Which of the following is NOT part of the idea-selection process in DT?a) Grouping Related concepts togetherc) Deliberatingb) Identifying selection criteriad) Prototyping
- **30.** Robert researches statistics about the average age of school dropouts. Which stage is he in?
 - a) Empathize
 - c) Ideate

b) Define problem statement d) Prototype

b) Marketing centric designs

- 31. Design thinking Approach leads to a) Technology centric designsc) People centric designs
 - e) i copie centrie designs

d) All of the above

- **32.** Design-Impacts the business a) True
- b) False
- **33.** Empathy is a) to understand people and the contexts of their use of a product
 - b) to know the way the product works
 - c) to imagine people's behavior in different contexts
 - d) None of these

Version A - 3 of 5

34. Design thinking encompasses a) Desirability b) Feasibility c) Viability d) All of these **35.** Which one of the following is not the mindset of a design thinker? a) Quick design b) Prototype refinement c) Coding d) Engineer product **36.** Which of the following is not the mindset of a Design Thinker? a) Make it b) Learn from Failure c) Self oriented d) Empathy 37. Where does the information for defining the problem in the define phase come from? b) The prototype stage a) The Terting stage d) The Empathize stage c) The Ideate stage 38. Crafting a Point Of View (POV) requires three key elements including all of these Except which? a) Design b) User c) Insight d) Need **39.** Who is the recommended group that you should test out the prototypes with? a) Your target customers b) People in your team c) Professional designers d) Experts **40.** Which is not one of the types of prototype of prototyping Mode 1? b) Vertical Prototype a) Horizontal prototype c) Diagonal prototype d) Domain prototype 41. Which of the following is the least true about open innovation? a) It accelerates development process b) It reduces cost of product development. c) It helps in creating product differentiation d) It helps to beat competition 42. People Centered Design methodology involves, a) A problem-solving approach for people that is linear and convergent. b) A problem-solving approach which is abstract and Results in making people by products. c) A problem solving approach for people that both diverges and converges. d) None of these **43.** User journey map helps you to, a) Understand the touch point and pain points of the user. b) iterate, iterate, iterate c) Identify the user's credibility, expertise and skills. d) None of these 44. What is the role of the Define Stage of design thinking? a) To define the parameters for a prototype. b) To define the audience, you're trying to Reach. c) To define the problem that needs to be solved. d) To define all of the ideas for solving a problem.

Version A - 4 of 5

- **45.** What is a problem statement in design thinking?
 - a) A written expression of problems from the prototype.
 - b) A written expression of the problem to be solved.
 - c) A written expression of problems inside the group.
 - d) A written expression of problems with target market.
- 46. What purpose does Point Of Veiw (POV) serve in design thinking?
 - a) It serves as the guide for developing the prototype.
 - b) It illustrates what your competitors are doing better.
 - c) It is used in the testing phase for receiving feedback.
 - d) It provides focus for the design team's brain storming.
- **47.** In this Point of View (POV) statement, which part is considered the insight? "Senior adults with arthrit is need Easy-Open bottles because they struggle to open childproof lids"
 - a) Because they struggle to open childproof lids.
 - b) Need easy-open bottles.
 - c) Senior citizens
 - d) None of these
- **48.** What is Point Of View (POV) in design thinking?
 - a) A Report from the design team about the product.
 - b) A Customer's opinion about interactions with you brand.
 - c) A written statement of a Customer's problem of need.
 - d) The opinion of the manager about how to brain storm.
- 49. Where do the insights in Point Of View (POV) in design thinking come from?
 - a) Researching other products on the market.
 - b) Interviewing the general Public on Social media.
 - c) Synthesizing the data that has been gathered
 - d) Developing ideas during brainstorming
- 50. People centered Design is
 - a) How the product behaves in the real context.
 - b) How a product works on the outside where a person comes into contact with it and has to use it.
 - c) All of the above
 - d) None of the above

Version A - 5 of 5





Question Paper Version : B

First Semester B.E./B.Tech. Degree Examination, Jan./Feb. 2023 Innovation & Design Thinking

Time: 1 hr.]

USN

[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.
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- 4. Darkening two circles for the same question makes the answer invalid.
- 5. Damaging/overwriting, using whiteners on the OMR sheets are strictly prohibited.
- 1. Which of the following is the least true about open innovation? a) It accelerates development process
 - b) It reduces cost of product development.
 - c) It helps in creating product differentiation
 - d) It helps to beat competition
- 2. People Centered Design methodology involves,
 - a) A problem-solving approach for people that is linear and convergent.
 - b) A problem-solving approach which is abstract and Results in making people by products.
 - c) A problem solving approach for people that both diverges and converges.
 - d) None of these
- 3. User journey map helps you to,a) Understand the touch point and pain points of the user.b) iterate, iterate, iterate
 - c) Identify the user's credibility, expertise and skills.
 - d) None of these
- 4. What is the role of the Define Stage of design thinking?
 - a) To define the parameters for a prototype.
 - b) To define the audience, you're trying to Reach.
 - c) To define the problem that needs to be solved.
 - d) To define all of the ideas for solving a problem.
- 5. What is a problem statement in design thinking?
 - a) A written expression of problems from the prototype.
 - b) A written expression of the problem to be solved.
 - c) A written expression of problems inside the group.
 - d) A written expression of problems with target market.

Version B – 1 of 5

- 6. What purpose does Point Of Veiw (POV) serve in design thinking?
 - a) It serves as the guide for developing the prototype.
 - b) It illustrates what your competitors are doing better.
 - c) It is used in the testing phase for receiving feedback.
 - d) It provides focus for the design team's brain storming.
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 - a) Because they struggle to open childproof lids.
 - b) Need easy-open bottles.
 - c) Senior citizens
 - d) None of these
- 8. What is Point Of View (POV) in design thinking?
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 - b) A Customer's opinion about interactions with you brand.
 - c) A written statement of a Customer's problem of need.
 - d) The opinion of the manager about how to brain storm.
- 9. Where do the insights in Point Of View (POV) in design thinking come from?
 - a) Researching other products on the market.
 - b) Interviewing the general Public on Social media.
 - c) Synthesizing the data that has been gathered
 - d) Developing ideas during brainstorming
- 10. People centered Design is
 - a) How the product behaves in the real context.
 - b) How a product works on the outside where a person comes into contact with it and has to use it.
 - c) All of the above
 - d) None of the above
- 11. Design thinking Approach leads to
 - a) Technology centric designs
 - c) People centric designs
- b) Marketing centric designs
- d) All of the above

b) False

- 12. Design-Impacts the businessa) True
- 13. Empathy is
 - a) to understand people and the contexts of their use of a product
 - b) to know the way the product works
 - c) to imagine people's behavior in different contexts
 - d) None of these
- 14. Design thinking encompasses
 - a) Desirability
 - c) Viability
- b) Feasibility
- d) All of these
- 15. Which one of the following is not the mindset of a design thinker?
 - a) Quick designc) Coding

