#### MALLA REDDY ENGINEERING COLLEGE FOR WOMEN (Autonomous Institution – UGC, Govt. of India)

(Affiliated to JNTU, Hyderabad, Approved by AICTE - - ISO 9001:2015 Certified)

Accredited by NBA & NAAC – 'A+' Grade

NIRF India Ranking, Accepted by MHRD, Govt. of India

#### B.TECH II YEAR II SEMESTER REGULAR END EXAMINATIONS, JULY -2024 COMPLEX VARIABLES AND TRANSFORM TECHINIQUES (COMMON TO ECE, EEE )

[Time: 3 Hours]

[Max. Marks: 60]

PART – A

 $(10x \ 1 = 10M)$ 

**Note:** 1. This Part consists of 10 QUESTIONS

2. Answer All Questions. Each question carries 1Mark

1.	A	Evaluate $\int (z-3)^4 dz$ where c is the circle $ z-3  = 4$ .	1M	BTL3
	В	Evaluate $\int_{c} \frac{dz}{z-2}$ where C is the circle $ z-2  = 1$ .	1M	BTL3
	С	Define isolated singularity.	1M	BTL1
	D	Find the residue of the function $f(z) = \frac{4}{z^3(z-2)}$ at $z = 2$ .	1M	BTL2
	Е	Find the Fourier co-efficient $b_n$ for $x \sin x$ in $-\pi < x < \pi$ .	1M	BTL2
	F	State Fourier Integral theorem.	1M	BTL1
	G	Find $L[e^{-t}t^3]$ .	1 <b>M</b>	BTL2
	Η	State convolution theorem.	1M	BTL1
	Ι	Find the Z-transform of $\frac{1}{n}$ .	1 <b>M</b>	BTL2
	J	Find $Z^{-1}\left[\frac{z}{z+2}\right]$ .	1M	BTL2

PART – B

 $(5 \times 10 = 50M)$ 

Note: 1. This Part consists of 10 QUESTIONS

2. Answer any 1 question from each Section. Each question carries 10 Marks.

3. Illustrate your answers with NEAT sketches wherever necessary.

	SECTION – I					
2.A	Using Cauchy's integral formula, evaluate $\int_{c} \frac{z}{(z+1)^{2}(z+3)} dz,$	5M	BTL3			
	where C is the Circle $ z+1 =1$ .					
2.B	Find the Taylor's series to represent $\frac{z^2 - 1}{(z+2)(z+3)}$ in $ z  < 2$ .	5M	BTL2			
	(OR)					
3.A	Use Cauchy's integral formula to evaluate $\int_{c} \frac{\sin \pi z^{2} + \cos \pi z^{2}}{(z-2)(z-3)} dz$	5M	BTL4			
	where C is $ z  = 4$ .					

valid in the	BTL2
	1 0111

	SECTION - II		
4.A	Obtain the residues of the function $f(z) = \frac{z-3}{(z+1)(z+2)}$ at its poles.	5M	BTL4
4.B	Using residue theorem, evaluate $\int_{c} \frac{az}{(z^2 + 4)^2}$ where C is the circle	5M	BTL3
	$\mid z - i \mid = 2.$		
	(OR)		1
5.A	Evaluate $\int_{0}^{2\pi} \frac{d\theta}{13 + 5\sin\theta}$ using Contour Integration.	10M	BTL5
	SECTION - III		•
6.A	Find the Fourier series for $f(x) =  x $ when $-\pi < x < \pi$ . Hence deduce	5M	BTL3
	the sum of the series $\frac{1}{1^2} + \frac{1}{3^2} + \frac{1}{5^2} + \dots \infty$ .		
6.B	Obtain the Fourier cosine series for $f(x) = l - x$ , in $0 < x < l$ .	5M	BTL3
	(OR)	•	•
7.A	Find the Fourier sine transform of $e^{-x^2}$ .	5M	BTL3
7.B	Evaluate $\int_0^\infty \frac{dx}{(x^2 + a^2)(x^2 + b^2)}$ by using Fourier Cosine Transform.	5M	BTL5
	SECTION – IV		
8.A	Find the Laplace Transform of $e^{at} \sin bt$ .	5M	BTL3
8.B	Using Laplace transform of derivatives, prove that	5M	BTL4
	$L[t\sin at] = \frac{2as}{\left(s^2 + a^2\right)^2}.$		
	(OR)	•	
9.A	Find the inverse Laplace Transform of $\frac{s+1}{s+1}$	5M	BTL3

ļ	SECTION – V				
	9.B	Using Laplace Transform, Solve $y'' + 2y' - 3y = 3$ , $y(0) = 4$ , $y'(0) = 1$ .	5M	BTL4	
	9.A	Find the inverse Laplace Transform of $\frac{s+1}{s^2+2s+2}$ .	5M	BTL3	

