Sub-Math Branch - All Branch

Sub-Math Branch - All Branch

1. Answer any two questions.

[10x2]

[10x2]

a) Prove without expanding that

$$\begin{vmatrix} 1+a & 1 & 1 \\ 1 & 1+b & 1 \\ 1 & 1 & 1+c \end{vmatrix} = abc \left(1 + \frac{1}{a} + \frac{1}{b} + \frac{1}{c}\right)$$

- b) Solve the given equations by matrix method x-y+z=4, 2x+y-3z=0, x+y+z=2
- c) Resolve into partial fractions

$$\frac{x^2}{(x+1)^2(x-2)}$$

d) Find the square roots of -15-8i

- 1.
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Sub-Engg. Chemistry Branch - Mech. & Auto. Engg.

Sub-Engg. Chemistry Branch - Mech. & Auto. Engg.

	Answer any four questions. [5x4]		Answer any four questions.	[5x4]
1.	Define a) Calcinations b) Roasting c) Smelting	1.	Define a) Calcinations b) Roasting c) Smelting	
2.	Explain the factors that influence the rate of corrosion.	2.	Explain the factors that influence the rate of corrosion).
3.	What are alloys? Write the composition and uses of brass and 3. What are alloys? Write the composition and uses		brass and	
	Duralumin.		Duralumin.	
4.	Define the process of electroplating.	4.	Define the process of electroplating.	
5.	What is homologous series? Write the characteristic of a homologo	us 5.	What is homologous series? Write the characteristic	of a homologous
	series.		series.	

Sub-Engg. Chemistry Branch - Mech. & Auto. Engg.

Sub-Engg. Chemistry Branch - Mech. & Auto. Engg.

	Answer any four questions. [5x4]		Answer any four questions.	[5x4]
1.	Define a) Calcinations b) Roasting c) Smelting	1.	Define a) Calcinations b) Roasting c) Smelting	
2.	Explain the factors that influence the rate of corrosion.	2.	Explain the factors that influence the rate of corrosion.	
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	Duralumin.		Duralumin.	
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5.	What is homologous series? Write the characteristic of a homologous	ous 5.	What is homologous series? Write the characteristic of a l	nomologous
	series.		series.	

Sub-Basic Electrical Engg. Branch - Elect. & Civil Engg.

Sub-Basic Electrical Engg. Branch - Elect. & Civil Engg.

1.	Answer all questions. (any five) [2x	 (5]	1.	Answer all questions. (any five)	[2x5]
a)	What are the necessity of earthing?		a)	What are the necessity of earthing?	1
b)	Write the types of wiring & definition of wiring.		b)	Write the types of wiring & definition of wiring.	
c)	State the advantages of nuclear power station.		c)	State the advantages of nuclear power station.	
d)	Write definition of measuring, instruments.		d)	Write definition of measuring, instruments.	
e)	What are the types of instrument?		e)	What are the types of instrument?	
2.	Answer all questions. (any five) [5x	(2]	2.	Answer all questions. (any five)	[5x2]
a)	Discuss briefly about wind energy.		a)	Discuss briefly about wind energy.	
b)	Discuss about nuclear power station briefly.		b)	Discuss about nuclear power station briefly.	
c)	A building has following electrical applications i) 1 HP motor running for 5 hrs in a day ii) 3 fans each of 80w running for 10 hrs		c)	A building has following electrical applications i)	1 HP motor
				running for 5 hrs in a day ii) 3 fans each of 80w running	
	in a day iii) 4 tube lights of 40w running for 15 hrs per da	y. Find		in a day iii) 4 tube lights of 40w running for 15 hrs	per day. Find
	monthly bill for month of November if unit cost of bill is Rs. 2.50.			monthly bill for month of November if unit cost of bi	ll is Rs. 2.50.

Sub-Physics Branch - Civil & Elect. Engg.

Sub-Physics Branch - Civil & Elect. Engg.