- b) Prototype refinementd) Engineer product
- Version B 2 of 5

16.	Which of the following is not the mine a) Make it c) Self oriented	dset of a Design Thinker? b) Learn from Failure d) Empathy			
17.	Where does the information for defining the problem in the define phase come from?a) The Terting stageb) The prototype stagec) The Ideate staged) The Empathize stage				
18.	Crafting a Point Of View (POV) require which? a) Design b) User	ires three key elements includ c) Insight	ing all of these Except d) Need		
19.	Who is the recommended group that y a) Your target customers c) Professional designers	you should test out the prototy b) People in your team d) Experts	pes with?		
20.	Which is not one of the types of proto a) Horizontal prototype c) Diagonal prototype	type of prototyping Mode 1?b) Vertical Prototyped) Domain prototype			
21.	What is your First model/design of a p a) Draft b) Rough Draft	oroduct called? c) Prototype	d) Practice Design		
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23.	was IDEO's first express a) Deep-Design b) Deep-Dive	ssion of design thinking. c) Deep-Structure	d) Study-Dive		
24.	Frank Robinson defined and coined th a) Design thinking b) Mind mapping	ng c) MVP	d) Hypothesis		
25.	 Which of the below is incorrect? a) Peprico has turned Design Thinking into its strategy. b) Air BnB avoided bankruptcy and turned profitable using Design Thinking c) Google has a 3 step process to bring about new innovation d) All of the above are correct 				
26.	At what step do you want to complete a) Empathy b) Prototype	the POV-Point Of View? c) Define	d) Ideate		
27.	The initial design brief iS provided by a) Designer b) User	, c) Both of them	d) Client		
28.	What Element of user Experience Des a) Interaction Design c) User Research	ign would the design strategy b) Experience strategy d) Information Archite	fall under,		
29.	When testing a new prototype, how m detect the main usability issues?a) The more Persona the betterc) 10 Persons per Persona	any people do you need to in b) 20 Persons per Pers d) Five Persons per Pe	terview per Persona to ona rsona		
Version B – 3 of 5					

30.	 Readiness of the organization for strategic innovation means, a) Changing innovation process in the organization b) Ready for the change in the organization c) Ready for change in the capabilities of the organization d) All of the above 			
31.	What is design consideral a) Products	derations are not linke b) Services	ed with? c) Business	d) Computers
32.	To Empathize, one h a) Observe	as to, b) Engage	c) Listen	d) All of the above
33.	a) Aural	ing is the most competed b) Visual	lling type of story, c) Textual	d) All of these
34.	Design thinker in an a) People	organization are, b) Employees	c) Managers	d) All of these
35.	Comprehensive princ a) Relationship	ciple of Design thinkin b) Collaboration	ng does not include c) Communication	d) Suppliers
36.	In design, where do from? a) The Design Stage c) The Define stage	es the information us	ed to put together a prob) The Ideate Staged) The testing stage	oblem statement come
37.	MVP stands for, a) Minimum Viable j c) Most viable produ	product ct	b) Maximum Viable Id) None of these	Product
38.	Journey mapping is a a) Path	llso called b) Experience	mapping. c) Conduct	d) Feedback
39.	Which of the followi a) Co-creation	ng are NOT tools of D b) Prototyping	Design Thinking? c) Mind mapping	d) Online marketing
40.	A Prototype is a simp a) Test ideas	ole experimental mode b) Validate ideas	el of a proposed solution c) both	used to, d) None of these
41.	What is the usual ord a) Try, Reflect, Prepa	ler of problem solving are. Define	process? b) Prepare. Try Define.	Reflect
42.	 c) Try and Reflect d) Define, Prepare, Try, Reflect a) Changes the Conceptual view point to an individual perspective b) Helps us come up with the Right Problem to solve. c) Challenges us to design to a marketing focus d) None of these 			
	-MI			
		Version	n B – 4 of 5	

- **43.** Which of the following is true?
 - a) By Empathizing one can define a Problem Well, Conceive a creative solution resulting in break through innovation.
 - b) Empathy makes you a better human, but innovation requires out of the box thinking and not Empathy
 - c) Inventions are sudden Eureka moments and is not really part of the long-term Research or Exploration.
 - d) You become an innovator by Questioning the status Quo.
- 44. Malini is in the Ideate phase. What is her goal?
 - a) To Come up with one or two great ideas
 - b) To come up with us many ideas as possible, good and bad.
 - c) To test his best idea.
 - d) To figure out which problem he's going to solve
- **45.** During which stage would you : start looking for a alternative ways of viewing the problem.
 - a) Prototype

c) Ideate

d) Empathize

- **46.** Design Thinkers create low-fidelity prototypes to :
 - a) Test concepts quickly and cheaply with potential users.

b) Define

- b) Validate concepts for the market.
- c) Build Production-Ready products.
- d) Estimate the price of production
- **47.** Which of the following well known consulting firms are offering Design Thinking as a solution?
 - a) McKinsey & Co.
 - c) Bain & Co.

a) Empathize c) Ideate

- b) BCGd) All of above
- 48. Design Thinking is sometimes visualized as a linear process, but it is actually :a) Impactfulb) Incapacitatingc) Intentionald) Iterative
- 49. Which of the following is NOT part of the idea-selection process in DT?a) Grouping Related concepts togetherb) Identifying selection criteriad) Prototyping
- **50.** Robert researches statistics about the average age of school dropouts. Which stage is he in?
 - b) Define problem statementd) Prototype

Version B – 5 of 5





USN Question Paper Version : C

First Semester B.E./B.Tech. Degree Examination, Jan./Feb. 2023 Innovation & Design Thinking

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.
- What is the usual order of problem solving process?
 a) Try, Reflect, Prepare, Define
 b) Prepare, Try Define, Reflect
 c) Try and Reflect
 d) Define, Prepare, Try, Reflect

2. Reframing a Design Challenge -

- a) Changes the Conceptual view point to an individual perspective
- b) Helps us come up with the Right Problem to solve.
- c) Challenges us to design to a marketing focus
- d) None of these
- 3. Which of the following is true?
 - a) By Empathizing one can define a Problem Well, Conceive a creative solution resulting in break through innovation.
 - b) Empathy makes you a better human, but innovation requires out of the box thinking and not Empathy
 - c) Inventions are sudden Eureka moments and is not really part of the long-term Research or Exploration.
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 - a) To Come up with one or two great ideas
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 - c) To test his best idea.
 - d) To figure out which problem he's going to solve
- 5. During which stage would you : start looking for a alternative ways of viewing the problem.a) Prototypeb) Definec) Ideated) Empathize

e b) Define c) Ideate d) Empathize Version C – 1 of 5

- 6. Design Thinkers create low-fidelity prototypes to :
 - a) Test concepts quickly and cheaply with potential users
 - b) Validate concepts for the market.
 - c) Build Production-Ready products.
 - d) Estimate the price of production
- Which of the following well known consulting firms are offering Design Thinking as a 7. solution?
 - a) McKinsey & Co. c) Bain & Co.

- b) BCG d) All of above
- Design Thinking is sometimes visualized as a linear process, but it is actually : 8. b) Incapacitating c) Intentional a) Impactful d) Iterative
- Which of the following is NOT part of the idea-selection process in DT? 9. a) Grouping Related concepts together b) Identifying selection criteria d) Prototyping c) Deliberating
- 10. Robert researches statistics about the average age of school dropouts. Which stage is he in?
 - a) Empathize

c) Ideate

b) Define problem statement

d) Prototype

- 11. Which of the following is the least true about open innovation? a) It accelerates development process
 - b) It reduces cost of product development.
 - c) It helps in creating product differentiation
 - d) It helps to beat competition
- 12. People Centered Design methodology involves,
 - a) A problem-solving approach for people that is linear and convergent.
 - b) A problem-solving approach which is abstract and Results in making people by products.
 - c) A problem solving approach for people that both diverges and converges.
 - d) None of these
- 13. User journey map helps you to,
 - a) Understand the touch point and pain points of the user.
 - b) iterate, iterate, iterate
 - c) Identify the user's credibility, expertise and skills.
 - d) None of these
- 14. What is the role of the Define Stage of design thinking?
 - a) To define the parameters for a prototype.
 - b) To define the audience, you're trying to Reach.
 - c) To define the problem that needs to be solved.
 - d) To define all of the ideas for solving a problem.
- **15.** What is a problem statement in design thinking?
 - a) A written expression of problems from the prototype.
 - b) A written expression of the problem to be solved.
 - c) A written expression of problems inside the group.
 - d) A written expression of problems with target market.