10.A	10.A Find $Z[(n+2)(n+1)]$ .			
	State and prove initial and final value theorem of Z-Transform.	5M 5M	BTL3 BTL2	

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	$\mathbf{U}$	<b>1 \</b> <i>j</i>

11.A	Find the $Z^{-1}\left(\frac{z^2}{(z-1)(z-3)}\right)$ using Convolution theorem.	5M	BTL3	
11.B	Solve the difference equation $y(n+2) - 4y(n+1) + 4y(n) = 0$ ,	5M	BTL4	
	y(0) = 1, y(1) = 0.			
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#### **B.TECH II YEAR II SEMESTER REGULAR END EXAMINATIONS, JULY-2024 DIGITAL ELECTRONICS**

(EEE)

[Time: 3 Hours]

#### PART – A

(10x 1 = 10M)

[Max. Marks: 60]

#### Note: 1. This Part consists of 10 QUESTIONS

2	. Ansv	ver All Questions. Each question carries 1Mark.		
1	А	Draw the symbols of AND & OR gate	1M	BTL 2
	В	Convert 65535 base decimal into binary system	1M	BTL 3
	С	What is the meaning of SOP form?	1M	BTL 1
	D	Analyze $(A')' = ?$	1M	BTL 4
	E	State the use of Multiplexer	1M	BTL 2
	F	Draw a Half Adder using XOR and AND gate	1M	BTL 2
	G	Name any two flip flops with its Truth tables.	1M	BTL 2
	Η	Give the full form of PISO	1M	BTL 1
	Ι	Mention the truth table of D flip flop	1M	BTL 2
	J	What is the use of shift register	1M	BTL 1

#### PART – B

 $(5 \times 10 = 50M)$ 

Note: 1. This Part consists of 10 QUESTIONS

2. Answer any 1 question from each Section. Each question carries 10 Marks.

3. Illustrate your answers with NEAT sketches wherever necessary.

SECTION - I				
2.A	Interpret the conversion of binary coded decimal to excess $-3$	5M	BTL4	
2.B	Draw AND gate using NAND gate	5M	BTL4	

	(OR)				
3.A	Analyze the hamming code procedure using an example	5M	BTL4		
3.B	Design a OR gate using NOR gate	5M	BTL4		

	SECTION - II					
4.A	Use a Quine Mc Cluskey Tabular method to solve an SOP of {1,3,7,9}	5M	BTL5			
4.B	Simplify the expression (A+B)+AB	5M	BTL5			

### SECTION - II

#### (OR)

l I				
	5.A	Simplify the expression using K-Map AB'+AB+A'B	5M	BTL4

CECTION I

## CODE: 2202PC07

#### Compare SOP and POS forms 5.B

5M	BTL3

## SECTION - III

6.A	Compare Decoder and Encoder	5M	BTL3
6.B	Design a Full Adder using Two Half Adders	5M	BTL4

#### (OR)

7.A	Draw Parallel Binary Adder	5M	BTL2
7.B	Draw a 2 X 4 Demultiplexer	5M	BTL2

#### SECTION - IV

8.A	Detail about Clocked T Flip Flop	5M	BTL2
8.B	Detail about SR Latch F/F	5M	BTL2

#### (OR)

9.A	Elaborate about Clocked J-K flip flop	5M	BTL4	
9.B	Distinguish Combinational and Sequential circuits	5M	BTL3	

#### SECTION-V

10.A	Analyze about Decode Counter	5M	BTL5	
10.B	Interpret the operation of Ring Counter	5M	BTL4	

#### (OR)

11.A	Provide the analysis of synchronous sequential circuits	5M	BTL4
11.B	Analyze the design aspects of flip flop design	5M	BTL5

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CTION - III	



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**B.TECH II YEAR II SEMESTER SUPPLY EXAMINATIONS, JULY-2024** 

ELECTRICAL MACHINES – I

(EEE)

[Time: 3 Hours]

#### PART – A

[Max. Marks: 60]

#### $(10x \ 1 = 10M)$

**Note:** 1. ThisPart consists of 10 QUESTIONS

2. Answer All Questions. Each question carries 1Mark.

1	А	What is the emf generated by a 4 pole lap connected DC motor rotating at 1500 rpm having 200 Conductors and useful flux per pole is 0.4 mwb.	1M	BTL1
	В	Out of electrical, mechanical and magnetic losses, the losses which is minimum is	1 <b>M</b>	BTL 1
	С	Point out why the starters necessary for starting of DC Motors?	1M	BTL 2
	D	Write the condition for maximum efficiency of a DC motor.	1M	BTL 1
	Е	Explain why Swinburne's test cannot be performed on DC Series Motor.	1 <b>M</b>	BTL 1
	F	Give the advantages and disadvantages of Hopkinson's test?	1M	BTL 2
	G	The parameters of 2400/120V, 50Hz transformer are $R_1$ =0.1 ohms and $R_2$ = 0.035 ohms. Find $R_{01}$ and $R_{02}$ ?	1M	BTL 1
	Η	Define all day efficiency.	1M	BTL 1
	Ι	What are the advantages of Sumpner's test over OC and SC tests?	1M	BTL 1
	J	Why OC-test conduct on LV-side and SC-test conduct on HV-side?	1M	BTL 1

