Certificate+ Diploma+ Advanced Diploma in Mechanical Engineering

COURSE OBJECTIVES

http://www.highlightcomputer.com/objectives.htm#a

http://www.highlightcomputer.com/objectives.htm#b

CURRICULUM & SYLLABUS

http://www.highlightcomputer.com/Diploma%20&%20Advanced%20Diploma%20in%20Mechanical%20Engineering%20Course%20Detailed%20Contents.htm

Mechanical Engineering Course Outline

DETAILED CONTENTS

http://www.highlightcomputer.com/Diploma%20&%20Advanced%20Diploma%20in%20Mechanical%20Engineering%20Course%20Detailed%20Contents.htm

ASSESSMENT POLICY

http://www.highlightcomputer.com/assessmentpolicy.htm#a

http://www.highlightcomputer.com/assessmentpolicy.htm#b

VIDEO LINKS

http://www.filefactory.com/file/3gv3i8yr2bhb/Instruction.mp3

http://www.filefactory.com/file/1b6itgv5drm7/Instruction.docx

http://www.filefactory.com/file/4flhf2uxiisf/Instruction.pdf

Diploma + Advanced Diploma in Mechanical Engineering Videos

http://www.filefactory.com/file/17fxmu6rte7p/Part%202-Mechanical%20Video.mp4

Year (1)

Certificate in Mechanical Engineering (Each 1.5 Credits) (15 Pt)

Unit Number	Unit Name	Credit Points
Maths 101	Engineering Mathematics (EE201)	1.5

ME 101	Applied Mathematics	1.5
ME 102	Engineering Thermodynamics	1.5
ME 103	Engineering Mechanics	1.5
ME 104	Machine Principle	1.5
ME 105	Electrical Principle	1.5
ME 106	Electrical Circuits	1.5
ME 107	Heat Transfer	1.5
ME 108	Principle of Engines	1.5
ME201	Introduction to Fluid Mechanics	1.5
	Total	15

Diploma in Mechanical Engineering (Each 1.5 Credits) (15 Pt)

ME 202 Introduction to Aero Dynamics

ME 203 Control Engineering

ME 204 Engineering Fluid Mechanics

ME 205 Manufacturing Processes-and-Materials

ME 206 Introduction to Turbo Machinery

ME 207 Chemical Thermodynamics

ME 208 Hydrocarbons

ME 209 Introduction-to-polymer-science-and-technology

ME 234 Wind Turbines

Mgt 501 Basic Management

Year (2)

Advanced Diploma in Mechanical Engineering (Each 1.5 Credits) (30 Pt)

Mathematics

Maths 403 Engineering-Mathematics (EE302)

Maths 301 Introductory Finite Difference Methods-for-pdes

Maths 302 Elementary-Linear-Algebra (EE302)

Maths 303 Introductory Finite Volume Methods-for-pdes

Maths 501 Linear Algebra-c-1 (EE302)

Mechanical Engineering

ME 301 Fluid Dynamics

ME 302 Automation-and-Robotics

ME 303 Computer Aided Design and Manufacturing

ME 304 Introduction to Nonlinearity-in-control-systems

ME 305 Corrosion Prevention

ME 306 Theory-of-waves-in-materials

ME 334 Airconditioning and Refrigeration

ME 434 Mechtronics-Robotics

ME 534 Numerical Control

ME 634 Pneumatics

EE 617 Building Electrical and Mechanical System Part 1 (EE309)

EE 624 Process Control

Mgt 503 Production & Operation Management

Mgt 505 Quality Management and Manufacturing Engineering

Bachelor of Engineering (Mechanical)

Year (3)

GENERAL APPLIED ENGINEERING (MECHANICAL) DEGREE

Subjects
BAE 401 Advanced Engineering Mathematics
BAE 402 Calculus

BAE 403 Engineering Mechanics
BAE 404 Engineering Materials & Thermodynamics
BAE 507 Electro-mechanical Energy Conversion
BAE 508 Industrial Engineering & Industrial Management
BAE511 Air-conditioning & Refrigeration Part 1
BAE613 Mechanical Instrumentation Process
BAE614 Machine Design
BAE512 Building Service Water Supply System
BAE511 Air-conditioning & Refrigeration Part 2
BAE613 Mechanical Instrumentation Process

Year (4) Part 1 BE (Mechanical + General Related Subjects)

BAE 601 Computer Programming
BAE 602 Computer Network
BAE 603 Software Engineering
BAE 605 Engineering Management
BAE 606 Building Service Electrical & Mechanical Engineering

Year (4) Part 2

Bachelor of Engineering (Mechanical) Specialization (13 pt)

BAE311 Plant Engineering (2 pt)

BAE312 Design Engineering (2 pt)

BAE313 Environmental Control (2 pt)

BAE314 Mechanical Power Generation (2 pt)

BAE315 Materials Engineering (2 pt) Part 1 Part 2

BAE 608 Engineering Competency Demonstration Report Writing (3 pt)

Elective (2 pt)

Subjects
BAE513 Production Technology
BAE611 Maintenance Engineering
BAE612 Engineering Metallurgy

Bachelor of Engineering (Civil-Building Services)

STAGE (3) BASIC ELECTRICAL & ELECTRONICS ENGINEERING (18 Pt)

REFER DIPLOMA/ADVANCED DIPLOMA IN ELECTRICAL ENGINEERING DETAILED CONTENTS

EE101 DC Circuit Problems

EE102 Basic Electrical Fitting & Wiring

EE103 Basic Electrical Drafting

EE104 Electrical Equipments Safety Protection

EE105 Electrical Installation Design

EE107 Electrical Equipments

EE106 Advanced Electrical Wiring

EE108 Electrical Fault Finding

EE109 Electrical Control Circuits

EE111 Electromagnetism & Basic Electrical Machines

EE112 Alternating Current Principle

EE113 Electrical Fundamental

EE115 Basic Analogue & Digital Electronics

EE116 Process Control System

EE117 Solar Electrical System

EE119 Electrical Risk Assessment

EE120 Electrical Contracting & Specifications

EE308 Sustainability

STAGE (4 A) ADVANCED MECHANICAL ENGINEERING STUDY (6Pt)

REFER DIPLOMA/ADVANCED DIPLOMA IN MECHANICAL ENGINEERING DETAILED CONTENTS

ME 102 Engineering Thermodynamics

ME 109 Engineering Drawing

ME 107 Heat Transfer

ME 201 Introduction to Fluid Mechanics

ME 204 Engineering Fluid Mechanics

ME 301 Fluid Dynamics

STAGE (4B)ADVANCED ELECTRICAL & ELECTRONICS ENGINEERING STUDY (ADVANCED DIPLOMA) (4 pt)

REFER DIPLOMA/ADVANCED DIPLOMA IN ELECTRICAL ENGINEERING DETAILED CONTENTS

EE201 Engineering Mathematics

EE204 Engineering Physics

EE302 Advanced Engineering Mathematics

EE307 Energy Efficient Building Design

STAGE (5)BACHELOR OF APPLIED ENGINEERING (BUILDING SERVICE) DEGREE (32 pt)

Subjects
BAE 401 Advanced Engineering Mathematics
BAE 402 Calculus
BAE 403 Engineering Mechanics
BAE 404 Engineering Materials & Thermodynamics

BAE 508 Industrial Engineering & Industrial Management
BAE 601 Computer Programming
BAE 605 Engineering Management
BAE 606 Building Service Electrical & Mechanical Engineering
BAE 609 Design Project

Bachelor of Engineering (Mechanical-Mechatronics)

Advanced Diploma of Mechanical Engineering)

REFER DIPLOMA/ADVANCED DIPLOMA IN ELECTRICAL ENGINEERING DETAILED CONTENTS

REFER DIPLOMA/ADVANCED DIPLOMA IN MECHANICAL ENGINEERING DETAILED CONTENTS

(1) ME104 Principle of Machine

(2)EE624 Process Control

EE115 Basic Analogue & Digital Electronics

EE116 Process Control System

(3)ME 334 Airconditioning and Refrigeration

(4) ME202 Aerodynamics

(5) ME 302 Automation-and-Robotics

(6) ME 303 Computer Aided Design and Manufacturing

(7) ME 234 Wind Turbines

(8) ME 201 Introduction to Fluid Mechanics

(9) ME 204 Engineering Fluid Mechanics +
ME 301 Fluid Dynamics

(10) ME 206 Introduction to Turbo Machinery

(11)ME 205 Manufacturing Processes & Materials

(12) ME 207 Chemical Thermodynamics

(13)ME 208 Hydrocarbons

(14) ME 634 Pneumatics

(15) ME 203 Control

(16) ME 534 Numerical Control

(17) ME 434 Mechtronics-Robotics

(18)EE 617 Building Electrical and Mechanical System

(19)EE105 Electrical Installation Design
EE107 Electrical Equipments

EE105 Electrical Installation Design

EE107 Electrical Equipments

(20)EE106 Advanced Electrical Wiring

(21) EE116 Process Control

(22) EE117 Solar Electrical System

(23) EE119 Electrical Risk Assessment
EE120 Electrical Contracting

(24) ME 109 Engineering Drawing
EE301 Advanced Electrical Drafting

(25) EE121 Electronics Power Control Devices

(26) EE206 AC

(27) EE207 DC

(28)EE202 Electrical Circuits

(29)EE203 Three Phase Power Circuits

(30) ME 305 Corrosion Prevention

(31) ME 306 Theory-of-waves-in- materials

Bachelor of Applied Engineering (Mechanical-Mechatronics)

Subjects
BAE 401 Advanced Engineering Mathematics
BAE 402 Calculus
BAE 403 Engineering Mechanics
BAE 404 Engineering Materials & Thermodynamics
BAE 405 Advanced Circuit Analysis
BAE 406 Electro-mechanics
BAE 408 Analogue & Digital Electronics
BAE 502 Linear System
BAE 503 Control System
BAE 507 Electro-mechanical Energy Conversion
BAE 508 Industrial Engineering & Industrial Management
BAE 601 Computer Programming
BAE 602 Computer Network
BAE 603 Software Engineering
BAE 604 Telecommunication Engineering
BAE 605 Engineering Management
BAE 606 Building Service Electrical & Mechanical Engineering

Diploma in Mechanical /Automotive Engineering Study Program

DIP ME/AE Part 1

Month – 1 (Week 1+2)

Study EE101 Powerpoints

EE101 DC Circuit Problems

TUTORING LESSONS

Lesson 1 Lesson 2 Lesson 3

Test & Assessment

http://www.filefactory.com/file/58r3nfe1qieh/n/E003_E004_Online_Test_1_Question_pdf

http://www.filefactory.com/file/796n6fdurdij/n/E003_E004_Online_Test_1_Answer_doc

Do the tests and send the answer sheet in soft copy by e-mail to
iqytechnicalcollege@gmail.com

Then do the following test

E003+E004 Online test

Ref 1

Four resistors 1 ohm, 2 ohm , 3 ohm and 4 ohm are connected in series to 5V. Calculate the circuit current & potential difference across each resistor.

A	1A,3V,2V,5V.7V	B	0.5A,0.5V,1V,1.5V,2V
C	3A,1V,5V,6V,7V	D	0.A,1V,2V,3V,4V
	Answer		

Ref 2

A 2.2K Ω resistor is connected in series with a resistor of unknown value across 16V supply. If the current is 5 mA, calculate the value of unknown resistor.

A	2 KΩ	B	3 KΩ
C	4 KΩ	D	1 KΩ
	Answer		

Ref 3

Two resistors are connected in series to a 115V supply, one is known to have 470 Ω and voltage across it is 47V. Calculate (a) the value of second resistor (b) the circuit current.

A	680Ω, 0.1A	B	800Ω, 0.2A
C	100Ω, 1A	D	1200Ω,0.1A
	Answer		

Ref 4

Resistors of 5 Ω, 10 Ω and 3 Ω are connected in parallel to 12V supply. Calculate the supply current.

A	2A	B	3A
C	1A	D	4A
	Answer		

Ref 5

Resistors of 33K Ω, and 68 KΩ are connected in parallel to 50V. Calculate (a) total circuit resistance (b) total circuit current (c0 individual branch currents.

A	44.5 K Ω, 4.5mA, 3mA,1.58mA	B	30 K Ω, 3mA, 2mA,1mA
C	22.2 K Ω, 2.25mA,1.5mA,0.79mA	D	60 K Ω, 6mA,4mA,2mA
	Answer		

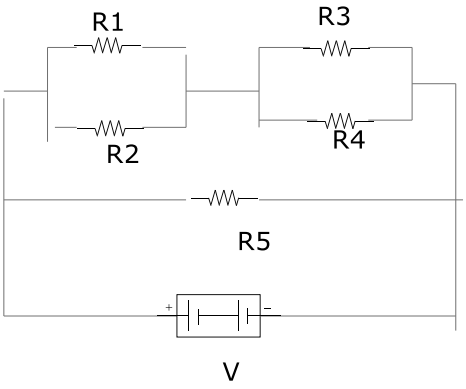
Ref 6

Resistors of values 12 Ω and 8 Ω are connected in parallel with R3 of unknown value across a 6V supply. When the current from the supply is 2.25A, calculate (a) the value of R3 (b) current flowing in R3.

A	6 Ω, 1A	B	12 Ω, 0.5A
C	24 Ω, 0.25A	D	8 Ω, 1.25A
	Answer		

Ref 7

Five resistors are connected as follows. Find (a)Rt (b) It (c) 2 Ω resistor current.



R1=2 Ω, R2=8Ω , R3=3 Ω, R4= 6 Ω, R5=7.2 Ω. V= 6V

A	3.6 Ω, 5A, 2.66A	B	4.8 Ω, 5A, 7A
C	2.4 Ω, 2.5A, 1.33A	D	7.2 Ω, 7.5A, 4A
	Answer		

Ref 8

Resistors 1.8 KΩ and 1.2 KΩ are connected in series to 12V supply. Calculate the power dissipated in each resistor and total power.

A	0.0288W,0.0192W,0.048W	B	0.0576W,0.0384W,0.096W
C	0.0144W,0.009W,0.024W	D	1W,0.5W,0.7W
	Answer		

Ref 9

A 1 Ω resistor is connected in series with parallel combination of 6 Ω and 3 Ω resistors to 6V supply. Calculate (a) Rt (b) Each resistor current.

A	6 Ω, 1A, 1.32A, 2.66A	B	4 Ω, 1A, 2A, 3A
C	10 Ω, 4A, 3A, 5A	D	3 Ω, 2A, 0.66A, 1.33A
	Answer		

Ref 10

Resistors of 2.2K Ω and 7.88K Ω are connected in series and parallel across 3.3K Ω and 2.7K Ω series combination. They are connected to 9V supply .Calculate (a) Rt (b) It (c) Each resistor current.

A	3.75K Ω, 2.4mA,0.9mA,1.5mA	B	7.5K Ω, 4.8mA,1.8mA,3mA
C	2K Ω, 1.2mA,0.5mA,1mA	D	10K Ω, 8mA,2mA,3mA
	Answer		

Ref 11

3 filament lamp indicators are each rated 12V and 0.36 w. If they are connected in series, what supply voltage should be used? Find supply voltage, the current and total power dissipated.

A	72V,0.06A,2.16W	B	108V,0.09A,3.24W
C	36V,0.03A,108W	D	18V,0.015A,0.54W
	Answer		

Ref 12

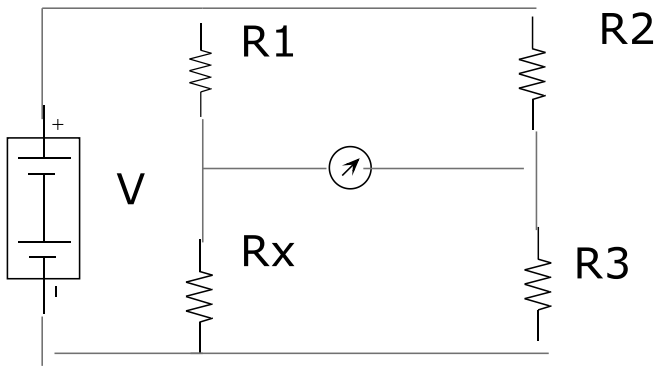
A circuit is fed with a 9V supply but a 4V ground potential is required at the base of a transistor. If this voltage is to be derived from12 KΩ resistor connected to ground. Calculate the value of second resistor forming potential divider.