Version C - 2 of 5

- 16. What purpose does Point Of Veiw (POV) serve in design thinking?
 - a) It serves as the guide for developing the prototype.
 - b) It illustrates what your competitors are doing better.
 - c) It is used in the testing phase for receiving feedback.
 - d) It provides focus for the design team's brain storming.
- 17. In this Point of View (POV) statement, which part is considered the insight? "Senior adults with arthrit is need Easy-Open bottles because they struggle to open childproof lids"
 - a) Because they struggle to open childproof lids.
 - b) Need easy-open bottles.
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 - d) None of these
- **18.** What is Point Of View (POV) in design thinking?
 - a) A Report from the design team about the product.
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 - c) A written statement of a Customer's problem of need.
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- **19.** Where do the insights in Point Of View (POV) in design thinking come from?
 - a) Researching other products on the market.
 - b) Interviewing the general Public on Social media.
 - c) Synthesizing the data that has been gathered
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- 20. People centered Design is
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- 21. Design thinking Approach leads to
 - a) Technology centric designs
 - c) People centric designs
- b) Marketing centric designs
- d) All of the above
- 22. Design-Impacts the busines a) True
- b) False

- 23. Empathy is
 - a) to understand people and the contexts of their use of a product
 - b) to know the way the product works
 - c) to imagine people's behavior in different contexts
 - d) None of these
- 24. Design thinking encompasses
 - a) Desirability
 - c) Viability

- b) Feasibilityd) All of these
- 25. Which one of the following is not the mindset of a design thinker?a) Quick designb) Prototype refineme
 - c) Coding

b) Prototype refinement
 d) Engineer product
 Version C - 3 of 5

26.	Which of the following is not the mindse a) Make it c) Self oriented	et of a Design Thinker? b) Learn from Failure d) Empathy			
27.	Where does the information for defining a) The Terting stage c) The Ideate stage	the problem in the define b) The prototype stage d) The Empathize stag	phase come from? e ge		
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30.	Which is not one of the types of prototyp a) Horizontal prototype c) Diagonal prototype	be of prototyping Mode 1?b) Vertical Prototyped) Domain prototype			
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37.	The initial design brief iS provided by, a) Designer b) User	c) Both of them	d) Client		
38.	What Element of user Experience Desig a) Interaction Design c) User Research	n would the design strategy b) Experience strategy d) Information Archite	y fall under, / ecture		
39.	When testing a new prototype, how man detect the main usability issues?a) The more Persona the betterc) 10 Persons per Persona	b) 20 Persons per Persons per Person) Five Persons per	terview per Persona to sona ersona		
	Vers	ion C – 4 of 5			
, k					

40.	 Readiness of the organization for strategic innovation means, a) Changing innovation process in the organization b) Ready for the change in the organization c) Ready for change in the capabilities of the organization d) All of the above 				
41.	What is design consi a) Products	derations are not linke b) Services	ed with? c) Business	d) Computers	
42.	To Empathize, one h a) Observe	as to, b) Engage	c) Listen	d) All of the above	
43.	story tell	ing is the most compe	lling type of story,		
	a) Aural	b) Visual	c) Textual	d) All of these	
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48.	Journey mapping is a a) Path	ilso called b) Experience	mapping. c) Conduct	d) Feedback	
49.	Which of the followi a) Co-creation	ng are NOT tools of I b) Prototyping	Design Thinking? c) Mind mapping	d) Online marketing	
50.	A Prototype is a simp a) Test ideas	ple experimental mode b) Validate ideas * * *	el of a proposed solution c) both * * *	used to, d) None of these	
		Version (C – 5 of 5		





8.	Crafting a Point Of V which?	iew (POV) requires th	ree	key elements includ	ing all of these Except
	a) Design	b) User	c)	Insight	d) Need
9.	Who is the recomment a) Your target custom c) Professional design	nded group that you sho ners ners	ouk b) d)	l test out the prototy People in your team Experts	pes with?
10.	Which is not one of th a) Horizontal prototype c) Diagonal prototype	ne types of prototype o be	f pr b) d)	ototyping Mode 1? Vertical Prototype Domain prototype	
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, end		Version	D -	- 2 of 5	

- 22. People Centered Design methodology involves,
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 - c) Synthesizing the data that has been gathered
 - d) Developing ideas during brainstorming

Version D - 3 of 5

- **30.** People centered Design is
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 - c) All of the above
 - d) None of the above
- **31.** What is the usual order of problem solving process?
 - a) Try, Reflect, Prepare, Define
- b) Prepare, Try Define, Reflect

c) Try and Reflect

- d) Define, Prepare, Try, Reflect
- **32.** Reframing a Design Challenge
 - a) Changes the Conceptual view point to an individual perspective
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 - d) None of these
- **33.** Which of the following is true?
 - a) By Empathizing one can define a Problem Well, Conceive a creative solution resulting in break through innovation.
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 - c) Inventions are sudden Eureka moments and is not really part of the long-term Research or Exploration.
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- 35. During which stage would you : start looking for a alternative ways of viewing the problem.
 - a) Prototype b) Define
- c) Ideate

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- 36. Design Thinkers create low-fidelity prototypes to :
 - a) Test concepts quickly and cheaply with potential users.
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 - c) Build Production-Ready products.
 - d) Estimate the price of production
- 37. Which of the following well known consulting firms are offering Design Thinking as a solution?

a) McKinsey & Co.		b) BCG
c) Bain & Co.	S.	d) All of above

38. Design Thinking is sometimes visualized as a linear process, but it is actually :

a) Impactful b) Incapacitating c) Intentional d) Iterative

Version D - 4 of 5
39.	Which of the following is NOT part of the a) Grouping Related concepts together c) Deliberating	e idea-selection process in DT? b) Identifying selection criteria d) Prototyping
40.	Robert researches statistics about the ave	rage age of school dropouts. Which stage is he
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50.	Readiness of the organization for strategic a) Changing innovation process in the org b) Ready for the change in the organization c) Ready for change in the capabilities of d) All of the above **	<pre>innovation means, anization n the organization * * *</pre>
	Version	D – 5 of 5





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

Time: 3 hrs.