#### PART – B

#### $(5 \times 10 = 50M)$

Note: 1. ThisPart consists of 10 QUESTIONS

2. Answer any 1 question from each Section.Each question carries 10 Marks.

3. Illustrate your answers with NEAT sketches wherever necessary.

#### SECTION - I

2.A	Derive the expression for demagnetizing AT/pole.	5M	BTL 1
2.B	A 250KW, 400V, 6 pole dc shunt generator has 720 lap wound conductors. It is given a brush lead 2.5 angular degrees (mech) from GNA. Calculate the cross and demagnetizing turns per pole. Neglect the shunt field current.	5M	BTL 5
	(OR)		

3.A	What are the possible causes for not building up emf in self-excited DC Generators? What are the remedial measures to be taken?	5M	BTL 1	
3.B	Explain the load characteristics of DC shunt and series generators.	5M	BTL 1	
	SECTION - II			

4.A	A dc shunt motor takes 1.5A on no-load when connected to 250V mains					
	with an armature resistance of $1.0\Omega$ when the field current is 0.5A.	5M	BTL 1			
	Determine the load current corresponding to maximum efficiency.					

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4.B	List out the advantages of 4-point starter over 3-point starter? Draw and explain the 4-point starter along with protective devices. (OR)	5M	BTL 2
5.A	Draw and explain the Electrical characteristics of DC series and shunt motor.	5M	BTL 2
5.B	A 200V DC shunt motor runs at 600 rpm when the armature current is 30A. Calculate the speed if the torque is doubled. Given that $Ra = 0.18\Omega$ .	5M	BTL 5
	SECTION - III		I
6.A	Explain the Field's test performed on dc machines.	5M	BTL 2
6.B	What are the advantages of Swinburne's test over direct loading? Explain the test with relevant expressions.	5M	BTL 1
	(OR)		
7.A	Explain the procedure to separate the stray losses in a DC Motor.	5M	BTL 2
7.B	With the help of neat sketch, explain the Hopkinson's test.	5M	BTL
	SECTION – IV		
8.A	Explain the effect of variations of frequency and supply voltage on iron losses.	5M	BTL
8.B	Obtain the equivalent circuit parameters of 200/400V, 50 Hz, 1-phase transformer from the following test data. OC test: 200V, 0.7A, 70W. SC test: 15V, 10A, 85W (with LV Short circuit).	5M	BTL
	(OR)		
9.A	What are the various losses taking place in transformer? How these losses can be minimized?	5M	BTL
9.B	Derive the e.m. f. equation of a transformer.	5M	BTL
	SECTION – V		
10.A	Give the comparison of autotransformer with two winding transformer on various aspects.	5M	BTL
10.B	With the help of neat sketch, explain in detail about parallel operation of single phase transformers.	5M	BTL
	(OR)		
11.A	Discuss how parallel operation of two single phase transformers is effected by unequal voltage ratios and unequal per unit leakage impedances but same X/R ratio.	5M	BTL
11.B	What are the advantages of poly phase transformers? Give different configurations.	5M	BTL

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[Time: 3 Hours]

#### PART – A

[Max. Marks: 60]

(10x 1 = 10M)

Note: 1. This Part consists of 10 QUESTIONS

	2. Answer All Questions. Each question carries 1 Mark.						
1	Α	Define is law of demand.	1 <b>M</b>	BTL1			
	В	Explain the scope of managerial economics.	1M	BTL2			
	С	Write short notes on Cobb-Doublas production function.	1M	BTL2			
	D	Define Angle of incidence.	1M	BTL1			
	E	List out the features of monopoly.	1M	BTL2			
	F	What are the characteristics of partnership.	1M	BTL1			
	G	Discuss the significance of capital.	1M	BTL3			
	Η	Describe the Pay Back Period	1M	BTL3			
	Ι	What is ledger?	1M	BTL1			
	J	What is cash flow?	1M	BTL1			