A	30K Ω	B	20K Ω
C	15K Ω	D	5K Ω
	Answer		

Ref 13

Find RX

If R1=1000 Ω, R2=1000 Ω,R3=2715 Ω, V= 1.5V at bridge balanced condition.



A	2715 Ω	B	3000 Ω
C	1000Ω	D	2000 Ω
	Answer		

Ref 15

A cell has emf 1.5V and internal resistance 0.5 ohm. Calculate its terminal voltage at (a) No load (b) providing 200mA current (c) when connected to a load of 8 ohm.

A	3V, 2.8V, 2.8V	B	1.5V, 1.4V, 1.41V
C	6V, 1.4V, 1.4V	D	3V, 1.4V, 1.41V
	Answer		

Ref 16

A battery is made by connection 8 cells in series. Each has 1.5V and internal resistance 0.35 ohm. Calculate (a) EMF & internal resistance of battery. (b) The terminal voltage when supplying 400mA. (c) The current & terminal voltage when a load of resistance 20 ohm is connected to battery.

A	12V, 2.8 Ω, 10.11V	B	15V, 1.4 Ω, 5.1V
C	12V, 2.8 Ω, 5.1V	D	6V, 2.8 Ω, 10.11V
	Answer		

SUBMIT THE SCANNED COPY OF ANSWER to

Dr Kyaw Naing

PO BOX 227

Marrickville, NSW 1475, Sydney, Australia

Month – 1 (Week 3+4)

Study EE102 Powerpoints

EE102 Basic Electrical Fitting & Wiring

TUTORING LESSONS

Lesson 1 Lesson 2 Lesson 3

Test & Assessment

http://www.classroomclipboard.com/503511/Home/Test/e3b8ef2c72e94d209034f9633e22c26a#/InitializeTest.xaml

Type your name Put the following access code

CEAHU

Then do the following test

Study EE102 & then do the following Exercises

EE102 Exercises

Q1

Ref 575

The tests to be conducted for electrical installation safety are

- Earthing system test
- Insulation resistance test

- Polarity test
- All above

Q2

Ref 574

The insulation resistance must be

- very high
- very low

Q3

Ref 573

The resistance of earth must be less than

- 2 ohm
- 10 ohm
- 20 ohm

Q4

Ref 572

The switch should be connected on

Q5

Ref 571

The colour of earth wire is

- Red
- Black
- Green and yellow

Q6

Ref 570

The colour of neutral wire is

- Black
- White
- Green

Q7

Ref 569

The colours of active wire are

- Red
- Blue
- Black
- Brown

- First and last one

Q8

Rer 568

Two types of failure of fixing are

Q9

Ref 567

How many nails should be driven into each brick

- One
- Two
- Three

Q10

Ref 566

Nail should not be driven into mortar joint

- True
- False

Q11

Ref 565

To drill the hole, a pilot hole must have

- The same diameter as to the hole that you want to drill
- Smaller diameter as to the hole that you want to drill
- Bigger diameter as to the hole that you want to drill

Q12

Ref 564

It is safe to remove the person who is electrocuted at 1000V

- True
- False

Q13

Ref 563

To use the hand held electrical equipments in the workplace, the insulation must be

- Double insulation
- Single insulation

Q14

Ref 562

It is safe to walk in forklift way in the factory and stand under the scaffolding

- True
- False

Q15

Ref 561

To lift a heavy equipments

- Bend the kneel and lift with kneel force
- Bend the back and simply lift it

Q16

Ref 560

Safety glass and safety hat are included in

Q19

Ref 559

Employer will not need to take any responsinility to provide the safe operational equipments in the workplace

- True
- False

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Month – 2 (Week 1+2)

Study EE104 Powerpoints

TUTORING LESSONS

EE104 Electrical Equipments Safety Protection

Lesson 1

Then do the following test

EE104 Electrical Equipments Safety Protection

Study the notes in EE104 Power Points & do the following exercises.

Q1.Sketch RCD Connection

Q2.Sketch earthing system and earthing arrangement.

Q3.What is the supplementary system for earthing?

Q4. What are the types of earthing systems?

Q5.Sketch the connection diagram for smoke alarm.

Q6.Why earthing system is provided?

Q7.Sketch the arrangement of an earthing system.

Q8.Write the formula to calculate the voltage drop.

Q9.How will you isolate the live parts?

Q10.What is the meaning of ELCBN

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Marrickville, NSW 1475, Sydney, Australia

Month – 2 (Week 3+4)

Study EE111 Powerpoints

EE111 Electromagnetism & Basic Electrical Machines

TUTORING LESSONS

Lesson 1

Test & Assessment

http://www.filefactory.com/file/7c658zyrj9gx/n/G001_Online_Test_1_Question_pdf

http://www.filefactory.com/file/1h8minstf7ux/n/G001_Online_Test_1_Answer_doc

Then do the following test

EE111 Electromagnetism & Basic Electrical Machines

Study the notes

And do the following exercises.

G001 Online Test

Ref137

The flux is equal to

A	ϕ = Fm / Rm	B	ϕ = Fm x Rm
C	ϕ = Rm / Fm	D	ϕ = Fm + Rm

	Answer		

Ref 138

Rm is equal to

A	lμ / A	B	L/μ A
C	Lμ A	D	μ A/l
	Answer		

Ref139

Flux density is equal to

A	ϕ A	B	A/ ϕ
C	ϕ/A	D	Φ+A
	Answer		

Ref140

The torque produced in electric motor is equal to

A	T = BL r	B	T = Br/ L
C	T = BL/ r	D	T + Br + L
	Answer		

Ref141

A plunger brake electro-magnetic operates at a flux density of 12 tesla. If the CSA of the magnetic circuit is 0.04 sq-m and reluctance is 12000 amp-turn / wb, what current is required to operate the magnet if the coil has 1000 turns.

A	0.288A	B	0.576A
C	1.3A	D	2.8A
	Answer		

Ref142

The induced voltage in conductor moving in magnetic field is

A	E = BLV sinΘ	B	E = BLV cosΘ
C	E = BLV	D	E = BI sinΘ
	Answer		

Ref143

The voltage induced in coil of N turns is

A	V = N ϕ	B	V = NI
C	V = N x d ϕ/ dt	D	V = N^2 ϕ
	Answer		

Ref144

What is the velocity of a conductor 150 mm long and moving at right angle to magnetic field having a flux density of 0.4 tesla? The induced voltage is 4V.

A	6 m/s	B	1.5 m/s
C	12 m/s	D	3.3 m/s
	Answer		

Ref145

The force between two current carrying conductors is

A	F = 10^{-7} I / d	B	F = NI / d
C	F = 2 x 10^{-7} I / d	D	F = 4 Π10^{-7} I / d
	Answer		

Ref146

A transformer has 50 turns on the primary and 600 turns on secondary . If a flux of 0.25 wb is induced to zero in 10 ms, calculate the induced emf in each coil.

A	E1 = 250V, E2 = 3000V	B	E1 = 2500V, E2 = 30000V
C	E1 = 300V, E2 = 25000V	D	E1 = E2 = 3000V

	Answer		

Ref147

If a conductor is being rotated at 2000 RPM in magnetic field and induces 400V . If it is rotated at 1000 RPM.. Find the induced emf.

A	100V	B	200V
C	400V	D	50V
	Answer		

Ref148

A 240 V coil 5000T produces magnetizing force 4000AT/ m . The magnetic circuit is 200 mm long. CSA 500 sq-mm. Find the resistance of the coil.

A	1500Ω	B	3000Ω
C	750Ω	D	150Ω
	Answer		

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Marrickville, NSW 1475, Sydney, Australia

Month – 3 (Week 1+2)

Study EE112 Powerpoints

EE112 Alternating Current Principle

TUTORING LESSONS

Lesson 1 Lesson 2

Test & Assessment

http://www.filefactory.com/file/7ebmnciqxmf3/n/G002_Online_Test_1_Question_pdf

http://www.filefactory.com/file/6d3yokhjziur/n/G002_Online_Test_1_Answer_doc

SUBMIT THE SCANNED COPY OF ANSWER to

Dr Kyaw Naing

PO BOX 227

Marrickville, NSW 1475, Sydney, Australia

Password- **iqytechnicalcollege**

And do the following exercises.

Then do the following test

EE112 Alternating Current Principle

Study Power point Part 1 & 2

And do the following exercises.

G002 Online Test

Ref149

A sine wave voltage of 240V RMS is applied to a resistive circuit of 60Ω. Calculate(a) RMS value of current (b) Maximum value of current.

A	2A, 4A	B	4A, 5.65A
C	2A, 2.8A	D	1A, 2A
	Answer		

Ref150

A coil of negligible resistance draws a current of 0.2A (RMS) when connected to 240V, 50HZ.
(a) Determine inductive reactance (b) Coil inductance.

A	600Ω , 3.8 H	B	1200Ω , 1.9 H
C	1200Ω , 3.8 H	D	1800Ω , 7.6 H
	Answer		

Ref151

A 64 mH inductor is connected in series with a 300Ω resistor to a 1000HZ AC supply voltage of 10V rms. Find (a) the impedance (b) The phase angle (c) The current (d) the potential drop across resistor.

A	500Ω ,(53.2 Deg), 0.002A (-53.2Deg), 6V,8V	B	500Ω ,(36.8 Deg), 0.001A (+53.2Deg), 8V,6V
C	500Ω ,(0 Deg), 0.002A (-0 Deg), 6V,8V	D	500Ω ,(90 Deg), 0.002A (-90 Deg), 6V,8V
	Answer		

Ref152

Find the current in the circuit when an AC voltage 10V rms at 1000HZ is applied to 2 µF capacitor.

A	0.375A	B	0.25A
C	0.125A	D	0.5A
	Answer		

Ref153

A 1 µF capacitor is connected in series with 200 Ω resistor to 10V rms. 1600HZ supply. Find (a0 the impedance (b) The phase angle (c) The current (d) Potential drop across resistor (e) Potential drop across capacitor.

A	111.3Ω ,(-26.5 Deg), 0.0224A (-26.5Deg), 4.5V,2.24V	B	222.6Ω ,(+26.5 Deg), 0.0224A (-26.5Deg), 9V ,4.48V
C	222.6Ω ,(0 Deg), 0.0224A (0 Deg), 9V ,4.48V	D	222.6Ω ,(-26.5 Deg), 0.0448A (+26.5Deg), 9V ,4.48V
	Answer		

Ref154

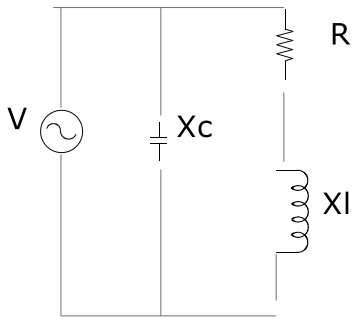
A series circuit is connected to a 10V rms AC supply. The circuit has resistance 100 Ω, inductive reactance 300 Ω , capacitive reactance 400 Ω. Find (a) Impedance (b) Current (c) Phase angle (d) Voltage drop across resistor (e) Voltage drop across inductor (f) Voltage drop across capacitor.

A	141 Ω (Angle -45 Deg), 0.071A, 45 Deg, 7.1V, 21.3V,28.4V	B	70.7 Ω (Angle +45 Deg), 0.035A, 45 Deg, 3.35V, 10.65V,14.2V
C	141 Ω(Angle 45 Deg), 0.071A,-45 Deg 7.1V, 28.4V, 21.3V	D	141 Ω (Angle 0 Deg),0.071A, 0 Deg, 7.1V, 21.3V, 28.4V
	Answer		

Ref155

The following is a diagram of a parallel circuit with a supply voltage 100V rms at 50Hz.Determine the followings.

(a)Total circuit current (b) Total circuit impedance (c) Phase angle between circuit current and applied voltage (d) Power factor of circuit.



Xc= 318.5 Ω, R=100 Ω,Xl = 94.2 Ω, V = 100 V, 50Hz

A	1.8A (Angle -36.8 Deg), 206 Ω, 56.86 Deg, 0.8	B	0.97A (Angle +36.8 Deg),103 Ω, 36.8 Deg 0.59

C	0.97A (Angle -36.8 Deg),103 Ω, 36.8 Deg 0.59	D	0.97A (Angle +53.2 Deg),206 Ω, 53.2 Deg 0.59
	Answer		

Ref156

A capacitor draws 0.971 Amp at PF 0.34 from 100V supply. Total power is

A	36.8W	B	100W
C	52.43W	D	70.7 W
	Answer		

Ref157

The phase voltage and current in 3 phase star connected current are 240V and 50A. Find the line voltage and line current.

A	415V rms, 50A	B	240V rms, 50A
C	415V rms, 86.5A	D	240V rms, 86.5A
	Answer		

Ref158

A delta connected load takes a line current 40A and line voltage 415V. Find (a) Phase current (b) Phase voltage

A	40A, 415V	B	23.1A, 415V
C	40A, 240V	D	23.1A. 240V
	Answer		

Ref159

Three phase 415V, 37.3 KW, Delta connected alternator has efficiency 90% and PF 0.88 Lagging. Find (a) Line current (b) Phase current.

A	130A, 75.6A	B	65.5 A, 75.6A
C	65.5A, 37.8A	D	130A, 37.8A
	Answer		

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Month – 3 (Week 1+2)

Study EE201Powerpoints

EE201 Engineering Mathematics

TUTORING LESSONS

EE201 Part 1 EE201 Part 2 EE201 Part 3 EE201 Part 4

Test & Assessment

http://www.filefactory.com/file/5ho7s6h0svhv/n/E050_Online_Test_1_Answer_doc

http://www.filefactory.com/file/6dqo87kdsorz/n/E050_Online_Test_1_Question_pdf

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E050 MCQ Practice 1

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Month – 3 (Week 3+4)

Study EE204 Powerpoints

EE204 Engineering Physics

TUTORING LESSONS

EE204 Part 1 EE204 Part 2 EE204 Part 3 EE204 Part 4 EE204 Part 5

EE204 Part 6

Test & Assessment

http://www.filefactory.com/file/13o82qnudgr3/n/E046_Online_Test_1_Question_pdf

http://www.filefactory.com/file/6o2lsbtge7tt/n/E046_Online_Test_1_Answer_doc

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E046 Online Test

Ref66

The car is driven along a straight road for 8.4 Km at 70 Km/ hr. At which point the truck runs off the gasoline & stops. The next 30 minutes, the driver walks along the road for another 3 Km.

(a) What is over all displacement?

(b)What is time interval from the beginning of the drive to arrival at the station?

(c)What is average velocity?

A	20 km, 1 HR, 20 km/hr	B	30 km, 2 HR, 30 km /hr
C	10.4 km, 0.62 HR, 16.8 km/hr	D	50 km, 5 HR, 70 km/hr
	Answer		

Ref70

On a hot day in Las Vegas, an oil tanker loaded 37000 L of diesel fuel. It encounters cold weather on Utah where temperature was 23 Degree K lower than in Las Vegas. How many litres did it deliver?

Volume expansion for diesel fuel is 9.5×10^{-4} / Deg C coefficient of linear expansion is 11×10^{-6} /deg c

A	18380 L	B	36190 L
C	20000 L	D	10000 L
	Answer		

Ref73

A cylinder contains 12 L of oxygen at 20 deg C and 15 atm. The temperature is raised to 35 deg C and the volume is reduced to 8.5L . What is the final pressure of the gas in atmosphere.?