Max. Marks: 100

			3.6	т	C
	-	Module – 1	M	L	C
Q.1	a.	With usual notations prove that $tan \phi = r \frac{d\theta}{dr}$.	6	L2	CO1
	b.	Find the angle between the curves $r = 6\cos\theta$ and $r = 2(1 + \cos\theta)$.	7	L2	CO1
	c.	For the curve $r^m = a^m \cos m\theta$, prove that $\rho = \frac{a^m}{1}$.	7	L2	CO1
		$(1+m)r^{m-1}$			
		OR			
Q.2	a.	Derive an expression for the radius of curvature for a Cartesian curve.	7	L2	CO1
	b.	Find the Pedal equation of the curve $\frac{2a}{r} = 1 + \cos\theta$.	8	L2	CO1
	c.	Using Modern mathematical tool. Write a program / code to plot the sine and cosine curve.	5	L3	CO5
		Module – 2		1	
Q.3	a.	Expand $\sqrt{1 + \sin 2x}$ by using Maclaurin's series up to the term containing x^4 .	6	L2	CO1
	b.	If $u = f(r, s, t)$ and $r = \frac{x}{y}$, $s = \frac{y}{z}$, $t = \frac{z}{x}$. Show that, $x \frac{\partial u}{\partial x} + y \frac{\partial u}{\partial y} + z \frac{\partial u}{\partial z} = 0$.	7	L2	CO1
	c.	Examine the function $f(x, y) = x^3 + y^3 = 3x - 12y + 20$ for extreme values	7	L3	CO1
		Dx a mine the function $T(x, y) = x + y + 5x + 12y + 20$ for extreme values.		_	
			7	12	COI
Q.4	a.	If $z = e^{ax+by}f(ax - by)$ then prove that $b\frac{\partial z}{\partial x} + a\frac{\partial z}{\partial y} = 2abz$.	/	LZ	COI
	b.	If $u = x^{2} + y^{2} + z^{2}$, $v = xy + yz + zx$, $w = x + y + z$ find $\frac{\partial(u, v, w)}{\partial(x, y, z)}$.	8	L2	CO1
	c.	Using Modern mathematical tool write a program/code to evaluate	5	L3	CO5
		$\lim_{x \to \infty} \left(1 + \frac{1}{x} \right)^x.$			
		Module – 3			1
Q.5	a.	Solve : $\frac{dy}{dx} + y \tan x = y^3 \sec x$.	6	L2	CO2
	b.	Find the orthogonal trajectories of the family of the curves $r^n = a^n \sin n\theta$.	7	L3	CO2
	1	$(dy)^2$ () dy	7	L2	CO2
	c.	Solve: $xy\left(\frac{dy}{dx}\right) - (x^2 + y^2)\frac{dy}{dx} + xy = 0$.			
		OR			
Q.6	a.	Solve: $(y^4 + 2y)dx + (xy^3 + 2y^4 - 4x)dy = 0.$	6	L2	CO3
	b.	A body in air at 25°C cools from 100°C to 75°C in one minute. Find the	7	L3	CO2
		temperature of the body at the End of 3 minutes.			

BMATC101

	c.	Find the general solution of the equation $x^2(y - px) = p^2y$ by reducing into	7	L2	CO3
		Clairaut's form using the substitution $X = x^2$, $Y = y^2$.			
	1	Module – 4		I	I
Q.7	a.	Solve : $(4D^4 - 8D^3 - 7D^2 + 11D + 6)y = 0$.	6	L2	CO3
	b.	Solve : $(D^2 + 5D + 6)y = \cos x + e^{-2x}$.	7	L2	CO3
	c.	Solve by the method of variation of parameters $\frac{d^2y}{dx^2} + a^2y = \sec ax$.	7	L2	CO3
		OR			
		$d^2 y = dy$	6	L2	CO3
Q.8	a.	Solve: $\frac{d^2y}{dx^2} - 4\frac{dy}{dx} + 5y = 0$ subject to $\frac{dy}{dx} = 2$, $y = 1$ at $x = 0$.	_		~~~
	b.	Solve : $\frac{d^2y}{dx^2} + 4y = x^2 + \cos 2x$.	7	L2	CO3
	c.	Solve: $x^{3} \frac{d^{3}y}{dx^{3}} + 3x^{2} \frac{d^{2}y}{dx^{2}} + x \frac{dy}{dx} + 8y = 65\cos(\log x).$	7	L2	CO3
	L	Module – 5	1	1	1
Q.9	a.	Find the rank of the matrix	6	L2	CO4
	b.	Solve the system of equations by Gauss-Jordan method $x + y + z = 9$,	7	L2	CO4
		2x + y - z = 0, $2x + 5y + 7z = 52$.			
	c.	Using Rayleigh's power method find the dominant eigen value and the corresponding eigen vector of $\begin{bmatrix} 6 & -2 & 2 \\ -2 & 3 & -1 \\ 2 & -1 & 3 \end{bmatrix}$ by taking $\begin{bmatrix} 1 & 1 & 1 \end{bmatrix}^1$ as the initial eigen vector. Carryout 6 iterations.	7	L3	CO4
		ØR			
0.10	a.	Find the rank of the matrix.	7	L2	CO4
		91 92 93 94 95 92 93 94 95 96 93 94 95 96 97 94 95 96 97 98 95 96 97 98 99			
	b.	Solve the system of equations, $20x + y - 2z = 17$, $3x + 20y - z = -18$,	8	L2	CO 4
		2x-3y+20z=25. Using Gauss-Seidel method, taking $(0, 0, 0)$ as an			
		initial approximation (carry out 3 iterations).			
	c.	Using modern mathematical tool write a program/code to test the	5	L3	CO5
		consistency of the equations. $\mathbf{x} + 2\mathbf{x} - \mathbf{x} = 1$ $2\mathbf{x} + \mathbf{x} + 5\mathbf{y} = 2$ $3\mathbf{x} + 3\mathbf{y} + 4\mathbf{y} = 1$			
		$x_1 + 2x_2 - x_3 - 1, 2x_1 + x_2 + 3x_3 - 2, 3x_1 + 3x_2 + 4x_3 - 1.$			

		2 of 2			



Mathematics - I for Electrical and Electronics Engineering Stream

Time: 3 hrs.

Max. Marks: 100

		Module – 1	Μ	L	С
Q.1	a.	If ϕ is the angle between the radius vector and tangent to the polar curve	6	L2	CO1
		$r = t(\theta)$ prove that $tan \phi = r \frac{d\theta}{d\theta}$			
		dr			
	<u> </u>		7	TO	<u>CO1</u>
	D.	Find the angle between the curves $r = \sin \theta + \cos \theta$ and $r = 2\sin \theta$.	/	L2	COI
		Γ 1.1 Γ $(3a 3a)$			
	c.	Find the radius of curvature of the curve $x^2 + y^2 = 3axy at \left(\frac{1}{2}, \frac{1}{2}\right)$.	7	L2	CO1
		OR			•
Q.2	a.	Prove that the polar curves $r = a(1 + \cos \theta)$ and $r = b(1 - \cos \theta)$ intersect	6	L2	CO1
		orthogonally.			
	b.	Find the radius of curvature of the curve $y = 4 \operatorname{Sin} x - \operatorname{Sin} 2x$ at $x = \frac{\pi}{2}$.	7	тэ	COL
			/	LZ	COI
	-	Using Modern mathematical tool, write a program / code to plot the curve			
	c.	$r = 2 C_{05} 2 A $	7	13	CO5
		$ 1-2 \cos 2 0 $.	<i>'</i>	LJ	005
		Module – 2	I	1	
Q.3	a.	Expand $f(x) = \cos x + \sin x$ in a Maclaurin series upto the term involving	6	L2	CO2
		x ⁵ .			
	h	If $U = \log(\tan y + \tan y + \tan z)$, show that			
	υ.	$\frac{110}{20}$ $\frac{100}{20}$ $\frac{100}{20}$ $\frac{100}{20}$ $\frac{100}{20}$			
		$\sin 2x \frac{\partial u}{\partial x} + \sin 2y \frac{\partial u}{\partial x} + \sin 2z \frac{\partial u}{\partial z} = 2.$	7	L2	CO2
		UX OY UZ	,		001
		$\mathbf{r} = 2 + 2 + 2$			
	c.	If $u = x^2 + y^2 + z^2$, $v = xy + yz + zx$, $w = x + y + z$, find $\frac{\partial (x, y, z)}{\partial (x, y, z)}$.	7	L2	CO2
		OR			
		$(x + 1x + x + 1x)^{\frac{1}{x}}$			
Q.4	a.	Evaluate $\lim_{x \to 0} \left \frac{a^{x} + b^{x} + c^{x} + d^{x}}{a^{x}} \right ^{x}$.	6	L1	CO2
		$x \rightarrow 0$			
			-	1.2	<u> </u>
	b.	If V = f(x-y, y-z', z-x), show that $\frac{\partial V}{\partial x} + \frac{\partial V}{\partial x} + \frac{\partial V}{\partial x} = 0.$	7	L2	02
		$\partial \mathbf{x} \partial \mathbf{y} \partial \mathbf{z}$			
		Using modern mathematics tool write a program / code to show that			
	· ·	$U_{wr} + U_{wr} = 0$ Given $U_2 = e^x (x \cos y - y \sin y)$	7	13	CO2
L		$1 \circ_{XX} \circ \circ_{YY} \circ $	· ·	13	