#### PART - B

 $(5 \times 10 = 50M)$ 

1. This Part consists of 10 QUESTIONS Note:

2. Answer any 1 question from each Section. Each question carries 10 Marks.

3. Illustrate your answers with NEAT sketches wherever necessary.

	SECTION - I			
2.A	Define managerial economics and explain the features of managerial	5M	BTL2	
	economics.			
2.B	What do you mean by demand forecasting? Explain various demand	5M	BTL2	
	forecasting techniques.			
	(OR)			
3.A	How do you explain the relation of managerial economics with other	5M	BTL3	
	subjects? Explain.			
3.B	Explain types of Elasticity of Demand.	5M	BTL2	
SECTION - II				
4.A	Calculate margin of safety and the amount of actual sales from the	5M	BTL3	
	following: i) Profit Rs. 10,000 ii) PV Ratio 50% iii) BEP sales Rs.			
	20,000.			
4.B	Explain the production function with reference to Law of variable	5M	BTL2	

	proportions and substitutability of factors.			
	(OR)			
5.A	What is cost function? How to estimate the different costs.	5M	BTL3	
5.B	Explain internal and external economies of Scale.	5M	BTL2	
	SECTION - III			
6 1	Define monopoly. How is price under monopoly determined?	5M	BTI 3	

6.A Define monopoly. How is price under monopoly determined? 5M BTL3

(OR)         (OR)         7.A       What is pricing? Explain different methods of pricing.       5M       B         7.B       Explain the different steps involved in the process of business cycle.       5M       B         SECTION – IV         8.A       A company is considering whether to purchase a new machine. Machines       10M         A and B are available for Rs 80,000 each. Earnings after taxation are as follows:       1       24,000       8,000         2       32,000       24,000       32,000       4       24,000       48,000         3       40,000       32,000       4       24,000       48,000       5       16,000       32,000         Required: Evaluate the two alternatives using the following: (a) payback method, (b) rate of return on investment method, and (c) net present value method. You should use a discount rate of 10%.       10M         SECTION – V		200HS03			R22			S
(OR)           (OR)           SIGN Provide the process of business cycle.           SM         B           SECTION - IV           SECTION - IV           8.A         A company is considering whether to purchase a new machine. Machines         Image:	6.B			What are	the characteristics of a	joint stock	5M	BT
7.A       What is pricing? Explain different methods of pricing.       5M       B         7.B       Explain the different steps involved in the process of business cycle.       5M       B         SECTION – IV         8.A       A company is considering whether to purchase a new machine. Machines A and B are available for Rs 80,000 each. Earnings after taxation are as follows:       10M         Year       Machine A (Rs)       Machine B (Rs)       1         1       24,000       8,000       2         2       32,000       24,000       3         3       40,000       32,000       4         4       24,000       48,000       5         5       16,000       32,000       10M         Required: Evaluate the two alternatives using the following: (a) payback method, (b) rate of return on investment method, and (c) net present value method. You should use a discount rate of 10%.       10M         9.A       Elaborate the various methods and sources of finance to raise the funds for an organizations.       10M         SECTION – V         10.A       Edward's books show the following balances. Prepare his trading and profit and loss A/c for the year ended 31st December, 2016 and a balance sheet on at that date.       10         Drawings       5,000       Capital       1,31,500         Stock on 1		company	<i>:</i>		(OP)			
7.B       Explain the different steps involved in the process of business cycle.       5M       B         SECTION – IV         8.A       A company is considering whether to purchase a new machine. Machines A and B are available for Rs 80,000 each. Earnings after taxation are as follows:       10M         Year       Machine A (Rs)       Machine B (Rs)       1         1       24,000       8,000       2         2       32,000       24,000       3         40,000       32,000       48,000       5         5       16,000       32,000       8         Required: Evaluate the two alternatives using the following: (a) payback method, (b) rate of return on investment method, and (c) net present value method. You should use a discount rate of 10%.       10M         9.A       Elaborate the various methods and sources of finance to raise the funds for an organizations.       10M         SECTION – V         10.A       Edward's books show the following balances. Prepare his trading and profit and loss A/c for the year ended 31st December, 2016 and a balance sheet on at that date.       10         Debit balances       ₹       Credit balances       ₹         Drawings       5,000       Capital       1,31,500       2,000         Stock on 1-1-2016       89,700       Sales       3,56,500       1,000	7Δ	What is t	pricing? Explain dif	ferent met	<pre> /</pre>		5M	BT