A	22 atm	B	33 atm
C	11 atm	D	44 atm
	Answer		

Ref76

Three Carnot engines operate between reservoir temperatures of (a) 400 deg K and 500 deg K (b) 600 and 800 deg K (c) 400 and 600 deg K. rank the engineers according to thermal efficiencies. Greatest first.

A	c, b, a	B	a, b, c
C	b, c, a	D	Equal
	Answer		

Ref79

At t= 0, the displacement X(0) of the block is – 8.5 cm. The block's velocity V(0) is -0.92 m/ s and it's acceleration a (0) is 47 $m/s^{2.}$

(a) What is the angular velocity w of this system?

(b) What are the phase constant ϕ and amplitude Xm ?

A	22.5 rad/ s, 155 deg, 9.4 cm	B	50 rad/ s, 30 deg, 18 cm
C	100 rad/ s, 45 deg, 10 m	D	15 rad/ s, 75 deg, 4cm
	Answer		

Ref82

The following equations give the position X (t) of a particle in four situations
(a) X = 8t-4 (b) $x= -6t^3+9t^2+6$ (c) $X = 3 / t^2 - 9/ t$ (d) $X = 7 t^2-4$ To which of these situations? Do the constant acceleration formulae apply?

A	a	B	b
C	c	D	d
	Answer		

Ref85

a = 3 I – 8 j b = -2 I + 4 j c = - 4 j

Find the resultant vector for a+b+c

A	10i+2j	B	7i+5j
C	2.5i – 2.3 j	D	0
	Answer		

Ref88

2 kg Tin is accelerated at 3m /s^2 in the direction shown by a over a frictionless horizontal surface. The acceleration is caused by three forces . What is the third force?

A	20N	B	10N
C	1N	D	12.5N
	Answer		

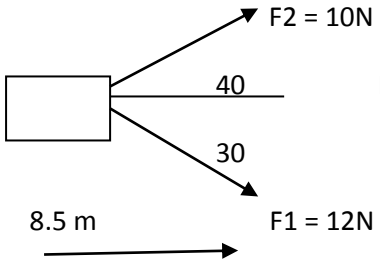
Ref91

Suppose that the coefficient of static friction μ between the rider's clothing and the canvas is 0.4 and the cylinder radius " R" is 2.1 m.

(a) What minimum speed (V) must the cylinder and the rider have if the rider is not to fall when the floor drops? (b) If the rider's mass is 49 Kg, what is the magnitude of centrifugal force on rider?

A	7.2 m/s, 1200N	B	3.6 m/s, 600N
C	21 m/s, 2000N	D	30 m/s, 3000N
	Answer		

Ref94

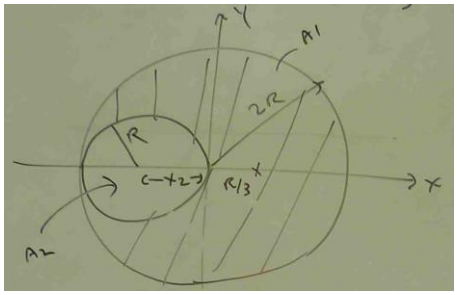


Find total work done of the forces.

A	306J	B	153J
C	469J	D	73J
	Answer		

Ref97

The figure shows a uniform metal plate " P " of radius " 2 R " from which a disk of radius "R" has been stamped out. Using the X-Y co-ordinate system shown, locate the centre of mass of the plate.



A	Xt = R / 4, Yt = R	B	Xt = R, Yt = R
C	Xt = R / 2, Y t = R/ 2	D	Xt = R / 3, Y t= 0
	Answer		

Ref100

A coach roach rides the rim of a rotating merry go around. If the angular speed is constant, does the coach roach have (a) Radial acceleration ? (b) Tangential acceleration ? What angle Θ_p should the arc subtend so that a 15. 4 kg at the point "P".

A	50 Deg	B	30 Deg
C	111 Deg	D	200 Deg
	Answer		

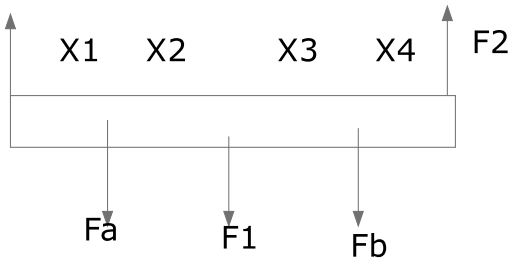
Ref67

A rolling object has linear velocity 342.5 m/s radius =3 m mass =170 kg Calculate total kinetic energy.

A	1.5×10^7 J	B	3×10^7 J
C	4.5×10^7 J	D	6×10^7 J
	Answer		

Ref68

The figure gives over view at a uniform rod in static equilibrium , the magnitude of the forces F1 & F2 are



X1= 4m, X2= 2m, X3=1m, X4 = 1m, Fa = 10 N ,Fb = 30N

A	90 N, 130 N	B	22.5 N, 32.5 N
C	45 N, 65 N	D	100 N, 200 N
	Answer		

Ref 69

A living room has the floor dimension and height of 3.5 m x 4.2 m. A height of 2.4 m (a) What does the air in the room weigh when the air pressure is 1 atm? (b) What is the magnitude of the atmosphere downward force on the top of your head which we take to have an area of $0.04m^2$

A	420 N, 4×10^3 N	B	840 N, 8×10^3 N
C	210 N, 2×10^3 N	D	1640 N, 6×10^3 N
	Answer		

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Month – 3 (Week 3+4)

Study EE208 Powerpoints

EE208 Operational Amplifiers

TUTORING LESSONS

EE208 Part 1 EE208 Part 2 EE208 Part 3

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Test & Assessment

http://www.filefactory.com/file/2a3bpimaxqx3/n/H025_H045_I006_Online_Test_1_Answer_doc

http://www.filefactory.com/file/7j320hlrk6k9/n/H025_H045_I006_Online_Test_1_Question_pdf

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H025 MCQ Practice 1

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Month – 4 (Week 1+2)

Study EE209 Powerpoints

EE209 Analogue Electronics

TUTORING LESSONS

EE209 Part 1 EE209 Part 2 EE209 Part 3 EE209 Part 4 EE209 Part 5

EE209 Part 6 EE209 Part 7

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Test & Assessment

http://www.filefactory.com/file/5ht8f5ih8lvr/n/H011_Online_Test_1_Answer_doc

http://www.filefactory.com/file/74ma7pvjy4un/n/H011_Online_Test_1_Question_pdf

http://www.filefactory.com/file/229n33ldqwah/n/H011_Online_Test_2_Answer_doc

http://www.filefactory.com/file/3e54mrgli7ft/n/H011_Online_Test_2_Question_pdf

Then do the following test. Download from the given link

H045 MCQ Practice 1

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Month – 4 (Week 3+4)

Study EE302Powerpoints

EE302 Advanced Engineering Mathematics

TUTORING LESSONS

EE302 Part 1 EE302 Part 2 EE302 Part 3 EE302 Part 4

http://www.filefactory.com/file/5l9fpcclhjzp/n/E026_Online_Test_3_Question_pdf

http://www.filefactory.com/file/64ccdiiuf0ax/n/E026_Online_Test_3_Answer_doc

Password- iqytechnicalcollege

Then do the following test. Download from the given link

E026 MCQ Practice 1

http://www.filefactory.com/file/68kzit8b851r/n/E026_Online_Test_1_Question_pdf

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Month – 5 (Week 1+2)

Study EE309 Powerpoints

Then do the following exercise

Write your own experience about establishing a car workshop. It should include

- Business Plan
- Money matter
- Daily operation plan
- Loss/ Profit analysis

- Material Requirement Planning
- Meeting legal requirements.

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DIP ME/AE Part 2

Month – 5 (Week 3+4)

Review the notes in ME 101 Folder

TUTORING LESSONS

ME101 Part 1

ME101 Part 2

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If you have already done EE201, the point will be given automatically

Month – 6 (Week 1+2)

TUTORING LESSONS

Study ME 102 Powerpoints

ME102 Part 1

ME102 Part 2

Password- iqytechnicalcollege

Then do the following exercise

Study the notes in the YOC-ME102 folder & do the following exercises

Slide 1

Q1.What is thermodynamics system?
Slide 2+3
Q2.Explain the followings
(a) Property (b) Pressure (c) temperature (c) Internal Energy

Slide 4
Q3.Explain the followings
(a) Phase (b) Mixed phase (c) Saturated state (d) Superheated vapour

Slide 5
Q4.Describe the followings
(a) Adiabatic (b)Isothermal (c)Isobaric (d) Isochoric (d) Isentropic (e)Isenthalpic

Slide 6+7
Q5. Write the equation for ideal gas.

Slide 8
Q6.Write the gas equation.

Slide 9
Q7.Write the equation for (a) Constant volume (b) Constant pressure (c) Constant temperature.

Slide 10
Q8.Sketch the Pressure –Volume graphs for
(a) Adiabatic (b)Isothermal (c)Isobaric (d) Isochoric (d) Isentropic (e)Isenthalpic

Slide 11
Q9.Express Van der Waals gas equation of state for gas

Slide 12
Q10.Sketch temperature-enthalpy diagram for Ice, water, Water+ vapour , Vapour

Slide 14.
Q11.Write the equations to calculate steam properties in the mixed region.

Slide 15.

Q12. Write the heat, volume, density of steam equations.

Slide 16
Q13.Self ignition would occur in the engine using certain brand of petrol of the temperature due to compression reached 350 degree C. Calculate the highest ratio of compression that may be used to avoid pre-ignition if the law of compression is.

Slide 18
Q14. Calculate the density of Ethane at 171 bar and 458 deg K , assume for Ethane
T_e = 305K P_e= 48.80 bar R = 319.3 J / Kg K assuming it behaves as a perfect gas.

Slide 21
Q16. Determine the pressure of water vapour at 300 Deg C , if it's specific volume is 0.2579 m_3/ kg using the following methods.

(a) Ideal gas equation (b) Van der Waals equation.

Month – 6 (Week 3+4)

Review the notes in ME 103 Folder

If you have already done EE204, the point will be given automatically

Month – 7(Week 1+2)

Study ME 108 Powerpoints

TUTORING LESSONS

ME108 Lessons

Password- iqytechnicalcollege

Then do the following exercise

Slide 1+2
Q1. What is internal combustion engine?

Slide 3 to 7
Q2. Explain engine heat transfer.

Slide 8+9
Q3.Explain cylinder heat flux, temperature relation

Slide 10 to 13
Q4.Write gas velocity equation.

Slide 14 to 18
Q5. Write overall heat transfer equation.

Slide 19 to 21
Q6. Explain coolant

Slide 22+23
Q7. Explain the combustion process inside engine.

Slide 25.
Q8. Sketch the strokes of engine.

Slide 28
Q9 Explain thermostat.

Slide 31 +32
Q10. Explain four phases of combustion.

Slide 33
Q11. Describe product of combustion.

Slide 34
Q12. Sketch engine ignition circuit.

Slide 40 to 43
Q13. Explain the followings
(a) Vane pump (b) Diaphragm pump

Slide 44 to 49
Q14. Sketch the followings
(b) Fuel filter (b) Injector

Slide 50
Q15. Explain nozzle

Slide 52

Q16. Copy the diagram on this slide.

Slide 56
Q17. How the engine is stopped?

Slide 57+58
Q18. Explain governor.

Slide 59.
Q19.Explain unit injector system.

Slide 60
Q20. Explain injector operation

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Month – 7(Week 3+4)

RPL for AE UNITS

AE 101 Auto Diesel+ Auto Electrics

AE 102 Auto General Engine+ Fuel System+ Transmission

AE 103 Engine Assembly +Electrical +Electronics

AE 104 Brake & Steering System

AE 105 Automotive Mechanic

COMPLETE DIPLOMA IN MECHANICAL/AUTOMOTIVE ENGINEERING

The list of the units need to be completed in Advanced Diploma in Mechanical Engineering -Mechatronics (TOTAL 45 pt)

PART (1) (15pt)

Total points= 45 pt + 30 pt from Dip Automotive Engineering = 75

Total points left for degree= 120-75 = 45

TUTORING LESSONS

ME104

Password- iqytechnicalcollege

ME 104 Machine Principle

Study the notes ME 104 Folder and do the following exercises.

Slide 1

Q1. Explain (a) Driving machine (b) Transmission machine

Slide 2 to 4

Q2.Explain driven machine

Slide 5

Q3. What is adjustable mounting?

Slide 6

Q4. Describe the principle of balancing.

Slide 7

Q5.Describe static balancing

Slide 8

Q6. Describe dynamic balancing.

Slide 9

Q7.What are the basic purposes of lubrication.

Slide 10

Q8. Explain the selection of lubricants.

Slide 11+12

Q9 Write the lubricant application process.

Slide 13.

Q10. Describe splash lubrication.

Slide 14.

Q11. What are the characteristics and properties of lubricants?

Slide 15.

Q12. Describe plain bearing.

Slide 16

Q13. Explain journal bearing.

Slide 17+18

Q14.Explain thrust bearing.

Slide 19+20

Q15. Explain linear bearing.

Slide 21 to 23

Q16 Explain ball bearing.

Q17. What is fretting?

Slide 24 to 27

Q18.Describe V belt drive

Slide 28+29

Q19. Explain chain drive

Slide 30+31

Q20. Describe gear drive.

Slide 32+33

Q30 Explain shaft coupling.

Slide 34 to 38

Q31. Explain clutches and method of alignment.

Slide 39 to 42

Q32.Explain O ring.

Slide 43 to 44

Q33.Describe the methods of monitoring the machine conditions.

Slide 45

Q34. What is meant by trouble shooting?

Slide 46+47

Q35.What are the housekeeping procedures in machine repair & maintenance?

ME 108 Principle of Engines

Study the notes in YOC-ME108 Lessons and do the following exercises.

Slide 1+2

Q1. What is internal combustion engine?

Slide 3 to 7

Q2. Explain engine heat transfer.

Slide 8+9

Q3.Explain cylinder heat flux, temperature relation

Slide 10 to 13

Q4.Write gas velocity equation.

Slide 14 to 18

Q5. Write overall heat transfer equation.

Slide 19 to 21

Q6. Explain coolant

Slide 22+23

Q7. Explain the combustion process inside engine.

Slide 25.

Q8. Sketch the strokes of engine.

Slide 28

Q9 Explain thermostat.

Slide 31 +32

Q10. Explain four phases of combustion.

Slide 33

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Slide 34

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Slide 40 to 43

Q13. Explain the followings

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Slide 44 to 49

Q14. Sketch the followings

(a) Fuel filter (b) Injector

Slide 50

Q15. Explain nozzle

Slide 52

Q16. Copy the diagram on this slide.

Slide 56

Q17. How the engine is stopped?

Slide 57+58

Q18. Explain governor.

Slide 59.

Q19.Explain unit injector system.

Slide 60

Q20. Explain injector operation.

WEEK 7-EE 624 Process Control

Study the notes in EE115+EE116 Folders & do the following exercises.

TUTORING LESSONS

EE624

EE116 Process Control System

Lesson 1__Lesson 2__Lesson 3___Lesson 4___Lesson 5___Lesson 6____Lesson 7

Lesson 8__Lesson 9__Lesson 10

Password- iqytechnicalcollege

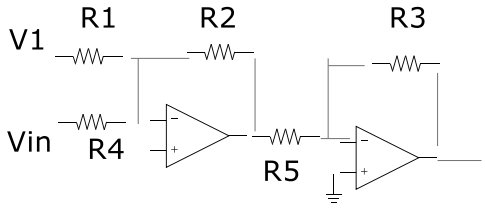
I006+ H012 Online Test

Ref501

_____ provides the operation necessary to transform the sensor output into a form necessary to interface with other elements of process control lop.