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		Module – 3			
Q.5	a.	Solve $(5x^4 + 3x^2y^2 - 2xy^3) dx + (2x^3y - 3x^2y^2 - 5y^4) dy = 0.$	6	L2	CO3
	b.	Find the Orthogonal trajectory of the family of confocal ellipses			
		$\frac{x^2}{y^2} + \frac{y^2}{y^2} = 1$ where λ is a parameter	7	L3	CO3
		$a^2 + b^2 + \lambda^{-1}$, where λ is a parameter.			
	c.	Solve $xyp^2 - (x^2 + y^2) p + xy = 0.$	7	L2	CO3
		OR			
0.6	a	Solve dy , y ten $y = y^2 \cos y$	6	L2	CO3
X .0	a. 	Solve $\frac{dx}{dx}$ + y tail x - y see x.			
	b.	Find the current i at any time t, if initially there is no current in the circuit			
		governed by the differentiate equation $L\left(\frac{di}{dt}\right) + Ri = 200$ Sin 300t, when			
		L = 0.05 and $R = 100$.	7	L3	CO3
		Find the convertex of the equation $(a_1, a_2) = -\frac{2}{2}a_1 + a_2 + \frac{1}{2}a_2 + \frac{1}{2}a_2 + \frac{1}{2}a_1 + \frac{1}{2}a_2 + \frac{1}{2}a_2 + \frac{1}{2}a_1 + \frac{1}{2}a_2 + \frac{1}{2}a_2 + \frac{1}{2}a_1 + \frac{1}{2}a_2 + \frac{1}{2}a_2 + \frac{1}{2}a_1 + \frac{1}{2}a_2 + \frac{1}{2}a_1 + \frac{1}{2}a_2 + \frac{1}{2}a_1 + \frac{1}{2}a_2 + \frac{1}{2}a_2 + \frac{1}{2}a_2 + \frac{1}{2}a_1 + \frac{1}{2}a_2 + $			
	с.	into Clairaut's form, taking the substitution $X = x^2$, $Y = y^2$.	7	L2	CO3
					-
	1	$\frac{\text{Module} - 4}{1 \sqrt{x}}$	6	L2	CO 4
Q.7	a.	Evaluate $\int \int xy dy dx$, by changing the order of integration.			001
	,	Evaluate $\int_{-\infty}^{1} \int_{-\infty}^{z} \int_{-\infty}^{x+z} (x + y + z) dy dy dz$.	a : - 1
	D.	$ \int_{-p} \int_{0} \int_{x-z} \int_{x-z$	7	L2	CO4
		T(m)(n)			
	c.	Prove that $\beta(m, n) = \frac{\Gamma(m)(m)}{\Gamma(m+n)}$.	7	L1	CO4
Q.8	a.	Evaluate $\int_{0}^{1} \int_{0}^{y^{1-y}} (x^2 + y^2) dx dy$ by changing to polar coordinates.	6	L2	CO4
	b.	Using double integration, find the area bounded by the parabolas $y^2 = 4ax$			
		and $x^2 = 4ay$.	7	L3	CO4
		7/2 7/2 10			
	c.	Show that $\int_{\Omega} \sqrt{\sin \theta} d\theta \times \int_{\Omega} \frac{d\theta}{\sqrt{\sin \theta}} = \pi$ by using Beta and Gamma	7	12	CO4
		functions.			UU4
		Modulo 5			
Q.9	a.	Find the rank of the matrix	6	L2	CO5
• • ••			_		
		$\begin{bmatrix} 8 & 4 & 3 & -1 \end{bmatrix}$			
		2 of 3			

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	b.	Solve the system of linear equations by Gauss – Jordan method.			
		x + y + z = 11 3x - y + 2z = 12	7	L2	CO5
		$2\mathbf{x} + \mathbf{y} - \mathbf{z} = 3.$			
	c.	Determine the largest eigen value and the corresponding eigen vector of the			
		$\begin{bmatrix} 2 & -1 & 0 \end{bmatrix}$			
		A = $\begin{vmatrix} -1 & 2 & -1 \end{vmatrix}$ by using Power method with initial eigen vector			
		$\begin{bmatrix} 0 & -1 & 2 \end{bmatrix}$ X ₀ = $\begin{bmatrix} 1 & 0 & 0 \end{bmatrix}^{T}$. Carry out six iterations	7	L2	CO5
Q.10	a.	For what values of λ and μ the system of equations	6	L2	CO5
		$x + y + z = 6$, $x + 2y + 3z = 10$ and $x + 2y + \lambda z = \mu$ may have			
		1) Unique solution (1) Infinite number of solution (11) No solution.			
	b.	Solve by using Gauss elimination method the equations 3x + y = 7 = 3; $2x + 8y + 7 = 5$; $x - 2y + 97 = 8$	7	12	CO5
		3x + y - z - 3, $2x - 3y + z - 3$, $x - 2y + 9z - 3$.	/		03
	c.	Using modern mathematical tool, write a program / code to find the largest eigen value of			
			-	12	C05
		$A = \begin{bmatrix} 1 & 5 & 1 \end{bmatrix}$ by power method.	/	LJ	05
	1			1	
		SU. St. St.			

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First Semester B.E./B.Tech. Degree Examination, Jan./Feb. 2023 Mathematics – I for Mechanical Engineering Stream

Time: 3 hrs.