SECTION – IV         8.A       A company is considering whether to purchase a new machine. Machines A and B are available for Rs 80,000 each. Earnings after taxation are as follows:       10M         Year       Machine A (Rs)       Machine B (Rs)       1         1       24,000       8,000       2         2       32,000       24,000       32,000         4       24,000       32,000       32,000         4       24,000       48,000       5         5       16,000       32,000       32,000         Required: Evaluate the two alternatives using the following: (a) payback method, (b) rate of return on investment method, and (c) net present value method. You should use a discount rate of 10%.       10M         9.A       Elaborate the various methods and sources of finance to raise the funds for an organizations.       10M         SECTION – V         10.A       Edward's books show the following balances. Prepare his trading and profit and loss A/c for the year ended 31st December, 2016 and a balance sheet on at that date.       10         Drawings       5.000       Capital       1.31,500         Sundry debtors       60,000       Capital       1.31,500         Coal, gas and water       10,500       Sales       3.56,500         Returns inward       2,500       Interest		1	<u> </u>		1 0	cycle		BT
8.A       A company is considering whether to purchase a new machine. Machines A and B are available for Rs 80,000 each. Earnings after taxation are as follows:       10M         Year       Machine A (Rs)       Machine B (Rs)       1         1       24,000       8,000       2         2       32,000       24,000       32,000         3       40,000       32,000       48,000         5       16,000       32,000       8,000         6       16,000       32,000       100         8.A       Required: Evaluate the two alternatives using the following: (a) payback method, (b) rate of return on investment method, and (c) net present value method. You should use a discount rate of 10%.       10M         9.A       Elaborate the various methods and sources of finance to raise the funds for an organizations.       10M         SECTION – V         10.A       Edward's books show the following balances. Prepare his trading and profit and loss A/c for the year ended 31st December, 2016 and a balance sheet on at that date.       10,500         Drawings       5,000       Capital       1,31,500         Sudry debtors       60,000       Loan at 6% p.a.       2,500         Coal, gas and water       10,500       Sales       3,56,500         Returns inward       2,500       Interest on investments       2	, . <b>D</b>	Enplaint			-	e gene.	0101	51
A and B are available for Rs 80,000 each. Earnings after taxation are as follows:         Year       Machine A (Rs)       Machine B (Rs)         1       24,000       8,000         2       32,000       24,000         3       40,000       32,000         4       24,000       48,000         5       16,000       32,000         Required: Evaluate the two alternatives using the following: (a) payback method, (b) rate of return on investment method, and (c) net present value method. You should use a discount rate of 10%.       10M         9.A       Elaborate the various methods and sources of finance to raise the funds for an organizations.       10M         SECTION – V         10.A         Edward's books show the following balances. Prepare his trading and profit an loss A/c for the year ended 31st December, 2016 and a balance sheet on at that date.       10         Debit balances       ₹         Drawings       5,000       Capital       1,31,500         Sudry debtors       60,000       Loan at 6% p.a.       20,000         Returns inward       2,550       Sundry creditors       40,000         Stock on 1-1-2016       89,700       Sundry creditors       40,000         Travelling expenses       51,250       Stock on 1-1-2016       89,700 <td>8Δ</td> <td>A compa</td> <td>ny is considering w</td> <td></td> <td></td> <td>e Machines</td> <td>10M</td> <td>I B</td>	8Δ	A compa	ny is considering w			e Machines	10M	I B
follows:YearMachine A (Rs)Machine B (Rs)124,0008,000232,00024,000340,00032,000424,00048,000516,00032,000Required: Evaluate the two alternatives using the following: (a) payback method, (b) rate of return on investment method, and (c) net present value method. You should use a discount rate of 10%.(OR)9.AElaborate the various methods and sources of finance to raise the funds for an organizations.10MSECTION - V10.AEdward's books show the following balances. Prepare his trading and profit and loss A/c for the year ended 31st December, 2016 and a balance sheet on at that date.10Debit balances₹Credit balances₹Debit balances₹Credit balances₹Drawings5,000Capital1,31,500Stock on 1-1-201689,70010Travelling expenses51,250110Interest on loan paid300100Petry cash710710Repairs4,0005,50,550Adjustments:i.Create 5% provision for bad and doubtful debts on sundry debtors iii.i.Closing stock was Rs. 1,30,000 on 31st December, 2016.ii.Create provision at 2% for discount on debtors iv.iii.Create provision for bad and doubtful debts on sundry debtors iii.iii.Create provision for bad and doubtful debts on sundry debtors iii.	0.71	-		-			1010	
124,0008,000232,00024,000340,00032,000424,00032,000424,00032,000516,00032,000Required: Evaluate the two alternatives using the following: (a) payback method, (b) rate of return on investment method, and (c) net present value method. You should use a discount rate of 10%.(OR)9.AElaborate the various methods and sources of finance to raise the funds for an organizations.SECTION – V10.AEdward's books show the following balances. Prepare his trading and profit and loss A/c for the year ended 31st December, 2016 and a balance sheet on at that date.DrawingsSundry debtors60,000Coal, gas and water10,500Sales3,56,500Returns inward2,500Interest on loan paid300Petry cash710Repairs4,090Interest on loan paid300Petry cash710Repairs4,090Investments:i.i.Closing stock was Rs.i.Closing stock was Rs.i.Create 5% provision for bad and doubtful debts on sundry debtorsii.Create provision at 2% for discount on debtorsiv.Interest on loan due for 9 months.				00,000 <b>cu</b>	Lumings arter taxat			