A	Analogue signal conditioning	B	Digital signal conditioning
C		D	
	Answer		

Ref504



V1=5V, R1=R2=34KΩ, ,R3=R4=R5=10 KΩ,

Vout for above circuit is

A	Vout= 1.7 Vin + 5	B	Vout = 3.4 Vin
C	Vout = 1.7 Vin	D	Vout= 3.4 Vin +5
	Answer		

Ref507

TTL 74LS 193 A CMOS 4035 ICs are used for

A	Parallel in / Parallel out function	B	Serial in / Parallel out function
C	Parallel in / Serial out function	D	Serial in / Serial out function
	Answer		

Ref510

The number of data signal lines required for 7 segments display is

A	7	B	8
C	9	D	10
	Answer		

Ref513

Events occur after the previous event is completed. The device is_____.

A	Combinational logic	B	Sequential logic
C	Synchronous logic	D	Asynchronous logic
	Answer		

Ref516

45_{10} =

A	101101_2	B	100101_2
C	111001_2	D	101010_2
	Answer		

Ref519

The device in which only one input at a time is activated to produce specific code at output is

A	Decoder	B	Encoder
C	Multiplexer	D	Demultiplexer
	Answer		

Ref522

Latch can store

A	Only one bit of information	B	A number of bits at one time
C		D	
	Answer		

Ref525

Decimal equivalence of 47H is

A	71	B	781
C	29	D	112
	Answer		

Ref528

Temperature is measured by a sensor with output 0.02 V/ ° C . Determine ADC Reference & word size to measure 0 to 100°C resolution.

A	0.039V/ step	B	0.078V/ step
C	0.156V/ step	D	0.312V/ step
	Answer		

Ref531

What is the HEX output of a bipolar 12 bit ADC with a 5 V reference for input -0.85V

A	54H	B	108H
C	27H	D	39H
	Answer		

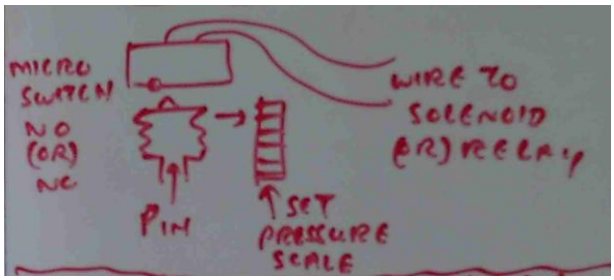
Ref534

ADC has been developed to interface with microprocessor. Data from ADC is placed on _____. When appropriate command is issued.

A	Address bus	B	Data bus
C	Control bus	D	
	Answer		

Ref537

The following is called_____.



A	Bellow operated on-off controller	B	On-off pressure control loop
C	Pnuematic force balance proportional	D	

	controller		
	Answer		

Ref540

Derivative mode

A	Stabilizes the process	B	Resets the process
C	Compensates time lag in control loop	D	
	Answer		

WEEK 18-ME 334 Airconditioning and Refrigeration

TUTORING LESSONS

ME 334 Part 1

ME 334 Part 2

ME 334 Part 3

ME 334 Part 4

ME 334 Part 5

Study ME 334 part 1 & do the following exercises.

Listen to the audio explanation and diagram on the slides and answer the questions. You can write in English or Myanmar

Slide 1

Q1.Sketch & explain the function of condenser.

Slide 2

Q2.what is evaporator?

Slide 4 to 6

Q3.Sketch and explain the function of compressor.

Slide 8+9

Q4.Sketch the four strokes operation of compressor.

Slide 10 to 12

Q5.Skecth the complete refrigeration pipe line circuit of compressor, evaporator, condenser and explain the operation.

Study ME 334 part 2 & do the following exercises.

Listen to the audio explanation and diagram on the slides and answer the questions. You can write in English or Myanmar

Slide 18 to 20

Q6.Sketch the connection of pressure gauge and refrigerant container to charge the refrigerant into refrigeration system

Study ME 334 part 3 & do the following exercises.

Listen to the audio explanation and diagram on the slides and answer the questions. You can write in English or Myanmar

Slide 1 to 7

Q7.Explain refrigerant charging procedure with necessary sketches.

Slide 8

Q8.Sketch the diagram of thermostat and electrical circuit diagram of compressor motor.

Slide 9+10

Q9.Sketch the electrical circuit diagram for compressor motor power supply system.

Slide 13 to 15

Q10.Sketch electrical circuit diagram containing step down transformer, thermostat and compressor motor of refrigerator compressor motor power supply system.

Slide 16 to 20

Q11.explain the operation principle of compressor.

Study ME 334 part 4 & do the following exercises.

Listen to the audio explanation and diagram on the slides and answer the questions. You can write in English or Myanmar

Slide 1

Q12.Sketch the cross sectional view of compressor.

Slide 2

Q13.Sketch the refrigeration circuit connection of compressor, evaporator and condenser.

Slide 3 to 6

Q14.Explain the operation of TEV (Thermostatic expansion Valve or Refrigerant Control Valve with refrigerant control.

Slide 7.

Q15.Sketch installation diagram of refrigerator.

Slide 8

Q16.Sketch air ventilator and air duct.

Slide 9+10

Q17. How do you understand humidity?

Slide 12 to 14

Q18. What are the factors influencing comfort.

Slide 15

Q19.Sketch the arrangement of air distribution in a house.

Slide 16.

Q20.Sketch air duct installation diagram.

Slide 17+18

Q21.Sketch electrical circuit diagram of blower fan.

Slide 19+20

Q22.Sketch the various arrangements of air distribution ducts.

Study ME 334 part 5 & do the following exercises.

Listen to the audio explanation and diagram on the slides and answer the questions. You can write in English or Myanmar

Slide 1+2+4+5+8

Q23. Sketch the installation diagram of air ducts.

Slide 6+7

Q24.Provide four sketches of air diffusers.

Slide 9+10+12

Q25.Explain the split type air conditioner with necessary sketches.

Slide 11

Q26.Explain window type air conditioner with necessary sketch.

Slide 13+14

Q27.Explain air handler unit with refrigerant pipe.

Slide 16+17.

Q28.Sketch the complete refrigerant pipe line containing evaporator, compressor, condenser and explain the operation.

Slide 18+19

Q29.Sketch air distribution system for multistorey building

Q30.Sketch indoor and out door units of an air handler and label the components.

TUTORING LESSONS

ME202 Part 1

ME202 Part 2

ME202 Part 3

Study ME202 Part 2 and do the following exercises.

Slide 1+2

Q13.Sketch the resultant force and moment acting on airfoil.

Slide 3

Q14.Sketch the graph of coefficient vs attack angle.

Slide 4

Q15.Sketch the rotation and distortion of fluid element.

Slide 5 to 7

Q16.Sketch

(a) Vortex sheet on camber line (b) Vortex sheet on chord line (c) Formation of wing vortex

Slide 8+9

Q17.Write the equation for inviscid compressible flow.

Slide 10

Q18.Write one dimensional flow equation.

Slide 11 to 14

Q19.Write the following equations

(a) Inviscid momentum equation (b) Energy equation (c) Speed of sound (d) Stagnation pressure and stagnation density with stagnation temperature.

Slide 15 to 17

Q20.

A normal shock wave is formed in air where upstream Mach number is 2 and upstream temperature, pressure and density are 300 K, 1 atm (i.e., 1 atmospheric pressure, which is approximately $1.01\times10^5\,\mathrm{N/m^2}$) and $1.2\mathrm{kg/m^3}$ respectively. Calculate Mach number, velocity, static temperature, static pressure, stagnation temperature and stagnation pressure downstream of the shock. Assume $\gamma = 1.4$.

Slide 18 to 20

Q21.Write the equation for quasi one dimensional flow; nozzle and diffuser flow.

Slide 21

Q22.What the M values for the followings

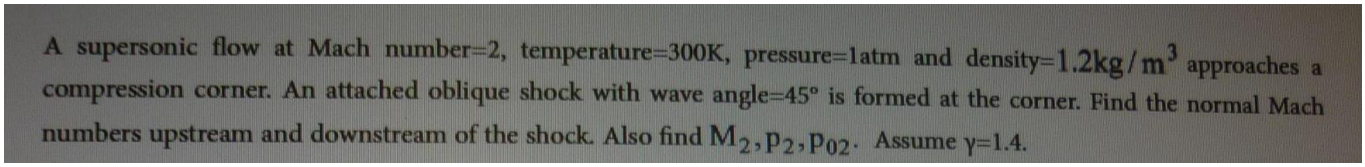
(a) Subsonic flow (b) Supersonic flow (c) Sonic flow.

ME 202 Introduction to Aero Dynamics

Study ME202 Part 3 and do the following exercises.

Slide 1+2

Q23.



Slide 3

Q24.Explain the fundamental of viscous flow.

Slide 4 to 11

Q25.Write the equation for two dimensional poiseuille flow.

Slide 13.

Q26.Write the equation for density of liquid.

ME 302 Automation-and-Robotics

TUTORING LESSONS

ME 302 Part 1

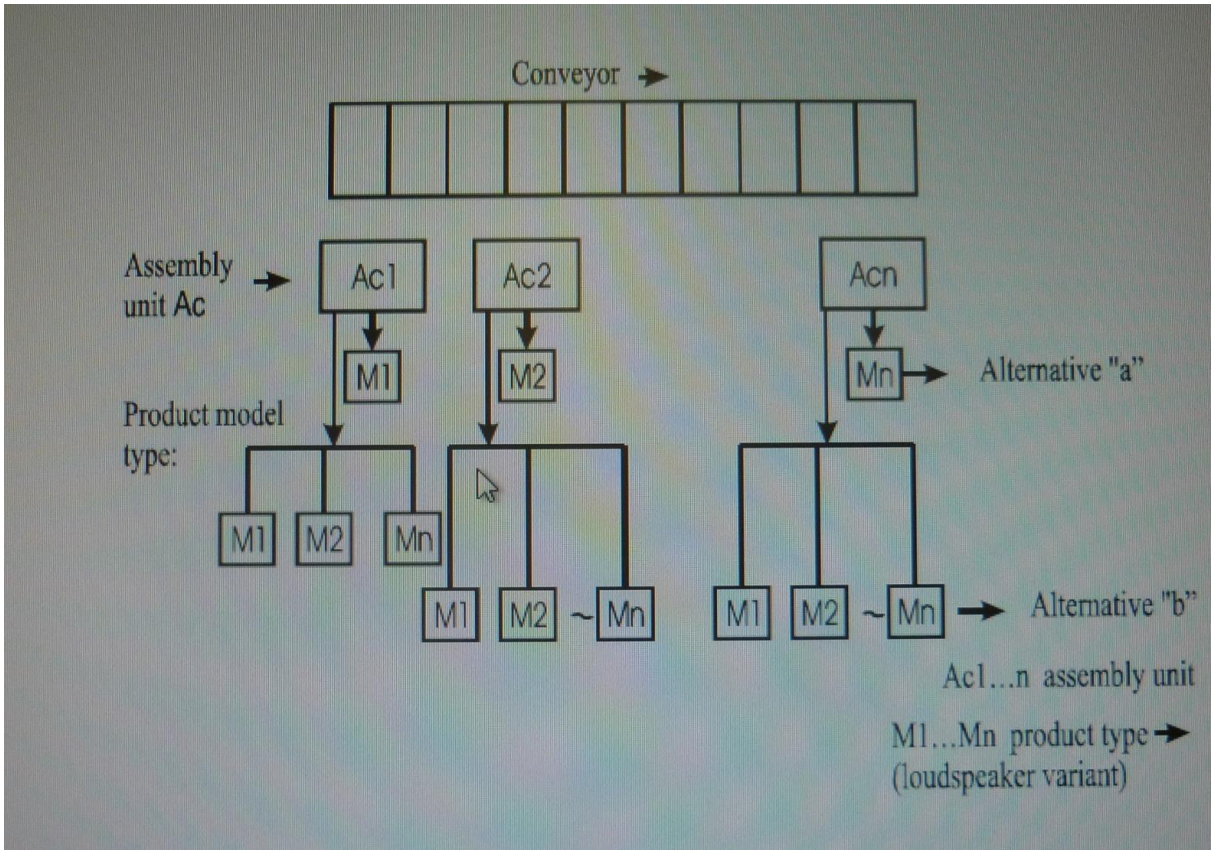
ME 302 Part 2

ME 302 Part 3

Study ME 302 Part 1 and do the following exercises.

Slide 1 to 3

Explain the following layout.



Slide 17

Q2.What kinds of operations can not be done by assembly machines.

ME 302 Automation-and-Robotics Part 2

Slide 5

Q3.Provide an example of proposal for automation.

Slide 6

Q4.Explain end effector design.

Slide 7.

Q5.Explain robot arm grip design.

Slide 9+10

Q6.Explain feeding and storage of parts.

Slide 11

Q7.Describe feeder design.

Slide 18

Q8.Write the equation to calculate the volume of space occupied by single part.

Slide 19+20

Q9.What are the method of re-filling.

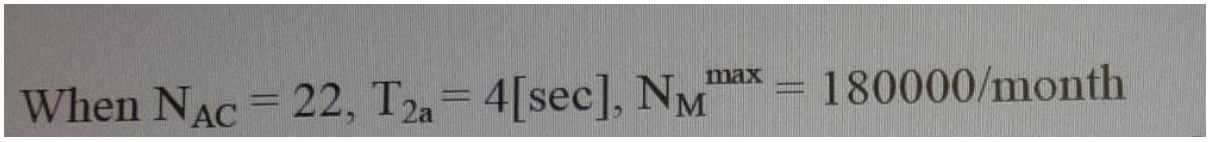
ME 302 Automation-and-Robotics Part 3

Slide 5

Q10.Describe assembly cell design.

Slide 11

Q11.



Calculate assembly line output.

ME 303 Computer Aided Design and Manufacturing (Needs to do)

TUTORING LESSONS

ME303

Study folder ME 303 Computer Aided Design and Manufacturing

Page 9

Q1.Describe the types of computer programs used in manufacturing.

Page 11

Q2.What are the production modules of pro-engineer.

Page 14

Q3.Explain ibm catia.

Page 17

Q4.What is Data CAD?

Page 21

Q5.What computer programs are used in design?

Page 27

Q6.Explain Cadtek system.

Page 29

Q7.Explain Design advisor.

Page 32

Q8.Explain Solid work.

Page 37

Q9.What factors are to be considered to select the CAD/CAM system?

Page 62

Q10.How will you create the new file in Pro-engineer?

Page 66

Q11.How will you define the co-ordinate system for machine tool?

Page 83

Q12.Explain the computer program using drilling holes with diameter 20mm.

Page 96

Q13.How will you define a co-ordinate system for machine tool?

Page 111

Q14.How will you calculate total machining time?

Page 127

Q15 Explain retrieve approach to optimize the machining sequence.

Page 139

Q16.Explain rapid pro-typing techniques.

Page 148

Q17.Explain laminated object manufacturing.

Page 150

Q18.Explain solid ground curing.

Page 157

Q19.Explain paper lamination technology.

Page 163

Q20.Explain design controlled automated fabrication.

Page 169

Q21.Explain

(a) Plastic (b) Metal

Wk 14-ME 234 Wind Turbines

TUTORING LESSONS

ME 234 Part 1

ME 234 Part 2

ME 234 Part 3

Study ME 234 Part 1 & do the following exercises.

Slide 1+14

Q1.Sketch the wind turbine and label the components.

Slide 2

Q2.Write the factos to be concerned to sit the wind turbine.

Slide 4.

Q3. What are the planning constraints to install the wind turbines?

Slide 5

Q4. What are the separations between wind turbines?

Slide 6.

Q5 How the site is prepared before installing the wind turbine?

Slide 8 to 10

Q6.Describe the followings

(a) Conservation of mass (b) Conservation of energy (c)Conservation of momentum

Slide 11

Q7. Write the equation to calculate ideal wind power.