Max. Marks: 100

		Module – 1	Μ	L	С
Q.1	a.	With usual notations prove that $\tan \phi = \frac{rd\theta}{dr}$.	6	L2	CO1
	b.	Find the pedal equation of $\mathbf{r}^n = \mathbf{a}^n \cos \theta$	7	L2	CO1
	c.	Find the angle of intersection of the curves $r = a(1 + \cos \theta)$, $r = b(1 - \cos \theta)$	7	L2	CO1
		OR			
Q.2	a.	Derive the radius of curvature for the Cartesian curve.	7	L2	CO1
	b.	Find the angle between the polar curves $r = a \log \theta$, $r = \frac{a}{\log \theta}$	8	L2	CO1
	c.	Using modern mathematical tool write a program/code to plot sine and cosine curves.	5	L3	CO5
		Module – 2			
Q.3	a.	Expand $\sqrt{1 + \sin 2x}$ by Maclaurin's series upto the terms containing x^4 .	6	L2	CO2
	b.	If $U = f(x - y, y - z, z - x)$, show that $\frac{\partial U}{\partial x} + \frac{\partial U}{\partial y} + \frac{\partial U}{\partial z} = 0$.	7	L2	CO2
	c.	Examine the function $f(x, y) = x^3 + 3xy^3 + 15x^2 - 15y^2 + 72x$ for extreme values.	7	L3	CO2
		OR	1		
Q.4	a.	Evaluate $\lim_{x \to 0} \left(\frac{a^x + b^x + c^x + d^x}{4} \right)^{\frac{1}{x}}.$	6	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 to write a program/code to evaluate $\lim_{x \to \infty} \left(1 + \frac{1}{x}\right)^x$ Modulo 3	7	L3	CO5
		Midule – 5			
Q.5	a.	Solve $\frac{dy}{dx} + \frac{y\cos x + \sin y + y}{\sin x + x\cos y + x} = 0.$	6	L2	CO3
	b.	If the air is maintained at 30°C and the temperature of the body cools from 80°C to 60°C in 12 minutes, Find the temperature of the body after 24 minutes.	7	L3	CO3
	c.	Find the general and singular solutions of $xp^2 + xp - yp + 1 - y = 0$.	7	L2	CO3

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		OR			
Q.6	a.	Solve $\frac{dy}{dx} + x \sin 2y = x^3 \cos^2 y.$	6	L2	CO3
	b.	Show that the parabola $y^2 = 4a(x + a)$ is self orthogonal.	7	L3	CO3
	c.	Solve $xyp^2 - (x^2 + y^2) p + xy = 0$.	7	L2	CO3
		Module – 4			
Q.7	a.	Solve $(D^4 - 4D^3 + 8D^2 - 8D + 4) y = 0.$	6	L2	CO3
	b.	Solve $(D^2 - 6D + 9)y = 6e^{3x} + 7e^{-2x} - \log 2$.	7	L2	CO3
	c.	Solve by variation of parameters $(D^2 + 1) y = \text{Sec } x$.	7	L2	CO3
	I	OR		r	
Q.8	a.	Solve $(D^2 - 4D + 13) y = \cos 2x$.	6	L2	CO3
	b.	Solve $y'' + 3y' + 2y = 12x^2$.	7	L2	CO3
	c.	Solve $(x^2)y'' - xy' + y = \log x$.	7	L2	CO3
		Module – 5			
Q.9	a.	Find the rank of the matrix $\begin{bmatrix} 1 & 2 & 3 & 1 \\ 2 & 1 & -1 & 0 \\ 3 & 3 & 2 & 1 \\ 2 & 4 & 6 & 2 \end{bmatrix}$	6	L2	CO4
	b.	For what values λ and μ the system equations, $2x + 3y + 5z = 9$, $7x + 3y - 2z = 8$, $2x + 3y + \lambda z = \mu$, has i) No solution ii) a unique solution iii) infinite number of solutions.	7	L2	CO4
	c.	Solve the system of equations using Gauss Seidel method by taking $(0, 0, 0)$ as an initial conditions 10x + y + z = 12, $x + 10y + z = 12$, $x + y + 10x = 12$.	7	L2	CO4
0.10	_	$\frac{OR}{12}$			
Q.10	а.	Using Gauss – Jordon method, solve $x + y + z = 11$, $5x - y + 2z = 12$, 2x + y - z = 3	7	L2	CO4
	b.	Using Rayleigh's power method find the dominant eigen value and the corresponding eigen vector of $\begin{bmatrix} 2 & -1 & 0 \\ -1 & 2 & -1 \\ 0 & -1 & 2 \end{bmatrix}$ by taking $\begin{bmatrix} 1 & 0 & 0 \end{bmatrix}^T$ as the initial eigen vector. [Carry out 6 iterations].	8	L2	CO4
	c.	Using modern mathematical tool write a program/code to test the consistency of the equations $x + 2y - z = 1$, $2x + y + 4x = 2$, $3x + 3y + 4z = 1$.	5	L3	CO5
		2 of 2			



Mathematics – I for Computer Science Engineering Stream

Time: 3 hrs.

Max. Marks: 100

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	<u> </u>	Niodule – 1	IVI	L	C
Q.1	a.	With usual notations, prove that $\tan \phi = r \frac{d\theta}{d\gamma}$.	6	L2	CO1
	b.	Find the angle of intersection between the curves $\gamma = \frac{a\theta}{1+\theta}$, $\gamma = \frac{a}{1+\theta^2}$.	7	L2	CO1
	c.	Find radius of curvature of the curve $y = a \log \sec \left(\frac{x}{a}\right)$ at any point (x, y).	7	L2	CO1
		OR			
Q.2	a.	With usual notations prove that $\frac{1}{p^2} = \frac{1}{r^2} + \frac{1}{r^4} \left(\frac{dr}{d\theta}\right)^2$.	8	L2	CO1
	b.	Find the radius of the curvature of the curve $r = a(1 + \cos\theta)$.	7	L2	CO1
	c.	Using modern mathematical tool write a program/code to plot the Sine and Cosine curve.	5	L3	CO5
		Module – 2			
Q.3	а.	Using Maclaurin's series prove that $\sqrt{1+\sin 2x} = 1 + x - \frac{x^2}{2!} - \frac{x^3}{3!} + \frac{x^4}{4!} + \dots$	6	L2	CO1
	b.	If Z = e^{ax+by} f(ax-by), prove that $b\frac{\partial z}{\partial x} + a\frac{\partial z}{\partial y} = 2abz$.	7	L2	CO1
	c.	Find the extreme values of the function $f(x, y) = x^3 + y^3 - 3x - 12y + 20$.	7	L3	CO1
		OR			
Q.4	a.	Evaluate $\lim_{x \to 0} \left(\frac{a^x + b^x + c^x + d^x}{4} \right)^{\frac{1}{x}}.$	8	L2	CO1
	b.	If $u = \frac{2yz}{x}$, $v = \frac{3xz}{y}$, $w = \frac{4xy}{z}$ find $J\left(\frac{u, v, w}{x, y, z}\right)$.	7	L2	CO1