2       32,000       24,000         3       40,000       32,000         4       24,000       48,000         5       16,000       32,000         Required: Evaluate the two alternatives using the following: (a) payback method, (b) rate of return on investment method, and (c) net present value method. You should use a discount rate of 10%.       IOM         OR         9.A       Elaborate the various methods and sources of finance to raise the funds for an organizations.       IOM         SECTION – V         10.A       Edward's books show the following balances. Prepare his trading and profit and loss A/c for the year ended 31st December, 2016 and a balance sheet on at that date.       10.         Drawings       5,000       Capital       1,31,500         Sundry debtors       60,000       Loan at 6% p.a.       2,000         Coal, gas and water       10,500       Sales       3,56,500         Returns inward       2,550       Sundry creditors       40,000         Stock on 1-1-2016       89,700       Interest on investments       2,550         Verchases       5,50,550       Sundry creditors       40,000         Repairs       4,090       Investments       2,500       Stock on 31st December, 2016.         intreest on loan paid       300		Year	Machine A (Rs)		Machine B (Rs)			
340,00032,000424,00048,000516,00032,000Required: Evaluate the two alternatives using the following: (a) payback method, (b) rate of return on investment method, and (c) net present value method. You should use a discount rate of 10%.(OR)9.AElaborate the various methods and sources of finance to raise the funds for an organizations.SECTION - V10.AEdward's books show the following balances. Prepare his trading and profit and loss A/c for the year ended 31st December, 2016 and a balance sheet on at that date.Debit balancesTrawings5,000Sundry debtors60,000Coal, gas and water10,500Sales3,56,500Sundry debtors2,5600Sundry debtors2,5600Sundry debtors51,250Purchases2,5600Stock on 1-1-201689,700Travelling expenses51,250Interest on loan paid300Petty cash710Repairs4,090Investments:i.Closing stock was Rs. 1,30,000 on 31st December, 2016.ii.Create provision for bad and doubtful debts on sundry debtorsiii.Create provision at 2% for discount on debtorsiv.Interest on loan due for 9 months.		1	24,000		8,000			
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5       16,000       32,000         Required: Evaluate the two alternatives using the following: (a) payback method, (b) rate of return on investment method, and (c) net present value method. You should use a discount rate of 10%.       (Description 10%)         9.A       Elaborate the various methods and sources of finance to raise the funds for an organizations.       10M         SECTION - V         10.A       Edward's books show the following balances. Prepare his trading and profit and loss A/c for the year ended 31st December, 2016 and a balance sheet on at that date.       10         Value method. Vous balances       ₹       Credit balances       ₹         Drawings       5,000       Capital       1,31,500         Sundry debtors       60,000       Loan at 6% p.a.       20,000         Coal, gas and water       10,500       Sales       3,56,500         Returns inward       2,500       Interest on investments       2,550         Purchases       2,56,500       Sundry creditors       40,000         Stock on 1-1-2016       89,700       50,050       5,50,550         Adjustments:       i.       Closing stock was Rs. 1,30,000 on 31st December, 2016.       5,50,550         i.       Closing stock was Rs. 1,30,000 on 31st December, 2016.       ii.       Create provision at 2% for discount on debtors         iii.		3	40,000		32,000			
Required: Evaluate the two alternatives using the following: (a) payback method, (b) rate of return on investment method, and (c) net present value method. You should use a discount rate of 10%.         (OR)         9.A       Elaborate the various methods and sources of finance to raise the funds for an organizations.       10M         SECTION – V         10.A       Edward's books show the following balances. Prepare his trading and profit and loss A/c for the year ended 31st December, 2016 and a balance sheet on at that date.       10.         Pebit balances       ₹       Credit balances       ₹         Drawings       5,000       Capital       1,31,500         Sundry debtors       60,000       Loan at 6% p.a.       20,000         Coal, gas and water       10,500       Sales       3,56,500         Returns inward       2,500       Interest on investments       2,550         Purchases       2,56,500       Sundry creditors       40,000         Stock on 1-1-2016       89,700       Travelling expenses       51,250         Interest on loan paid       300       5,50,550       5,50,550         Adjustments:       i.       Closing stock was Rs. 1,30,000 on 31st December, 2016.       5,50,550         ii.       Create 5% provision for bad and doubtful debts on sundry debtors iii.       Create provision at 2%								