Slide 12+13

Q8.Explain wind energy theory.

Slide 15

Q9.What are the steps in planning the wind firm?

ME 201 Introduction to Fluid Mechanics (Needs to do)

TUTORING LESSONS

ME201 Part 1

ME201 Part 2

ME201 Part 3

Wk 1- ME 201Introduction to Fluid Mechanics Part 1

Study the notes in ME201 Part 1 folder and do the following exercises.

Slide 1

Q1.Describe the nature of fluid.

Slide 2

Q2. Write continuum equation of fluid.

Slide 3

Q3.What are the properties of fluids

Q4. What is density?

Slide 5

Q5.What is viscosity?

Slide 6 to 8

Q6.Write the equation for viscosity.

Slide 9 to 11

Q7.Explain surface tension & write the equation.

Slide 12

Q8.What is compressibility?

Slide 13.

Q9. Outline the broad classification of fluid mechanic.

Slide 14.

Q10.Explain fluid statistics.

Slide 15 to 17

Q11.Write the equation for pressure.

Slide 18

Q12.Show pressure variation in the direction of gravity.

Slide 19

Q13.Define the followings.

(a) Pressure (b) Head

Slide 20

Q14.Explain measurement of pressure.

Wk 3-ME 204 Engineering Fluid Mechanics

+

ME 301 Fluid Dynamics (Needs to do)

TUTORING LESSONS

ME204

Study ME 301 folder & do the exercises

Slide 1

Q1. What kind of forces are acting on fluid particles?

Slide 2

Q2.Write the equation for compressible flow.

Slide 3

Q3. Express Navier Stokes equation and energy equation.

Slide 4

Q4.Write the equation for dissipation function.

Slide 5

Q5. Write the equation for incompressible flow.

Slide 6 to 8

Q6.Explain turbulent flow with diagram and express the graphs for instantaneous and average velocities.

Slide 9

Q7.Explain inviscid flow

Slide 10.

Q8.Explain boundary layer

ME 206 Introduction to Turbo Machinery (Needs to do)

TUTORING LESSONS

ME 206 Part 1

ME 206 Part 2

ME 206 Part 3

ME 206 Introduction to Turbo Machinery

Study the notes in ME 206 Part 1 Folder & do the following exercises.

Slide 1

Q1.Explain the basic mechanism of operating the turbine.

Slide 3

Q2.What are the components of turbine?

Slide 4 to 7

Q3.Sketch the simple turbine operation.

Slide 8

Q4.Explain meridional view of turbine.

Slide 11+12

Q5.Express the velocity triangle for aircraft landing.

Slide 13 to 16

Q6.Explain velocity triangles in turbo machinery.

Slide 17+18

Q7.Write the equations related to velocity triangles in turbo machinery.

Slide 20 to 22

Q8.Sketch the wind turbine & indicate the components.

Study the notes in ME 206 Part 2 Folder & do the following exercises.

Slide 1+2

Q9.Describe the forces acting on wind turbine blades.

Slide 3+4

Q10.explain aerofoil operation and testing procedure.

Slide 5 to 8

Q11.A wind turbine is designed to work at a condition with a wind speed of 10m/s and an air density of 1.22 kg/ m^3 . The turbine has a blades with a NACA 0012 profile and is rotating at one revolution per second. The blade chord length is 0.5 m . Taking the design point at 85% maximum lift condition and ignoring the drag on the aerofoil estimate the power output per unit blade span at a radius of 6 m for each blade.

Slide 11.

Q12.Describe wind turbine power control procedure.

Slide 12

Q13.Explain axial flow machine.

Slide 13 to 16

Q14.Explain radial and centrifugal flow machines.

Slide 17+18

Q15.Sketch velocity vector diagrams for stator and rotor of turbine.

Slide 19

Q16.Construct the cascade view of impeller.

Slide 20

Q17.Sketch the velocity diagram of impeller.

Slide 21 to 23

Q18.Write the equation for hydraulic turbine & explain its operation.

Study the notes in ME 206 Part 3 Folder & do the following exercises.

Slide 1

Q19. State the common design choice for constant axial velocity.

Slide 5+6

Q20.Explain the operation of turbo machines & system.

Slide 8

Q21.Sketch Enthalpy-Entropy diagram for turbine.

Slide 9+10

Q22.Explain dimensionless parameters for turbine machine.

Slide 11

Q23.Sketch the combined inlet & exit velocity diagrams of turbine.

Slide 12+13

Q24.Given a turbine blade row with constant axial velocity of 150 m/s at 5000 rpm on a mean radius of 0.7 m and an absolute flow angle at exit from the stator of 70 degree. The turbine operates with axial leaving flow and is a repeating stage. Calculate the flow coefficient , stage loading coefficient and reaction.

Slide 14

Q25. Write the equation to calculate the power coefficient of wind turbine.

Slide 15

Q26.Calculate the power output of the device at 10 rpm in a 10 m/s wind given that the turbine is 80 m in diameter and the density of air can be taken as 1.15 kg/ m^3 .

Slide 16.

Q27.Write the equations to calculate the coefficients of hydraulic machines.

Slide 18

Q28. Write the equations to calculate the specific speed of hydraulic turbine.

Slide 19 to 21.

Q29.Explain pelton wheel turbine.

Slide 22

Q30.Explain analysis approach of pelton wheel turbine.

ME 205 Manufacturing Processes & Materials

Study ME 205 folder /CGVE 401 Folder 1 to 24 and do the following exercises.

TUTORING LESSONS

ME205 Part 1

ME205 Part 2

Slide 1

Q1.What are non conventional manufacturing processes?

Slide 2 to 5

Q2. Explain the followings.

(a) Chemical machining (b) Electro-chemical machining (c) electro-chemical grinding (d)Electrical discharge machining (e) Wire electrical discharge machining (f) Laser beam machining (g) water jet machining (h) Abrasive jet machining

Slide 6+7

Q3.Explain (a) Process efficiency comparison (b) Tool wear (c) Personnel skills

Slide 8+9

Q4.What are significant factors causing tool wears?

Slide 10 to 12

Q5.Sketch conventional lathe knife & label the components.

Slide 13

Q6.Write Taylor's relation equation.

Slide 14

Q7.Write the formula to predict tool wear.

Slide 15

Q8.What are the factors that influence the useful life of tools.

Slide 17 to 22

Q9.Explain monitoring the condition of tools.

Slide 23+24

Q10.Explain acceptance sampling.

ME 207 Chemical Thermodynamics

TUTORING LESSONS

ME207

Study ME 207 Folder & do the exercises

Slide 1

Q1. Sketch the graph for Molar Gibbs free energy.

Slide 2+4

Q2.Write the equation for Molar Gibbs free energy.

Slide 5+6

Q3. Write the equation for Liquid-liquid equilibrium.

Slide 7

Q4. Explain phase behaviour of solid liquid phase diagram.

Slide 8+9

Q5.What is the condition for equilibrium of chemical mixture?

Slide 10+11

Q6.Write the equation to calculate the difference in chemical potential of solid-liquid phase.

Slide 12

Q7.Sketch temperature VS mole fraction of ethanol.

Slide 13+14

Q8.Write the equation to calculate molar Gibbs free energy of the pure solid phase.

WEEK 17-ME 208 Hydrocarbons

TUTORING LESSONS

ME208 Part 1

ME208 Part 2

Study ME208 Part 1 and do the following exercises.

Slide 3

Q1.Explain Benzene.

Slide 6+78

Q2.What are the viscosities of (a) Ethanol (b) Acetone (c) Toluene(d) n-hexane?

Slide 9+10

Q3.What are the acoustic impedance of Acetone ,Ethanol ,Glycerol?

Slide 11

Q4.What are thermal conductivities of Acetone, Methanol, Benzene?

Slide 12

Q5.Explain electrical properties of hydro-carbons.

Slide 13+14

Q6.Explain optical properties of hydro-carbons.

Slide 15+16

Q6.Explain physical properties of crude oil.

Slide 17 to 19

Q7.Show one example for each of light crude oil, medium crude oil and heavy crude oil and describe their properties.

Slide 20.

Q8.Explain viscosity of blended crude oil.

Slide 21

Q9.Write the equation for coefficient of thermal expansion of crude oil.

Study ME208 Part 2 and do the following exercises.

Slide 1+2

Q10.Explain the followings

(a) Thermal conductivity (b) Viscosities of blends of crude oil

Slide 4

Q11.What are the properties of Gasoline-ethanol blends.

Slide 5

Q12.Explain refinement to RVP.

Slide 6

Q13.What is thermal conductivity of petroleum?

Slide 7 to 9

Q14.Explain the following physical properties of kerosene

(a) Density (b) Solid deposition (c)Viscosity

Slide 12

Q15.Write note on diesel fuel.

Slide 13 to 15

Q16.Explain the followings for diesel fuel.

(a) Refractive index (b) Electrical conductivity (c) Lubricity

Slide 16

Q17.What are density and viscosity of residual oil.

Slide 17

Q18.Explain (a) Solid deposition from heavy fuel oil (b) Vapour pressure of residual fuel oil.

Slide 19 to 23

Q19.Explain the followings.

(a) Methanol (b) Ethanol (c) Methanol -gasoline blend (d) Ethanol-gasoline blend

Slide 24 to 26

Q20.Explain bio-diesel fuel.

Q21.What are viscosity and participle deposition of bio-diesel fuel?

WEEK 16-ME 634 Pneumatics

TUTORING LESSONS

ME634 Part 1

ME634 Part 2

ME634 Part 3

ME634 Part 4

Study ME 634 Pneumatics part 1 and do the following exercises.

Slide 1

Q1.Explain transmission of force by fluid.

Slide 2

Q2.Write the equation to calculate pressure.

Slide 4

Q3.Sketch the effective area of piston.

Slide 5

Q4.Explain flow and pressure drop.

Slide 6.

Q5.What are the natures of the pressure at upstream and downstream.

Slide 7

Q6.Explain flow through orifice to atmosphere.

Slide 8+9

Q7.Explain the followings

(a) Atmospheric pressure (b) Vacuum pressure (c) Gauge pressure versus absolute pressure.

Slide 10

Q8.Explain the pressure in liquid.

Slide 12

Q9.An air receiver with a volume of 6 m^3 must be filled with compressed air to a maximum pressure of 900 kpa (9 bar) . Calculate the volume of free air (FA) to be pumped by the compressor.

Slide 13

Q10.Explain Charles law

Slide 14+15

Q11.Explain Gay Lussac's law

Q12.Explain the concept of power transmission.

Slide 16

Q13.Explain the relationship of force, velocity, pressure and flow rate.

Slide 17.

Q14 Sketch the basic pneumatic system by applying block diagram and pneumatic symbols.

Slide 18 to 20

Q15.Sketch the following positions of valves.

(a) Actuated position (b) Non actuated position (c) Centre position.

ME 634 Pneumatics

Study ME 634 Pneumatics part 2 and do the following exercises.

Slide 1+2

Q16.Explain the uses of two ports, three ports, four ports and five ports valves.

Slide 3

Q17.Sketch the mechanism of rotary plug valve.

Slide 4 to 8

Q18.Explain the followings.

(a) Normally closed and normally open valves (b) Methods of valve actuation (c) Spring actuated valves

Slide 9

Q19.Sketch the followings.

(a) Pedal (b) plunger (c) Spring (d) Detent (e)Solenoid valve (f) Spring centred

Slide 10 to 13

Q20.Explain spool valve ,flat slide valve and poppet valve .

Slide 14

Q21.Describe spool-poppet valve with sketch.

Slide 15 to 17

Q22.Explain toggle disc valve.

Slide 18 to 20

Q23.Explain the followings

(a) Cross over condition (b) Special condition (c) Valve conversion.

ME 634 Pneumatics

Study ME 634 Pneumatics part 3 and do the following exercises.

Slide 1+2+3

Q24.Sketch positive overlap and negative overlap.

Slide 4 to 7

Q25.Sketch Normally closed and Normally open valve

Q26.Explain actuator control.

Slide 8+9

Q27.Explain time delay valve.

Slide 12+13

Q28.Explain the followings

(a)Variable restrictor with free reverse flow (b) Cam roller operated flow control

Slide 14+15

Q29.Explain quick exhaust speed control.

Slide 16+17

Q30.Explain power valve exhaust port speed control.

Slide 18+19

Q31.Explain air motors.

ME 634 Pneumatics

Study ME 634 Pneumatics part 4 and do the following exercises.

Slide 1+2

Q32.Describe pneumatics sensors.

Slide 3 to 5

Q33. Describe back pressure sensor for contact sensing.

Slide 6+7

Q34.What is proximity sensor?

Slide 8+9

Q35.Sketch sensor circuit.

Slide 10

Q36.Explain pneumatics governor.

WK 2-ME 203 Control Engineering

TUTORING LESSONS

ME 203 Part 1

ME 203 Part 2

ME 203 Part 3

Study ME 203 Part 1 and do the following exercises.

Slide 1

Q1.Sketch basic feedback control structure.

Slide 2

Q2.Write the differential equations for control function.

Slide 3

Q3.Write the equation for Laplace transform.

Slide 5+6+8+9

Q4.Write an example equation for state-space representation.

Slide 7

Q5.Sketch simple RC circuit.

Slide 11

Q6.Write state and output equation.

Slide 12+13

Q7. Write MATLAB entry for

G (S) = (2S+1) /(S^2+4S+3)

Slide 14 to 18

Q8.Express interconnecting models in MATLAB for the followings.

(a) G = G1 * G2 (b) G = G1 + G2

Slide 19

Q9.Write single pole transfer function equation

WEEK 14- ME 534 Numerical Control Part 1

TUTORING LESSONS

ME534 Part 1

ME534 Part 2

ME534 Part 3

ME534 Part 4

ME534 Part 5

ME534 Part 6

ME534 Part 7

Study Numerical Control Part 1 & do the following exercises.

Slide 1

Q1.What are technical limitations of numerical control machines?

Slide 2

Q2.Describe the breakdown time spent by average workshop in machine shop.

Slide 3

Q3.Sketch the flow diagram of numerical control process.

Slide 5+6

Q4.Sketch the machine control unit & work table arrangement.

Slide 7 to 9

Q5.Sketch the work processing system of two axis machine.

Slide 10 to 12

Q6.Sketch closed loop control system.

Slide 13 to 20

Q7.Explain the followings

Contouring (b) Cartesian co-ordinate (c) Two axis tape control (d) Four or five axis tape control

ME 534 Numerical Control Part 2

Study Numerical Control Part 2 & do the following exercises.

Slide 1

Q8.Explain incremental system.

Slide 2+3+4

Q9.Explain absolute system.

Slide 5 to 7

Q10.Explain zero shift system.

Slide 8

Q11.Explain binary coded decimal system.

Slide 9+10

Q12.What is ASCII code.

Slide 11+12

Q13.What is sequence number?

Slide 14

Q14. Explain the followings

(a) Rapid (b) Feed

Slide 15 to 18

Q15.Explain the followings.

(a) Drill cycle (b) Dwell cycle (c) Cancel cycle

ME 534 Numerical Control Part 3

Study Numerical Control Part 3 & do the following exercises.