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	c.	Using modern mathematical tool write a program code to evaluate	5	L3	CO5
		Lt $\left(1+\frac{1}{2}\right)^{x}$			
		$X \to \infty \begin{pmatrix} 1 & -\frac{1}{X} \end{pmatrix}$			
	1	Module – 3	1	1	
Q.5	a.	Solve $\frac{dy}{dx} + y \tan x = y^3 \sec x$.	6	L2	CO2
		dx			
	h	Find orthogonal trajectories of family of curves $r^n = a^n \cosh \theta$	7	13	<u> </u>
	υ.	The orthogonal trajectories of family of curves $\Gamma = a$ cosho.	/	13	002
	c.	Solve $x^2p^2 + 3xyp + 2y^2 = 0$.	7	L2	CO2
0(OR			CON
Q.0	a.	Solve $(x + y + x)dx + xydy = 0$.	0	L2	002
	b.	Find the general solution of the equation $(px - y)(py + x) = 2p$ by reducing			
		into Clairaut's form by taking the substitution $X = x^2$, $Y = y^2$.	7	L2	CO2
	c.	A 12 volts battery is connected to a series circuit in which the inductance is $\frac{1}{1}$			
		$\frac{1}{2}$ Henry and resistance is 10 ohms. Determine current I, if the initial			
		current is zero.	7	L3	CO2
		Module – 4	1		
Q.7	a.	i) Find the last digit in 13° .	6	L2	CO3
		11) Find the remainder when / ¹¹ is divided by 10.			
	b.	Find the solutions of the linear congruence $12x \equiv 6 \pmod{21}$.	7	L2	CO3
	c.	Find the general solution of linear Dio-phantine equation $70x + 112y = 168$.	7	L2	CO3
0.8	8.	Find the remainder when 14! Is divided by 17.	6	L2	CO3
2.0			Ŭ		
	b.	Find the solution of system of linear congruences			
		$7x + 3y \equiv 10 \pmod{16}$	_		
		$2\mathbf{x} + 5\mathbf{y} \equiv 9 \pmod{16}$	7	L2	CO3
		Solve $x = 3 \pmod{5}$, $x = 2 \pmod{6}$, $x = 4 \pmod{7}$ using Chinase remainder			
		theorem. $x = 2(1100, 0), x = 2(1100, 0), x = 4(1100, 7)$ using Chinese remainder	7	L3	CO3
		Module – 5		1	
0.0		Find the real of metric $\Lambda = \begin{bmatrix} 1 & 0 & 1 & 1 \end{bmatrix}$	6	12	COA
Q.9	a.	$\begin{bmatrix} \mathbf{F} \text{ ind the rank of matrix } \mathbf{A} = \begin{bmatrix} 3 & 1 & 0 & 2 \end{bmatrix}.$	U	112	004
		2 of 3			

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	h				
	υ.	Solve the system of equations by Gauss-Jordan method. x + y + z = 9; $2x + y - z = 0$; $2x + 5y + 7z = 52$.	7	L3	CO4
	C	Find the largest eigen value and the corresponding eigen vector of the			
		$\begin{bmatrix} 2 & -1 & 0 \end{bmatrix}$			
		matrix $A = \begin{bmatrix} -1 & 2 & -1 \end{bmatrix}$ taking $\begin{bmatrix} 1 & 1 & 1 \end{bmatrix}^T$ as initial eigen vector, using			
					~~.
		power method.	7	L3	CO4
0.40		OR	1	1	1
Q.10	a.	Find the values of λ and μ for which the system x + y + z = 6: x + 2y + 3z = 10: x + 2y + $\lambda z = \mu$ has i) Unique solution			
		ii) Infinitely many solutions iii) no solution.	8	L2	CO4
	h	Solve the following system of equations by Gauss-Elimination method			
	υ.	2x + y + 4z = 12, $4x + 11y - z = 33$, $8x - 3y + 2z = 20$.	7	L3	CO4
		Using modern mathematical tool write a program/code to test the			
	с.	consistency of the equations			
		x + 2y - z = 1, $2x + y + 4z = 2$, $3x + 3y + 4z = 1$.	5	L3	CO5
	4	Mit Mit AR AR MIT MIT			



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

Time: 3 hrs.

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Max. Marks: 100

		Module – 1	Μ	L	С
Q.1	a.	Explain the construction and working of a semiconductor laser with the help of energy level diagram.	8	L2	CO1
	b.	What is refractive index profile? Discuss three different types of optical fibres based on modes of propagation and refractive index profile.	7	L2	CO1
	c.	The angle of acceptance of an optical fibre is 30° when kept in air. Find the angle of acceptance when it is in a medium of refractive index 1.33.	5	L3	CO5
Q.2	a.	Define acceptance angle and numerical aperture. Derive an expression for numerical aperture in terms of refractive indices of core, cladding and surrounding.	8	L2	CO1
	b.	Derive an expression for energy density for a system in thermal equilibrium in terms of Einstein's co-efficient.	7	L2	CO1
	c.	In a diffraction grating experiment the laser light undergoes second order diffraction for diffraction angle 1.48° . The grating constant is 5.08×10^{-5} m and the distance between the grating and the source is 80 cm, find the wave length of LASER light.	5	L3	CO5
		Module – 2			
Q.3	a.	Assuming the time independent Schrodinger's wave equation discuss the solution for a particle in one dimensional potential well of infinite height and hence obtain the normalized wave equation.	9	L2	CO2
	b.	State and explain Heisenberg uncertainty principle. Show that an electron doesn't exists inside the nucleus.	7	L2	CO2
	c.	Compute the deBroglie wavelength for a neutron moving with one tenth part of velocity of light. Given the mass of the neutron is 1.674×10^{-27} kg.	4	L3	CO2
		OR			
Q.4	a.	Setup Schrodinger time independent wave equation in one dimension.	9	L2	CO2
	b.	Define phase velocity and group velocity. Derive an expression for De Broglie wavelength of an electron.	7	L2	CO2
	c.	An electron has a speed of 100 m/s. The inherent uncertainity in its measurement is 0.005%. Calculate the corresponding uncertainity in the measurement of the position.	4	L3	CO2
		Module – 3			
Q.5	a.	Explain the Pauli matrices and apply Pauli matrices on the state $ 0\rangle$ and $ 1\rangle$.	9	L2	CO2
	b.	Differentiate between classical and quantum computing.	6	L2	CO2
	c.	Explain the Hadamard gate. Show that the Hadamard gate is unitary.	5	L2	CO2

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		OR		<u> </u>	
Q.6	a.	A Linear operator 'X' operates such that $X 0\rangle = 1\rangle$ and $X 1\rangle = 0\rangle$. Find the matrix representation of 'X'.	5	L2	CO2
	b.	Describe the working of CNOT gate mentioning its matrix representation and truth table.	9	L2	CO2
	c.	Explain the representation of qubit using Bloch sphere.	6	L2	CO2
		Module – 4			
Q.7	a.	Enumerate the failures of classical free electron theory and discuss the success of quantum free electron theory of metals.	8	L2	CO3
	b.	Explain DC and AC Josephson effects and mention any two applications of superconductivity in quantum computing.	7	L2	CO.
	c.	Find the temperature at which there is 1% probability that a state with an energy 0.5 eV above the Fermi energy is occupied.	5	L3	CO.
		OR			
Q.8	a.	Explain Meissner's effect and the variation of critical field with temperature.	8	L2	CO3
	b.	Define Fermi factor. Discuss the variation of Fermi factor with temperature and energy.	7	L2	CO3
	c.	The critical temperature of Nb is 9.15 K. At zero Kelvin, the critical field is 0.196T. Calculate the critical field at 8 K.	5	L3	CO.
0.0		Module – 5	0	1.0	60
Q.9	a.	Discuss timing in Linear motion, Uniform motion, Slow in and Slow out.	8	L2	CO ₄
	b.	Describe Jumping and parts of jumping in animation.	7	L2	CO
	c.	A slowing-in object in an animation has a first frame distance 0.5 m and first slow in frame 0.35 m. Calculate the base distance and the number of frames in sequence.	5	L3	CO
0.10	a.	Illustrate the odd rule and odd rule multiplier with suitable example.	8	L2	CO ²
L	b.	Discuss modeling the probability for proton decay.	7	L2	CO ₄
	c.	In an optical fibre experiment the Laser light propagating through optical fibre cable of 1.5 m, made a spot diameter of 8 mm on the screen. The distance between the end of the optical fibre cable and the screen is 3.4 cm. Calculate the angle of contact and numerical aperture of given optical fibre.	5	L3	CO
		2 of 2			



First Semester B.E./B.Tech. Degree Examination, Jan./Feb. 2023 Introduction to Python Programming

Time: 3 hrs.