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(OR)         (OR)         9.A       Elaborate the various methods and sources of finance to raise the funds for an organizations.       10M         SECTION – V         10.A       Edward's books show the following balances. Prepare his trading and profit and loss A/c for the year ended 31st December, 2016 and a balance sheet on at that date.       10         Debit balances       ₹       Credit balances       ₹         Debit balances       ₹       Orevitation of the year ended 31st December, 2016 and a balance sheet on at that date.       10         Debit balances       ₹       Credit balances       ₹         Drawings       5,000       Capital       1,31,500       20,000       20,000       20,000       20,000       20,000       20,000       20,000       20,000       20,000       20,000       2,550       2,550       2,550       2,550       2,550       2,550       2,550       2,550       2,550       2,550       2,550       2,550       2,550       2,550       2,550,550       2,50,550       2,50,550       2,50,550       2,50,550       2,50,550       2,50,550       2,50,550       2,50,550								
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9.A       Elaborate the various methods and sources of finance to raise the funds for an organizations.       10M         SECTION – V         10.A       Edward's books show the following balances. Prepare his trading and profit and loss A/c for the year ended 31st December, 2016 and a balance sheet on at that date.       10         Debit balances       ₹       Credit balances       ₹         Drawings       5,000       Capital       1,31,500         Sundry debtors       60,000       Loan at 6% p.a.       20,000         Coal, gas and water       10,500       Sales       3,56,500         Purchases       2,5650       Sundry creditors       40,000         Stock on 1-1-2016       89,700       Sundry creditors       40,000         Travelling expenses       51,250       Interest on loan paid       300         Petty cash       710       Repairs       4,090         Investments:       i.       Closing stock was Rs. 1,30,000 on 31st December, 2016.       5,50,550         Adjustments:       i.       Create provision for bad and doubtful debts on sundry debtors         iii.       Create provision at 2% for discount on debtors       iv.		value met						
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SECTION – V         10.A       Edward's books show the following balances. Prepare his trading and profit and loss A/c for the year ended 31st December, 2016 and a balance sheet on at that date.       10. <b>Debit balances ₹ Credit balances ₹ Credit balances ₹ 1</b> 0. <b>Debit balances ₹ Credit balances ₹ 1</b> ,31,500         Sundry debtors <b>1</b> 0,500          Sundry debtors <b>6</b> 0,000         Loan at 6% p.a. <b>2</b> ,0000          Coal, gas and water <b>1</b> 0,500           Sales <b>3</b> ,56,500          Purchases <b>2</b> ,565,00           Interest on investments <b>2</b> ,555          Purchases <b>5</b> ,1,250           Interest on loan paid <b>3</b> 00          Petty cash <b>7</b> 10 <b>8</b> 9,700 <b>5</b> ,50,550          Adjustments: <b>7</b> ,0000 <b>5</b> ,50,550 <b>5</b> ,50,550          Adjustments: <b>1</b> ,         Closing stock was Rs. 1,30,000 on 31st December, 2016. <b>1</b> ,         Create 5% provision for bad and doubtful debts on sundry debtors								
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iv. Interest on loan due for 9 months.	10.A	and loss A on at that Drawings Sundry deb Coal, gas an Returns inw Purchases Stock on 1- Travelling e Interest on D Petty cash Repairs Investments Adjustment	<pre>A/c for the year ended date. Debit balances tors ad water vard 1-2016 xpenses loan paid s</pre>	Iowing bal         cd 31st De         ₹         5,000         60,000         10,500         2,56,500         89,700         51,250         300         710         4,090         70,000         5,50,550         Rs. 1,30,0	ances. Prepare his trad cember, 2016 and a ba Credit balances Capital Loan at 6% p.a. Sales Interest on investments Sundry creditors	lance sheet          ₹         1,31,50         20,00         3,56,50         2,55         40,00         5,50,55         2016.	00 00 00 00	10
	10.A	and loss A on at that Drawings Sundry deb Coal, gas an Returns inw Purchases Stock on 1- Travelling e Interest on Petty cash Repairs Investments Adjustment i. ii.	<pre>//c for the year ended date. Debit balances tors ud water vard 1-2016 xpenses loan paid s mts: Closing stock was Create 5% provis</pre>	Iowing bal         cd 31st De         ₹         5,000         60,000         10,500         2,56,500         89,700         51,250         300         710         4,090         70,000         5,50,550         Rs. 1,30,0         ion for bac	ances. Prepare his trad cember, 2016 and a ba Credit balances Capital Loan at 6% p.a. Sales Interest on investments Sundry creditors	lance sheet          ₹         1,31,50         20,00         3,56,50         2,55         40,00         5,50,55         2016.	00 00 00 00	10M
	10.A	and loss A on at that Drawings Sundry deb Coal, gas an Returns inw Purchases Stock on 1- Travelling e Interest on D Petty cash Repairs Investments Adjustment i. ii. iii.	<pre>//c for the year ended date. Debit balances tors tors d water vard 1-2016 xpenses loan paid s  nts: Closing stock was Create 5% provis Create provision</pre>	Iowing bal           cd 31st De           ₹           5,000           60,000           10,500           2,560           2,56,500           89,700           51,250           300           710           4,090           70,000           5,50,550           Rs. 1,30,0           ion for bac           at 2% for	ances. Prepare his trad cember, 2016 and a ba Credit balances Capital Loan at 6% p.a. Sales Interest on investments Sundry creditors 000 on 31st December, d and doubtful debts or discount on debtors	lance sheet          ₹         1,31,50         20,00         3,56,50         2,55         40,00         5,50,55         2016.	00 00 00 00	101