Slide 1 to 3

Q16.Explain

(a) Feed rate (b) Spindle speed (c) Depth selection

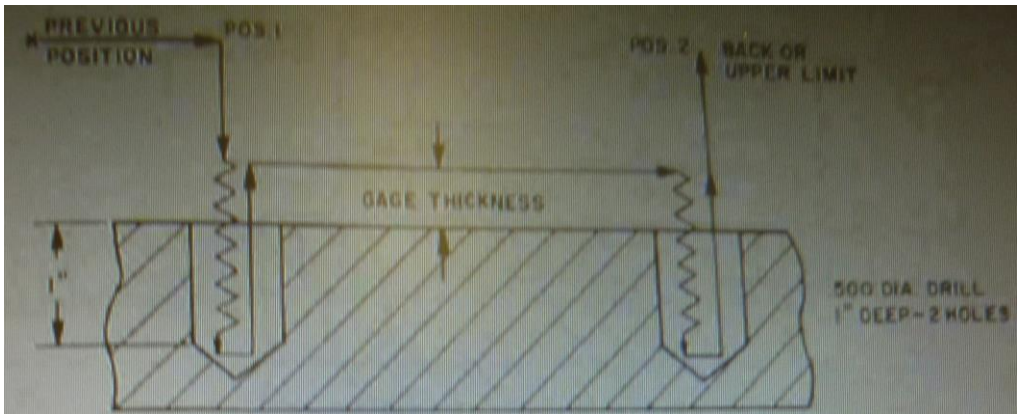
Slide 4 to 5

Q17.Explain the followings.

(a) M00 (b) M01 (c) M02 (d) M06

Slide 7 to 14

Q18.Write the CNC Program for the following operation.



For (a) Drill Programming (b) Dwell programming (c)Bore programming (d) Tap Programming

Slide 15 to 18

Q19.Explain the followings

(a) O001 (b)N002 (c) N003 (d) N004 (e)O005

ME 534 Numerical Control Part 4

Study Numerical Control Part 4 & do the following exercises.

Slide 1 to 5

Q20.Explain the followings.

(a) O007 (b) N008 (c) O009 (d) N010 (e)O011 (f) N012 (g) N013 (h)N014 (i) N015

Slide 6 to 10

Q21.Explain linear interpolation and circular interpolation.

Slide 11 to 15

Q22.Explain the CNC program for linear interpolation and circular interpolation.

Slide 16+17

Q23.Write the equation to calculate Z depth & sketch the diagram.

Slide 18 to 20

Q24.Explain tool length compensation.

ME 534 Numerical Control Part 5

Study Numerical Control Part 5 & do the following exercises.

Slide 1 to 4

Q25.Sketch CNC lathe and label the components.

Slide 5+6

Q26.Write spindle speed format.

Slide 7 to 10

Q27.What functions are done with the followings?

(a) G (b) X/X (c) I/K (d) A (e)F (f)V (g)S (h) T (i) C (j) D (K) M

Slide 12 to 16

Q28.Explain the following operation.

N420 G02 X23188 Z20000 I23188 K 29688

Slide 20

Q29.Explain threading operation.

WEEK 13- ME 434 Mechtronics-Robotics

TUTORING LESSONS

ME434 Part 1

ME434 Part 2

ME434 Part 3

Study ME434 Part 1 and do the following exercises.

Slide 1

Q1.List the performance characteristics of robotics.

Slide 2 to 9

Q2.Describe the methods used for measuring robot accuracy.

Slide 10

Q3.Explain transmission of energy with sketch.

Slide 11+12

Q4.Write the formula to calculate the power of manipulator.

Slide 15+16

Q5.Describe interfacing link.

Slide 17 to 20

Q6.Sketch the followings

(a) Transmitter circuit (b) Signal output condition (c) Connection of input connection to controller

Study ME434 Part 2 and do the following exercises.

Slide 1 to 5

Q7.Sketch remote operator's station for controlling two robotic work cells.

Slide 7

Q8.Sketch dual gripper.

Slide 8

Q9.Sketch safety joint and alarm switch for an end effector.

Slide 11

Q10.Sketch inside diameter gripper.

Slide13

Q11.Sketch vacuum gripper.

Slide 14

Q12.Sketch dual magnetic gripper.

Slide 15 to 20

Q13.Explain the followings.

(a) Contact sensor (b) Proximity sensor (c) Vision system as non contact sensor (d)Limit switch (e) Thermocouple sensor.

Study ME434 Part 3 and do the following exercises.

Slide 1+2

Q14.Explain robotic work transfer with sketch.

Slide 3

Q15.Sketch machine transfer work cell.

Slide 6 to 9

Q16.Sketch the circuit consisting of left & right motor

EE 617 Building Electrical and Mechanical System Part 1

Study the notes in EE307 (EE617) Folder & Submit the solar energy design project

EE307 Energy Efficient Building Design

TUTORING LESSONS

EE307 Part 1 EE307 Part 2 EE307 Part 3 EE307 Part 4

EE307 Part 5 EE307 Part 6

Test & Assessment

http://www.filefactory.com/file/5laxij9trib1/n/K041_Test_pdf

SUBMIT THE SCANNED COPY OF ANSWER to

Dr Kyaw Naing

PO BOX 227

Marrickville, NSW 1475, Sydney, Australia

Password- **iqytechnicalcollege**

ME 104 Machine Principle (2 pt) (Needs to do)

ME104

TUTORING LESSONS

EE105 Electrical Installation Design

EE107 Electrical Equipments

Lesson 1 Lesson 2 Lesson 3 Lesson 4

EE105 Electrical Installation Design

EE107 Electrical Equipments

Study the powerpoints in

EE105+107 Power Point Part 1

EE105+107 Power Point Part 2

EE105+107 Power Point Part 3

EE105+107 Power Point Part 4

and do the following exercises.

EE105+107 Power Point Part 1

Q1.Describe the structure of wiring rules

Q2.Take the practice on problem in presentation 48.

EE105+107 Power Point Part 2

Q3.Determine the maximum route length of 6 mm^2 bare copper single phase consumer main with maximum demand of 80A and permissible voltage drop of 4.3 V.

EE105+107 Power Point Part 3

Q4.

Calculate the voltage drop in each segment of a 3 phase 400 volt non-domestic installation consisting of the followings.

Consumer main
Phase = 3 Maximum demand 45 Amp Route length = 25 m

Cable size 16 mm^2

Cable configuration V90 Single core thermo plastic and sheathed copper conductor

Cable installation
The circuit is enclosed in heavy duty rigid thermoplastic conduit with no other circuits. Conduit is buried in the ground having an ambient soil temperature of 25 ˚C and has a top cover of 0.65 m.

Sub main
Phase = 3 Maximum demand = 35 A, Route length = 35 m

Cable size = 10 mm^2

Cable configuration
V90 Single core thermoplastic and sheathed copper conductors structure in trefoil formation and installed in single circuit configuration unenclosed in air

Final sub circuit
Phase = 1 Maximum demand = 20 Amp Route length = 35 m

Cable size = 4 mm^2

Cable configuration - V90 two cores and earthed thermoplastic and sheathed copper conductors

Cable installation - The cables are clipped to the building structure and installed in single circuit configuration , unenclosed in air.

Does this portion of the installation comply with the voltage drop requirement of AS/NZS 3000 ?

EE105+107 Power Point Part 4

Q5.

A final sub-circuit supplies a load consisting of a range in a domestic installation and is protected by 32A Type C circuit breaker. Determine the maximum internal fault loop impedance of final sub circuit based on 230V when supply is unavailable.

EE106 Advanced Electrical Wiring

+

EE108 Electrical Fault Finding

TUTORING LESSONS

Lesson 1 Lesson 2 Lesson 3 Lesson 4

Test & Assessment

http://www.classroomclipboard.com/503511/Home/Test/334df2651a9440aa8fe25532f0e3d7c5#/InitializeTest.xaml

Type your name Put the following access code

NY78T

Study the notes

Then do the following exercises.

1) Ref 604

A final subcircuit supplies a load consisting of 25A outlet and protected by 25A HRC fuse. Determine the maximum fault loop impedance of final subcircuit & based on 230V.

2) Ref 603

Final subcircuit supplies a load consisting of a range in domestic installation & is protected by 32A CB . Determine maximum internal fault loop impedance of final subcircuit based on 230V.

3) Ref 602

Write the formula to calculate the voltage drop in electrical cable

4) Ref 601

Describe the overview of AS 3000 Electrical wiring rule.

5) Ref 600

What are the requirements to install the switch board?

6) Ref 599

Explain the installation of switch board

7) Ref 598

Explain the operation principle of RCD with sketch

8) Ref 597

Explain the requirements of switch board in domestic electrical installation

9) Ref 596

Sketch the connection of a typical switch board

10) Ref 595

Describe the followings

(a) Basic protection principle (b) Overload and short circuit protection

11) Ref 594

Explain the explosion protection techniques.

12) Ref 593

Sketch TPS wiring system

13) Ref 592

Explain underground wiring system with sketch

14) Ref 591

Explain the following equipments

(a) Water heater (b) Cooking appliances (c) Motor

15) Ref 590

Sketch earthing system and earthing arrangement

16) Ref 589

Explain electrical installation safety testing procedures

17) Ref 588

Sketch the polarity testing circuits

18) Ref 587

What are the types of RCD?

19) Ref 586

Outline the overload protection devices

20) Ref 585

(a) Explain earthing protection

EE116 Process Control System

EE115 Basic Analogue & Digital Electronics

EE116 Process Control System

TUTORING LESSONS

Lesson 1 Lesson 2 Lesson 3 Lesson 4 Lesson 5 Lesson 6 Lesson 7

Lesson 8 Lesson 9 Lesson 10

Test & Assessment

http://www.filefactory.com/file/46zzpcym7uqz/n/I006_H012_Online_Test_1_Question_pdf

http://www.filefactory.com/file/4e2chw2sf343/n/I006_H012_Online_Test_1_Answer_doc

SUBMIT THE SCANNED COPY OF ANSWER to

Dr Kyaw Naing

PO BOX 227

Marrickville, NSW 1475, Sydney, Australia

Password- **iqytechnicalcollege**

Study the followings

EE115+EE116 Files

And do the following exercises.

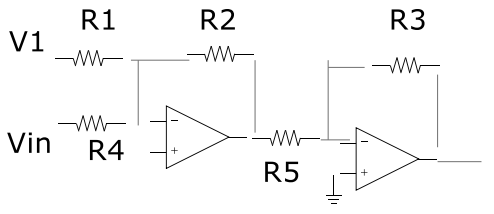
I006+ H012 Online Test

Ref501

_____ provides the operation necessary to transform the sensor output into a form necessary to interface with other elements of process control lop.

A	Analogue signal conditioning	B	Digital signal conditioning
C		D	
	Answer		

Ref504



V1=5V, R1=R2=34KΩ, ,R3=R4=R5=10 KΩ,

Vout for above circuit is

A	Vout= 1.7 Vin + 5	B	Vout = 3.4 Vin
C	Vout = 1.7 Vin	D	Vout= 3.4 Vin +5

	Answer		

Ref507

TTL 74LS 193 A CMOS 4035 ICs are used for

A	Parallel in / Parallel out function	B	Serial in / Parallel out function
C	Parallel in / Serial out function	D	Serial in / Serial out function
	Answer		

Ref510

The number of data signal lines required for 7 segments display is

A	7	B	8
C	9	D	10
	Answer		

Ref513

Events occur after the previous event is completed. The device is_____.

A	Combinational logic	B	Sequential logic
C	Synchronous logic	D	Asynchronous logic
	Answer		

Ref516

45_{10} =

A	101101_2	B	100101_2
C	111001_2	D	101010_2
	Answer		

Ref519

The device in which only one input at a time is activated to produce specific code at output is

A	Decoder	B	Encoder
C	Multiplexer	D	Demultiplexer
	Answer		

Ref522

Latch can store

A	Only one bit of information	B	A number of bits at one time
C		D	
	Answer		

Ref525

Decimal equivalence of 47H is

A	71	B	781
C	29	D	112
	Answer		

Ref528

Temperature is measured by a sensor with output 0.02 V/ ° C . Determine ADC Reference & word size to measure 0 to 100°C resolution.

A	0.039V/ step	B	0.078V/ step
C	0.156V/ step	D	0.312V/ step
	Answer		

Ref531

What is the HEX output of a bipolar 12 bit ADC with a 5 V reference for input -0.85V

A	54H	B	108H
C	27H	D	39H
	Answer		

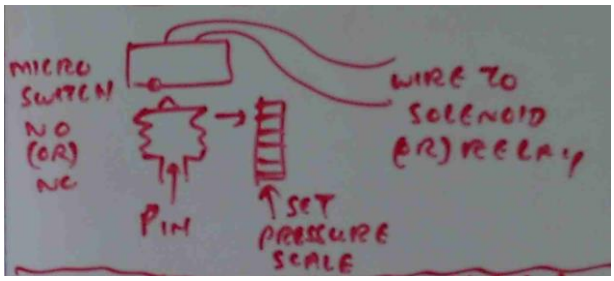
Ref534

ADC has been developed to interface with microprocessor. Data from ADC is placed on _____. When appropriate command is issued.

A	Address bus	B	Data bus
C	Control bus	D	
	Answer		

Ref537

The following is called_____.



A	Bellow operated on-off controller	B	On-off pressure control loop
C	Pnuematic force balance proportional controller	D	
	Answer		

Ref540

Derivative mode

A	Stabilizes the process	B	Resets the process
C	Compensates time lag in control loop	D	
	Answer		

WK 5- EE117 Solar Electrical System

EE117 Solar Electrical System

TUTORING LESSONS

Lesson 1 Lesson 2 Lesson 3 Lesson 4 Lesson 5 Lesson 6

Password- **iqytechnicalcollege**

Test & Assessment

Read the following notes

K025_Note_1

K025_Note_2

And then

K025_Tutorials.zip

Study the followings EE117 Lessons

Then do the following exercises

Q1.Explain the operation principle of PV cell

Q2.Sketch the interconnection of PV modules

Q3.Write the equation for PV power conversion.

Q4.Find the output of a module operating at maximum power point giving the followings

Typical maximum power at STC = 77w, NOCT = 49 deg C Power output coefficient ϒ= -0.38 % Ambient temperature = 35 Deg C
Irradiance = 865 w/ m^2

Q5. Describe the production procedure of standard silicon solar cell.

Q6. Calculate daily energy output of 77W. Lead acid battery charging ambient temperature f derate = 1, V module = 14V , Irradiation = 4 wh / m^2, maximum module power rating = 72 W, NOCT = 49 deg C.

Q7. Calculate the daily energy output of a 100W poly crystalline module operating under the following conditions.

Maximum power point tracking regulator MPPT, Ambient day time temperature 25 Deg C , Irradiation 5.5 KWH / m^2 . Environment with annual maintenance only. The manufacturer who tests the modules to international standard guarantees the maximum modules power rating to be 95W and NOCT = 49 Deg C. ϒ = 0.5%

Q8.Describe solar radiation and shading assessment.

Q9.Write the equation for manual calculation of irridation data.

Q10.Sketch the followings (a) Series PV system (b) Parallel PV system (c) PV lighting system

Q11.Sketch PV water pumping system.

EE119 Electrical Risk Assessment

EE120 Electrical Contracting

EE119 Electrical Risk Assessment

TUTORING LESSONS

Lesson 1

Test & Assessment

http://www.classroomclipboard.com/503511/Home/Test/eafdcf3b16cf46908aad44c6d604b550#/InitializeTest.xaml

Type your name Put the following access code

P2PLK

Password- **iqytechnicalcollege**

Study WOC Mgt 104-E071 Lessons & then do the following exercises

2) Ref 584

Explain the features of maintenance and specialist work

3) Ref 583

Explain purchasing procedures in electrical contracting

4) Ref 582

Explain pre-job planning in electrical contracting.

5) Ref 581

Brifely explain the specification for installing the high voltage cable.

6) Ref 580

What are the factors to be considered by electrical contractor before establishing the business?