1.	Answer all the questions. [1x	(5] 1.		Answer all the questions.	[1x5]
a)	Value of Joule's Mechanical equivalent of heat =		a)	Value of Joule's Mechanical equivalent of heat =	
	Joule/Cal.			Joule/Cal.	
b)	What is the horizontal range of a projectile fired vertically)	What is the horizontal range of a projectile fired vertically	
	upward?			upward ?	
c)	Write down the relation between $\beta \& \gamma$.	C)	;)	Write down the relation between $\beta \& \gamma$.	
d)	What is the shape of the trajectory of a projectile?	ď	d)	What is the shape of the trajectory of a projectil	e ?
e)	Write down the relation between force of friction & normal re	eaction. e))) Write down the relation between force of friction & normal re	
2.	Answer all the questions. [2x	(4] 2	2.	Answer all the questions.	[2x4]
a)	What do you mean by force of limiting friction?	a	a) What do you mean by force of limiting friction?		
b)	Define total internal reflection, write one application of total internal)	Define total internal reflection, write one application of total interna	
	reflection.			reflection.	
c)	The refractive index of glass & water are 1.5 & 1.3 respectively,		;)	The refractive index of glass & water are 1.5 &	1.3 respectively,
	What is the critical angle when the ray passes from glass to	water?		What is the critical angle when the ray passes fror	n glass to water?
d)	Define co-efficient of cubical expansion.	ď	d)	Define co-efficient of cubical expansion.	
3.	Derive Mayer's formula (Relation between C _P & C _V) for 1 i	mole of 3	3.	Derive Mayer's formula (Relation between C _P &	C_{V}) for 1 mole of
	an ideal gas. [7]			an ideal gas.	[7]
	Or			Or	
	Derive expression for equation of trajectory, time of descent,			Derive expression for equation of trajectory,	ime of descent,
	horizontal range of a projectile fired horizontally.			horizontal range of a projectile fired horizontally	<i>'</i> .

Sub- Comm. English Branch - All Branch

Sub- Comm. English Branch - All Branch

1.	Answer any five questions.	[5x2]	1.	Answer any five questions.	[5x2]
a)	Who is Khairi?		a)	Who is Khairi?	
b)	Who is the foster father of Khairi?		b)	Who is the foster father of Khairi?	
c)	What experience did the author have in the Tiger Reserve area? c) What experience		What experience did the author have in the Tiger Reserve	area?	
d)	What kind of family and Mr. Choudhiry have?		d)	What kind of family and Mr. Choudhiry have?	
e)	What is the personality of Soraj Raj Chaudhury?		e)	What is the personality of Soraj Raj Chaudhury?	
f)	Explain-'She was not Pretty but was beatiful'.		f)	Explain-'She was not Pretty but was beatiful'.	
2.	Do as directed. [5	5x2]	2.	Do as directed. [5	x2]
a)	Identify the tense.		a)	Identify the tense.	
	They have been living in this town for the last 20 years.			They have been living in this town for the last 20 years.	
b)	earth moves round the sun. (Supply the corre	ect article)	b)	earth moves round the sun. (Supply the correct article)	
c)	of us went to see the famous actor. (Much/Many)		c)	of us went to see the famous actor. (Much/Many)	
d)	Geeta lived in Delhi since 1990. (Correct the sentence)		d)	Geeta lived in Delhi since 1990. (Correct the sentence)	
e)	Youspeak the truth. (Supply correct modal ve	erb)	e)	Youspeak the truth. (Supply correct modal ve	erb)

Sub- Comm. English Branch - All Branch

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1.	Answer any five questions.	[5x2]	1.	Answer any five questions.	[5x2]	
a)	Who is Khairi?		a)	Who is Khairi?		
b)	Who is the foster father of Khairi?		b)	Who is the foster father of Khairi?		
c)	What experience did the author have in the Tiger Reserve area?		c)	What experience did the author have in the Tiger Reserve area?		
d)	What kind of family and Mr. Choudhiry have?		d)	What kind of family and Mr. Choudhiry have?		
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2.	Do as directed. [5x2]	2.	Do as directed.	[5x2]	
a)	Identify the tense.		a)	Identify the tense.		
	They have been living in this town for the last 20 years.			They have been living in this town for the last 20 years.		
b)	earth moves round the sun. (Supply the correct	article)	b)	earth moves round the sun. (Supply the correct article)		
c)	of us went to see the famous actor. (Much/Many)		c)	of us went to see the famous actor. (Much/Many)		
d)	Geeta lived in Delhi since 1990. (Correct the sentence)		d)	d) Geeta lived in Delhi since 1990. (Correct the sentence)		
e)	You speak the truth. (Supply correct modal verb)	e)	You speak the truth. (Supply correct m	nodal verb)	

Sub-Basic Electronics Engg. Branch - Mech. & Auto. Engg.