Discuss the proforma of funds flow statements .

5M BTL2

11.B

# MALLA REDDY ENGINEERING COLLEGE FOR WOMEN

(Autonomous Institution – UGC, Govt. of India)

(Affiliated to JNTU, Hyderabad, Approved by AICTE - - ISO 9001:2015 Certified)

Accredited by NBA & NAAC – 'A' Grade

NIRF India Ranking, Accepted by MHRD, Govt. of India

#### B.TECH II YEAR II SEMESTER REGULAR END EXAMINATIONS, JULY-2024 POWER SYSTEMS – I

(EEE)

[Time: 3 Hours]

#### $\mathbf{PART} - \mathbf{A}$

 $(10x \ 1 = 10M)$ 

[Max. Marks: 60]

#### **Note:** 1. This Part consists of 10 QUESTIONS

	2. Answer All Questions. Each question carries 1Mark.				
1.	Α	What are the main parts of Nuclear reactor and their functions?	1M	BTL1	
	В	What is the need of Boilers in thermal plants?	1M	BTL3	
	С	What is load factor?	1M	BTL1	
	D	What is load duration curve?	1M	BTL1	
	E	Write a short note about types of insulators	1M	BTL2	
	F	What are ACSR conductors	1M	BTL2	
	G	What is Ferranti effect?	1M	BTL1	
	Η	What is corona loss?	1M	BTL1	
	Ι	Compare DC distribution with AC distribution system.	1M	BTL5	
	J	How the substations are classified?	1M	BTL3	

#### PART - B

 $(5 \times 10 = 50M)$ 

- Note: 1. This Part consists of 10 QUESTIONS
  - 2. Answer any 1 question from each Section. Each question carries 10 Marks.
  - 3. Illustrate your answers with NEAT sketches wherever necessary.

	SECTION - I				
2.A	Explain the principle of operation of nuclear reactor with neat diagram.	5M	BTL5		
2.B	Explain the principle of conversion of solar energy into heat.	5M	BTL5		

	(OK)					
3.A	Draw a neat schematic diagram of feed water/steam flow circuit of a	5M	BTL3			
	modern large thermal power plant. Explain the working					
3.B	Explain the solar power generation by using concentration collectors	5M	BTL5			

4.A	Define and explain the significance of the following terms	4M	BTL3
	(i) Demand factor, (ii) Load factor, (iii) Diversity factor and (iv) Plant		
	factor		
4.B	The maximum demand of a consumer is 20A at 215V and his total	6M	BTL4
	energy consumption is 8560kWh. If the energy charges at the rate of 20		
	paise per unit for 500 hours use of the maximum demand per annum		
	plus 10 paise per unit for additional units. Calculate (i) annual bill (ii)		
	equivalent flat rate.		

#### SECTION - II

(OR)

**SET - 2** 

## CODE: 2202PC06

## (OR)

R22

	()		
5.A	Define i) fixed-cost ii) running cost iii) Tariff.	4M	BTL3
5.B	Calculate the generating cost per KWH, delivered from a generating station from the following data. Plant capacity 600 MW; annual load factor 45 %; capital cost Rs.1200×10 <sup>6</sup> ; annual cost of fuel etc Rs.150 × $10^{6}$ , interest 9.2 % per annum of initial value.	6M	BTL4

#### SECTION - III

6.A	Explain the construction of underground cables.	7M	BTL5
6.B	Distinguish between Underground cables and overhead lines.	3M	BTL3

#### (OR)

7	Derive the following (i) Insulation resistance of a cable	10M	BTL3
	(ii) Capacitance of a single core cable		

#### SECTION - IV

8.A	Calculate the inductance of each conductor in a 3-phase, 3-wire system,	7M	BTL4
	when the conductors are arranged in a horizontal with spacing such that		
	DRY=4 m; DYB=3 m; DBR= 2m. the conductors are transposed and		
	each has a diameter of 2.5 m.		
8.B	What are bundled conductors? discuss the advantages of bundled	3M	BTL3
	conductors when used for overhead lines.		

#### (OR)

9.A	Explain about Skin and proximity effects?	3M	BTL2
9.B	Derive an expression for the inductance of a 3-phase line with conductors untransposed. What is the significant of imaginary term in the expression for inductance? Hence derive the expression for inductance for a completely transposed line.	7M	BTL5

#### SECTION-V

10.A	Write short notes on the following:	4M	BTL2
	i) Difference between d.c. and a.c. distribution.		
	ii) Current distribution in a 3-wire d.c. system.		
10.B	A 2-wire distributor fed at F1 and F2 at 225V and 215V respectively.	6M	BTL4
	Loads of 130A and 110A are taken at points P and Q. Resistance of		
	both the conductors between F1 and P is 0.03 ohm, between P and Q is		
	0.05 ohms. Determine the current in each section of the distributor and		
	voltage at each load point		

#### (OR)

11.A	Explain the radial distribution system with neat diagram and list out its	10M	BTL5
	merits and demerits.		

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**SET - 2**