7) Ref 579

Describe the job accounting system in electrical contracting

8) Ref 578

Explain the required paper works in electrical contracting

9) Ref 577

Explain insurance in electrical contracting

10) Ref 576

Explain contract bid work

Ask for study note & assignment by e-mail

ME 109 Engineering Drawing (Needs to do)

EE301 Advanced Electrical Drafting (Needs to do)

EE301 Advanced Electrical Drafting

TUTORING LESSONS

Stage 1 Part 3.zip

http://www.filefactory.com/file/c0cb8f5/n/Stage_1_Part_3.zip

Stage 1 Part 4.zip

http://www.filefactory.com/file/c0cc1cd/n/Stage_1_Part_4.zip

Password--- joe2013

1WiringInstallationDrawing

7MachineDriveSystems

8PowerElectronicsDevices

Stage 4 Part 11.zip

http://www.filefactory.com/file/c0cc540/n/Stage_4_Part_11.zip

Password--- joe2013

AutoCAD_2D_3D_Lessons

Stage 4 Part 1A.zip

http://www.filefactory.com/file/c0cc226/n/Stage_4_Part_1A.zip

Stage 4 Part 12.zip

http://www.filefactory.com/file/c0cc566/n/Stage_4_Part_12.zip

Password--- joe2013

Symbol A

Symbol B

Symbol C

Symbol D

Symbol E

Symbol F

Symbol G

Stage 4 Part 22.zip

http://www.filefactory.com/file/c0cc83e/n/Stage_4_Part_22.zip

Password--- joe2013

Assessment-In class assessment

E071_MEM09004_Tutorial

E071_MEM09004_Tutorial_Mod.zip

Stage 4 Part 14.zip

http://www.filefactory.com/file/c0cc684/n/Stage_4_Part_14.zip

Password--- joe2013

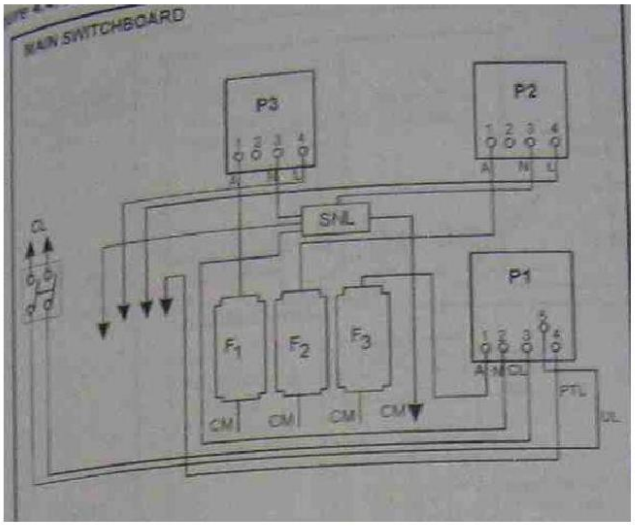
Submit the drawing tutorial assignment

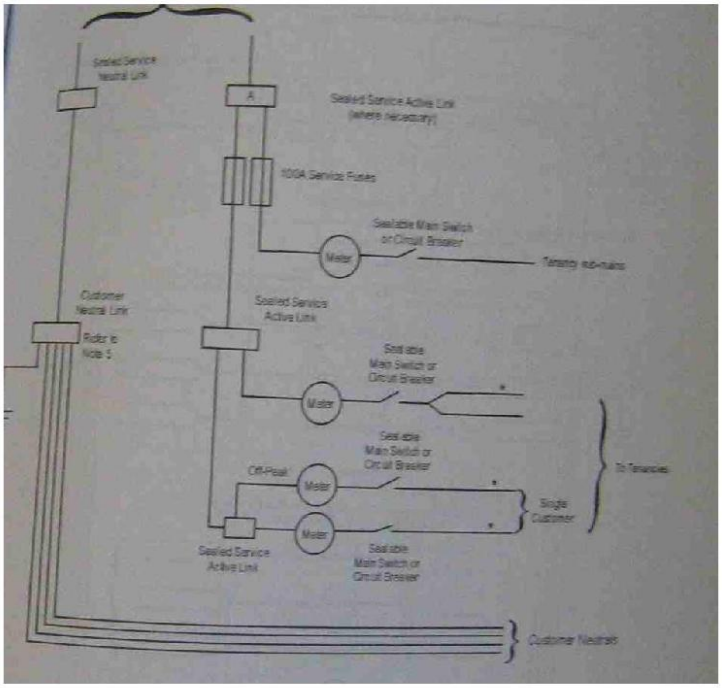
Week 1-Unit Code: EE301

Advanced Electrical Drafting

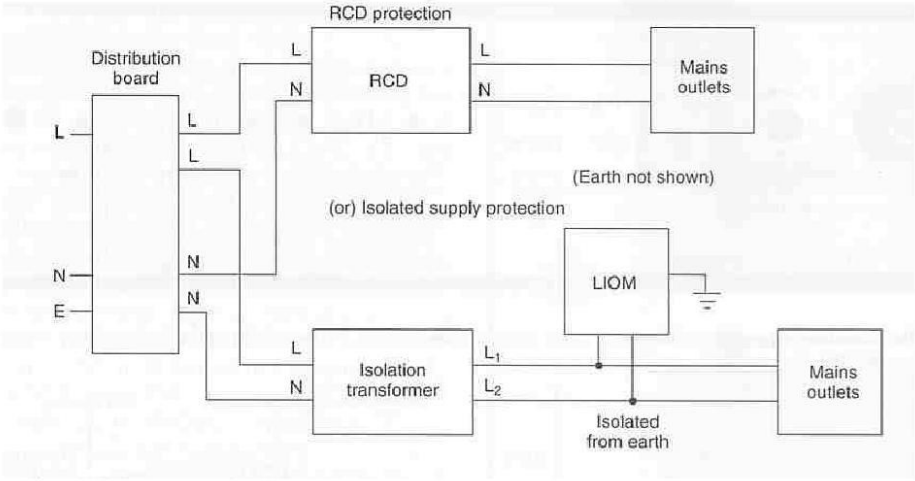
Do the electrical drawing exercises in attached folder

(Do not copy the given diagram, it is just a reference, you need to draw your own sketch by computer)





(3) Sketch the given circuit



(4)

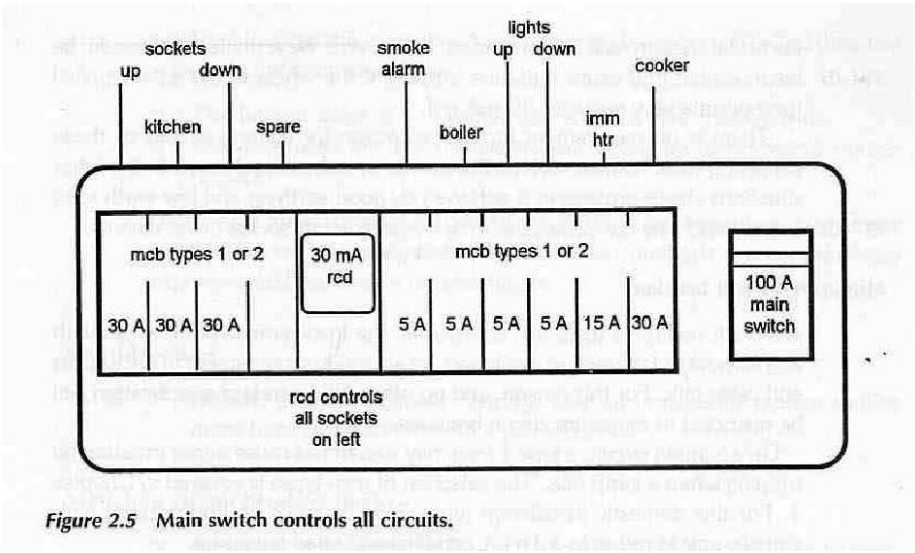
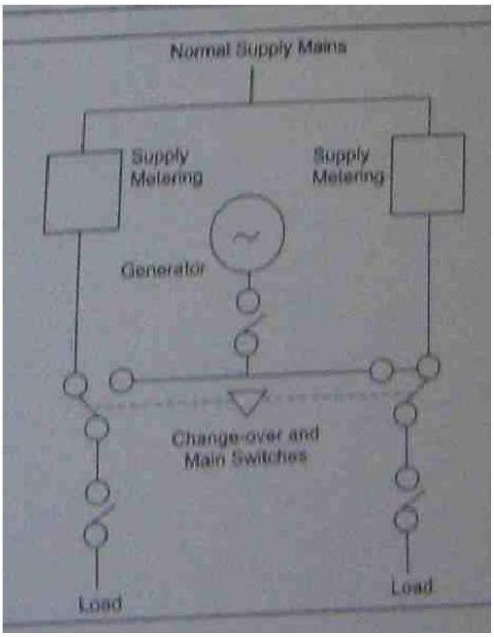


Figure 2.5 **Main switch controls all circuits.**

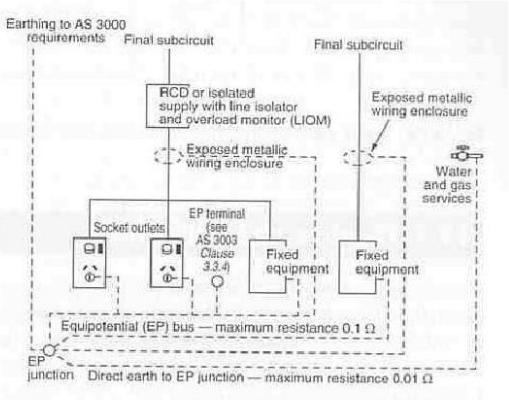
(5)



Reference: Specification (1)

(1)Write the important aspects of the specifications for electro medical equipments

(2)Draw the following circuits by computer



(2)Reference: Service Rule 3

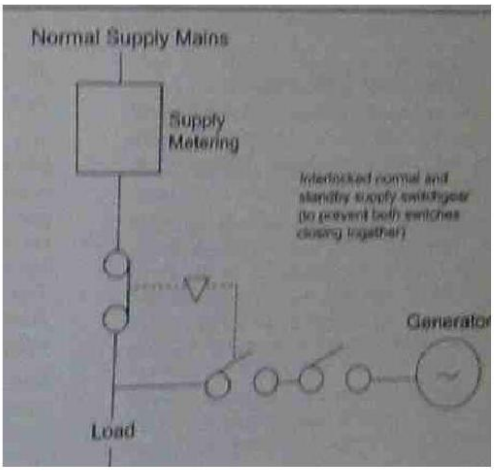
Job (3)

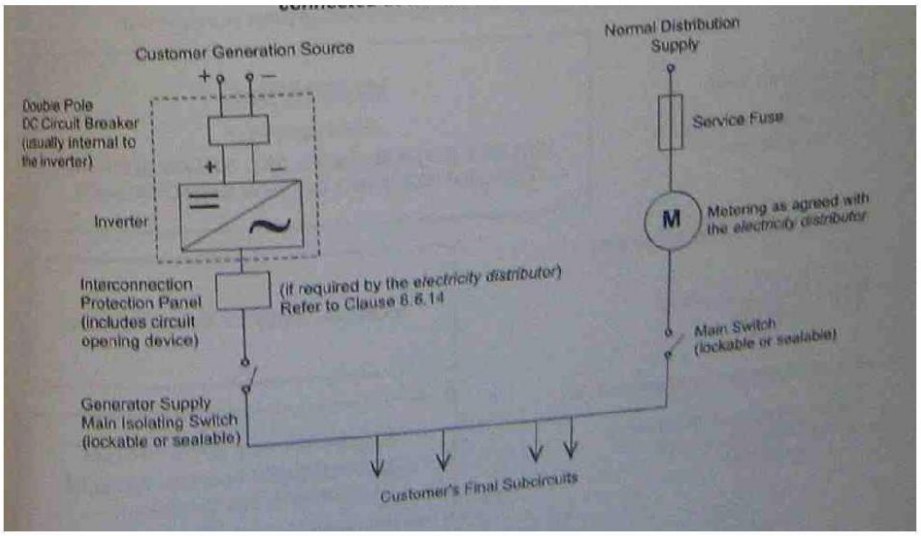
You need to install a stand by generating plan for a small factory.

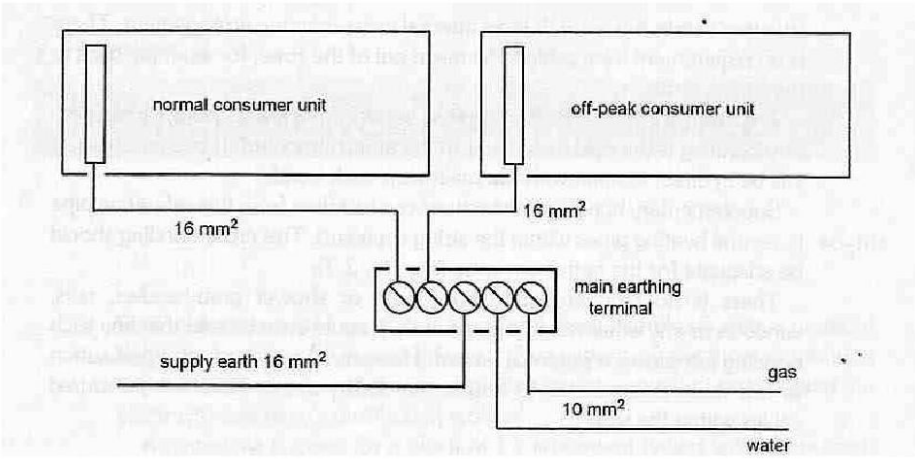
Prepare the specifications and design diagram for the following aspects

(1)Condition of use, (2)spacing for conductors, (3)change over equipments, 94)Operating procedure, (5)protection

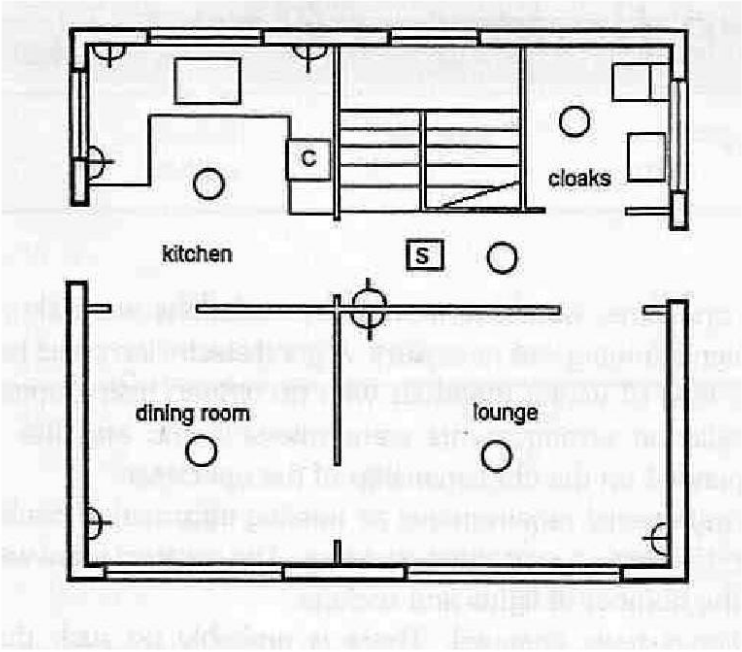
Reference Diagram (Do not copy the given diagram, it is just a reference, you need to draw your own sketch by computer)