1.

b)

Answer any one questions.

How Zenor diode act as a voltage regulator explain?

Sub-Basic Electronics Engg. Branch - Mech. & Auto. Engg.

[1x10]

1.	Answer any one questions.	[1x10]	1.	Answer any one questions.	[1x10]	
a)	Drive the relations between α , β , γ where symbols have meaning.	e their usual	a)	Drive the relations between α , β , γ where symbols have meaning.	e their usual	
b)	Explain the block diagram of CRO, how the measure and amplitude using CRO.	e frequency	b)	Explain the block diagram of CRO, how the measure and amplitude using CRO.	e frequency	
2.	Answer all the questions.	[5x2]	2.	Answer all the questions.	[5x2]	
a)	Explain the full wave rectifier centre tapped method with neat circuit diagram.		a)	Explain the full wave rectifier centre tapped metho- circuit diagram.	centre tapped method with neat	
b)	•		b) How Zenor diode act as a voltage regulator		?	
	Sub-Basic Electronics Engg. Branch - Mech. & Auto. Engg.			Sub-Basic Electronics Engg. Branch - Mech. & Auto. Engg.		

a)	Drive the relations between α , β , γ where symbols have their usu	al a)	Drive the relations between α , β , γ where symbols I	nave their usual
	meaning.		meaning.	
b)	Explain the block diagram of CRO, how the measure frequency		Explain the block diagram of CRO, how the measure frequency	
	and amplitude using CRO.		and amplitude using CRO.	
2.	Answer all the questions. [5x2]	2.	Answer all the questions.	[5x2]
a)	Explain the full wave rectifier centre tapped method with neat		Explain the full wave rectifier centre tapped method with neat	
	circuit diagram.		circuit diagram.	

1.

b)

Answer any one questions.

How Zenor diode act as a voltage regulator explain?

[1x10]

Sub-Computer Application Branch - Mech. & Auto. Engg.

Sub-Computer Application Branch - Mech. & Auto. Engg.

- Answer any four questions. 1. [5x4] What is memory hierarchy? Explain the main features of the a) various types memory present at different level of the hierarchy. Explain the working of a digital computer with a functional block b) diagram. Define operating system. Discuss about measure function & type c) of operating system. Discuss about types of software. d) Different between the complier and interpreter. e)
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- a) What is memory hierarchy? Explain the main features of the various types memory present at different level of the hierarchy.
- b) Explain the working of a digital computer with a functional block diagram.
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- e) Different between the complier and interpreter.

Sub-Computer Application Branch - Mech. & Auto. Engg.

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a)	What is memory hierarchy? Explain the main	features of the
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b)	Explain the working of a digital computer with	a functional block
	diagram.	
c)	Define operating system. Discuss about meas	sure function & type
	of operating system.	
d)	Discuss about types of software.	
e)	Different between the complier and interprete	r.

1. Answer any four questions.

[5x4]

[5x4]

- a) What is memory hierarchy? Explain the main features of the various types memory present at different level of the hierarchy.
- b) Explain the working of a digital computer with a functional block diagram.
- c) Define operating system. Discuss about measure function & type of operating system.
- d) Discuss about types of software.
- e) Different between the complier and interpreter.

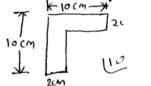
Sub-Engg. Mechanics Branch - Civil & Elect. Engg.

Sub-Engg. Mechanics Branch - Civil & Elect. Engg.

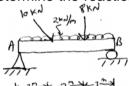
1. Answer all the questions.

[10x2]

a) Determine the C.G. of following L-section.



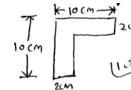
b) Determine the reactions of point A & B.



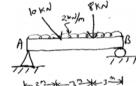
1. Answer all the questions.

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a) Determine the C.G. of following L-section.



b) Determine the reactions of point A & B.



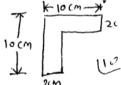
Sub-Engg. Mechanics Branch - Civil & Elect. Engg.

Sub-Engg. Mechanics Branch - Civil & Elect. Engg.

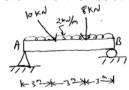
Answer all the questions.

[10x2]

a) Determine the C.G. of following L-section.



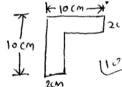
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1. Answer all the questions.

[10x2]

a) Determine the C.G. of following L-section.



b) Determine the reactions of point A & B.