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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	Μ	L	С		
Q.1	a.	What is the need for role of precedence? Illustrate the rules of precedence	6	L2	CO1		
		in Python with example.					
	b.	Explain the local and global scope with suitable examples.	6	L2	CO1		
	c.	Develop a program to generate Fibonacci sequence of length (N). Read N from the console.	8	L3	CO1		
		OR					
Q.2	a.	What are functions? Explain Python function with parameters and return statements.	7	L2	CO1		
	b.	Define exception handling. How exceptions are handled in python? Write a program to solve divide by zero exception.	7	L2	CO1		
	c.	Develop a python program to calculate the area of rectangle and triangle print the result.	6	L3	CO1		
		Module – 2	-	-			
Q.3	a.	Explain negative indexing, slicing, index(), append(), remove(), pop(), insert() and sort() with suitable example.	8	L2	CO2		
	b.	Explain the use of in and not in operators in list with suitable examples.	6	L2	CO2		
	c.	Develop a program to find mean, variance and standard deviation.	6	L3	CO2		
		OR					
Q.4	a.	Explain the following methods in lists with an examples: i) len() ii) sum() iii) max() iv) min().	8	L2	CO2		
	b.	Explain set() and setdefault() method in a dictionary.	6	L2	CO2		
	Ċ,	Develop a Python program to swap cases of a given string input: Java output: jAVA.	6	L3	CO2		
	Module – 3						
Q.5	a.	Explain join() and split() method with examples.	8	L2	CO3		
	b.	Explain with examples: i) isalpha() ii) isalnum() iii) isspace().	6	L2	CO3		
	c.	Develop a python code to determine whether the given string is a palindrome or not a palindrome.	6	L3	CO3		

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		OR			
Q.6	a.	Explain the concept of file handling. Also explain reading and writing process with suitable example.	8	L2	CO3
	b.	Explain the concept of file path. Also discuss absolute and relative file path.	6	L2	CO3
	c.	Briefly explain saving variables with shelve module.	6	L3	CO3
	1	Module – 4	1		
07	9	Explain the following file operations in Python with suitable example:	6	12	CO3
Q.1	а.	 i) Copying files and folders ii) Moving files and folders iii) Permanently deleting files and folders. 	U		
	b.	List out the benefits of compressing file? Also explain reading of a zip file with an example.	8	L2	CO3
	c.	List out the differences between shutil.copy() and shutil.copytree() method.	6	L3	CO3
	1	OP	I	I	L
Q.8	a.	Briefly explain assertions and raising a exception.	6	L2	CO3
	b.	List out the benefits of using logging module with an example.	6	L2	CO3
	c.	Develop a program with a function named DivExp which takes two parameters a h and returns a value $C(C = a/b)$ Write suitable assertion for	8	L3	CO3
		a > 0 in function DivExp and raise an exception for when $b = 0$. Develop a suitable program which reads two values from the console and calls a function DivExp. Module – 5			
00	•	Define a class and object construct the class called rectangle and initialize	8	12	CO4
Q.)	a.	it with height = 100, width = 200, starting point as $(x = 0, y = 0)$. Write a program to display the center point co-ordinates of a rectangle.	0		
	b.	Explain the concept of copying using copy module with an example.	6	L2	CO4
	c.	Explain the concept of inheritance with an example.	6	L2	CO4
	1	OR OR			
Q.10	a.	Define a function which takes two objects representing complex numbers and returns new complex number with a addition of two complex numbers. Define a suitable class 'Complex' to represent the complex number. Develop a program to read $N(N \ge 2)$ complex numbers and to compute the addition of N complex numbers.	8	L2	CO4
	с. С	Briefly explain the printing of objects with an examples	6	L2	CO4
	ι.	* * * * *	U		04
		2 of 2			
	Į.				



st Semester B.E./B.Tech. Degree Examination, Jan./Feb. 2 Basics of Java Programming

Time: 3 hrs.

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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	Μ	L	С
Q.1	a.	Explain three main object oriented principles.	6	L2	CO1
	b.	Give the list of separators used in Java programming.	6	L1	CO1
	c.	Write a Java program to display sum of odd and even numbers from the elements in an array.	8	L3	CO1
		OR			
Q.2	a.	Explain different types of integer literal with example.	6	L2	CO1
	b.	Give the syntax of different types of array allocation in Java.	6	L1	CO1
	c.	Write a Java program for multiplication of two arrays.	8	L3	CO1
		Module – 2			
Q.3	a.	Explain the following operations with example $i) \land ii) $ $iii) << iv) >>>$	8	L2	CO2
	b.	Demonstrate the working of enhanced for loop in Java.	6	L2	CO2
	c.	Write a program to demonstrate the working of ternary operator.	6	L3	CO2
Q.4	a.	With example demonstrate the working of Do loop and Do while loop in Java.	8	L2	CO2
	b.	Demonstrate the working of labeled break in Java.	6	L2	CO2
	c.	Write a Java program to sort list of elements in ascending order.	6	L3	CO2
		Madula 2			
Q.5	a.	Explain two types of constructors in Java.	6	L2	CO3
	b.	Demonstrate method overloading with example.	6	L2	CO3
	c.	Write a program to perform stack operation using proper class and methods.	8	L3	CO3

OR						
Q.6	a.	Explain static variable and static method in Java.	6	L2	CO3	
	b.	Write a note on Garbage collection in Java.	6	L2	CO3	
	c.	Explain how call by value and call by reference work in Java.	8	L3	CO3	
		Module – 4	1			
Q.7	a.	Explain different types of inheritance in Java.	8	L2	CO3	
	b.	Demonstrate the working of super keyword in Java.	6	L2	CO3	
	c.	Give an example for method overrading.	6	L2	CO3	
		OR		-		
Q.8	a.	What is an abstract class? Explain with example.	6	L2	CO3	
	b.	Explain the working of i) final class ii) final method.	6	L2	CO3	
	c.	Give an example for dynamic dispatch.	0	12	CO2	
			o	LZ	CUS	
	1	Module – 5	1	1	[
Q.9	a.	Demonstrate the working of access modifiers in all the classes of JAVA with two different packages.	10	L2	CO4	
	b.	With example demonstrate the working of interfaces in JAVA.	10	L3	CO4	
		OR OR				
Q.10	a.	What is an Exception? With example demonstrate different mechanisms of handling exceptions in JAVA.	10	L2	CO4	
	b.	What are uncaught Exceptions? How to create our own exceptions. Explain with the program.	10	L3	CO4	
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		2 of 2				



Principles of Programming using C

Time: 3 hrs.

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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.

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		Module – 1	Μ	L	С
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	•		

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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 $n_{C_r} \cdot \left[n_{C_r} = \frac{n!}{(n-r)!r!} \right]$	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
	In.				
	J.	2 of 2			