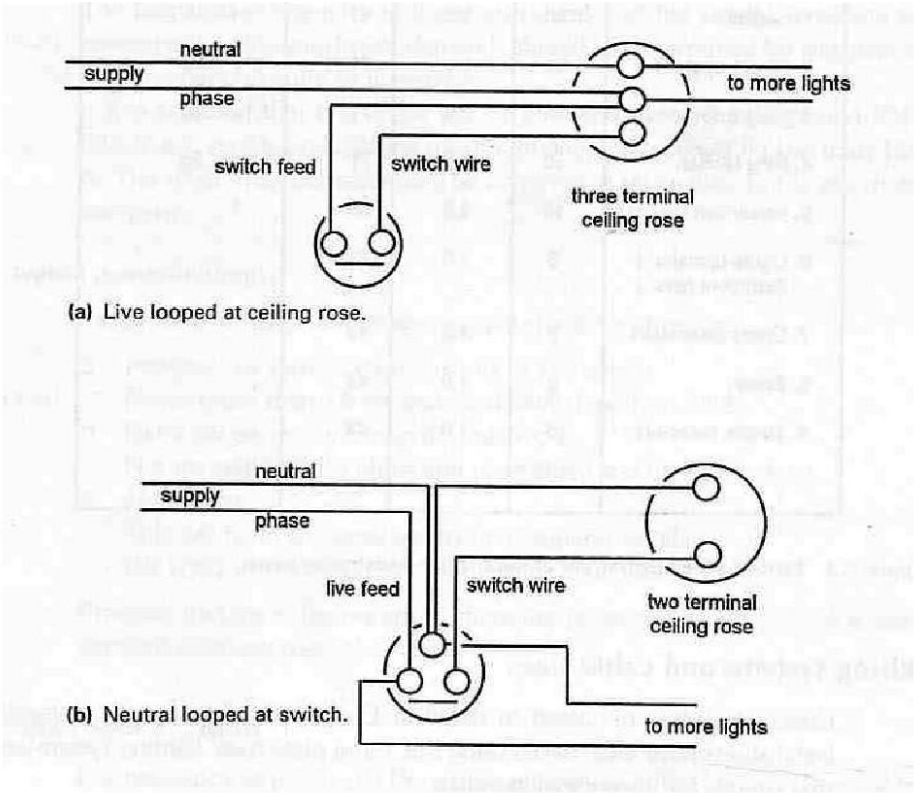



normal consumer unit
off-peak consumer unit
16 mm²
16 mm²
main earthing terminal
supply earth 16 mm²
gas
10 mm²
water

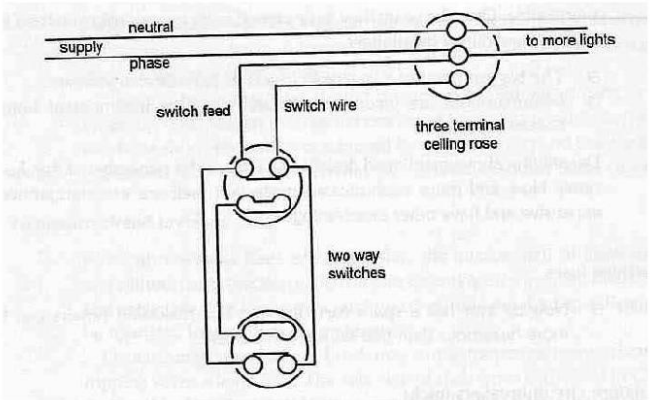
(6)


C
cloaks
kitchen
S
dining room
lounge

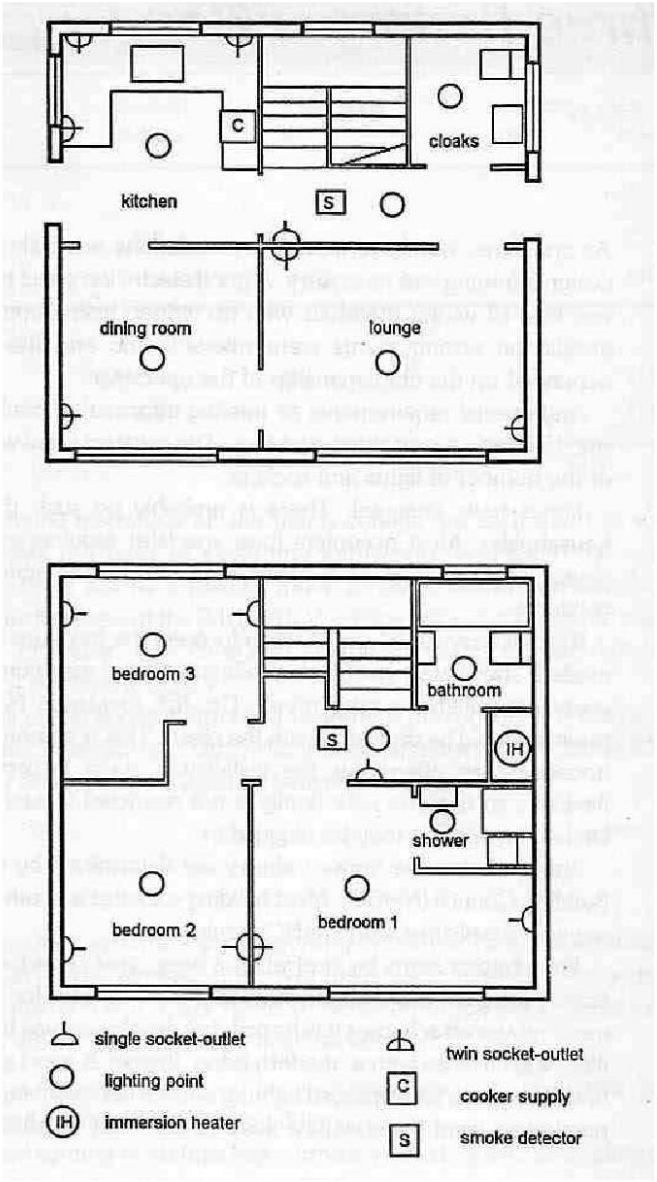
(7)


neutral
supply
phase
to more lights
switch feed
switch wire
three terminal
ceiling rose
(a) Live looped at ceiling rose.
neutral
supply
phase
live feed
switch wire
two terminal
ceiling rose
(b) Neutral looped at switch.
to more lights

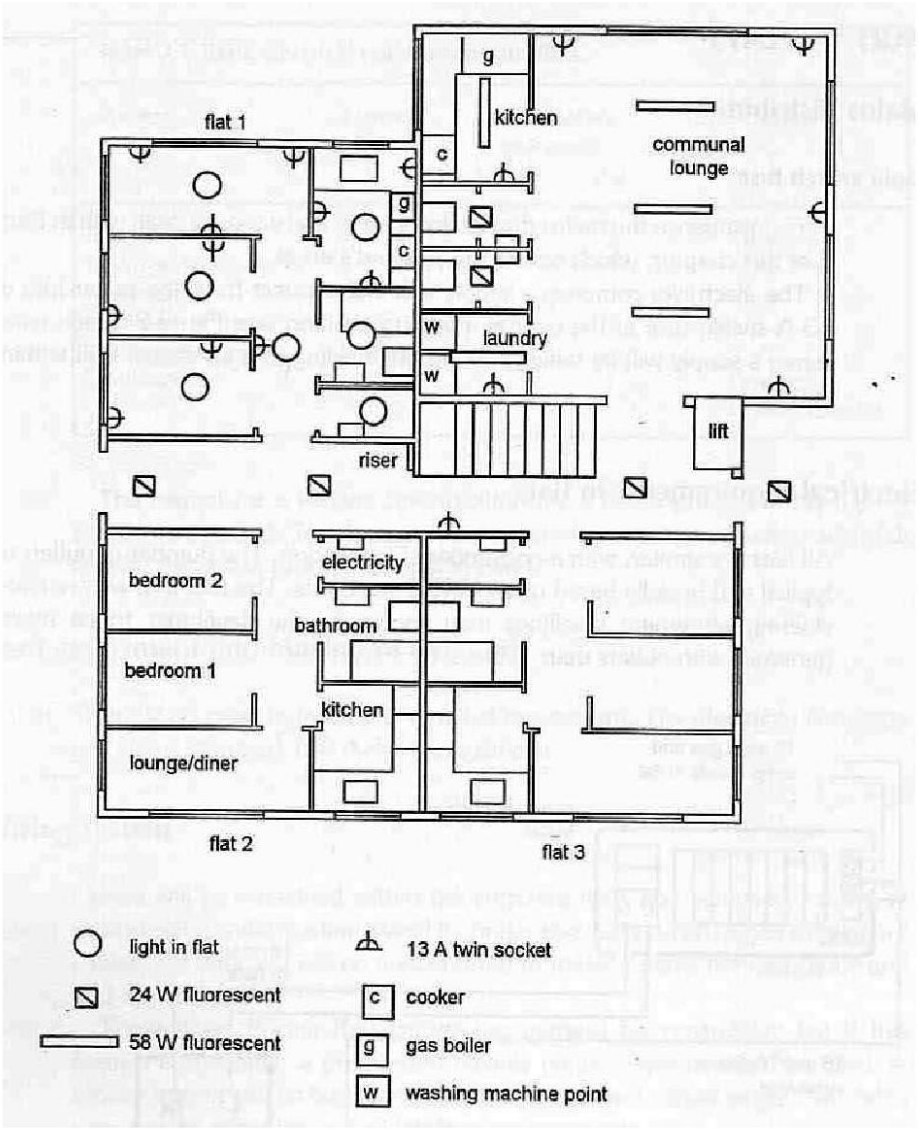
(8)


neutral
supply
phase
to more lights
switch feed
switch wire
three terminal
ceiling rose
two way
switches

(9)


C
cloaks
kitchen
S
dining room
lounge
bedroom 3
bathroom
S
IH
shower
bedroom 2
bedroom 1
single socket-outlet
lighting point
IH
immersion heater
twin socket-outlet
C
cooker supply
S
smoke detector

(10)


flat 1
g
kitchen
communal lounge
c
g
c
w
laundry
w
lift
riser
bedroom 2
electricity
bathroom
bedroom 1
kitchen
lounge/diner
flat 2
flat 3
light in flat
24 W fluorescent
58 W fluorescent
13 A twin socket
c cooker
g gas boiler
w washing machine point

(11)

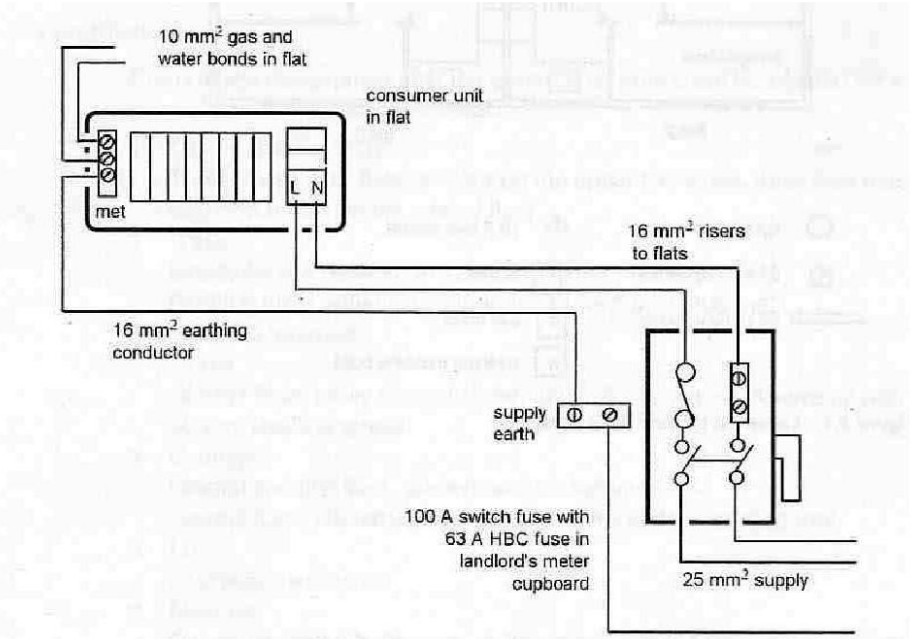


Figure 3.2 **Distribution to flats.**

(13)

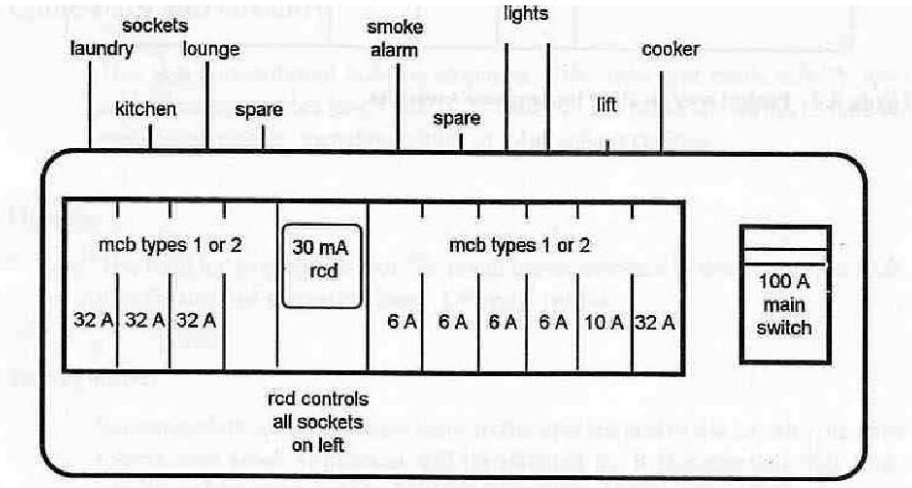


Figure 3.5 **Landlord's distribution board.**

EE121 Electronics Power Control Devices

Study the followings

TUTORING LESSONS

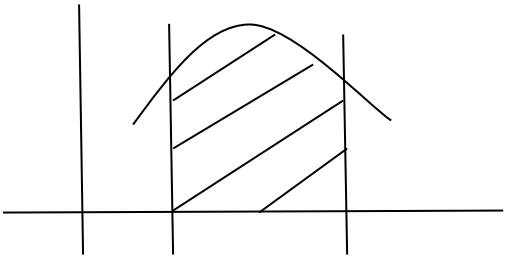
Lesson 1 Lesson 2

Then do the following exercises.

H026 Online Test

Ref473

Gain



The given characteristics curve is

A	High pass filter	B	Low pass filter
C	Band pass filter	D	Band stop filter
Answer			

Ref478

This equation is used for

$$f_c = \frac{1}{6.28\sqrt{R1\ R2\ C1\ C2}}$$

A	First order high pass Butterworth filter	B	First order low pass Butterworth filter

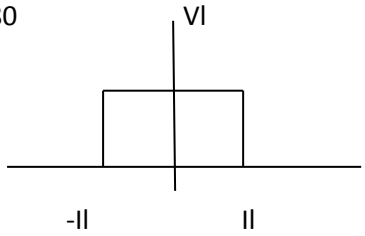
C	Second order low pass Butterworth filter	D	Second order high pass Butterworth filter
	Answer		

Ref479

In 4 quadrant drive system, quadrant 4 is a function of

A	Reversed braking	B	Forward driving
C	Reversed driving	D	Forward braking
	Answer		

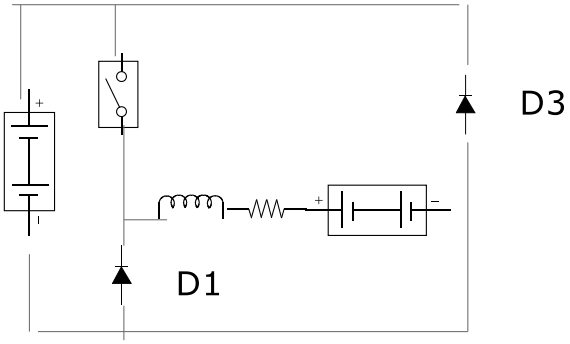
Ref480



This characteristics stands for

A	Class A chopper	B	Class B chopper
C	Class C chopper	D	Class D chopper
	Answer		

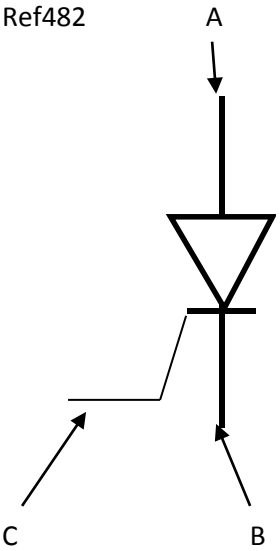
Ref481



This is an equivalent circuit for

A	Class A chopper	B	Class B chopper
C	Class C chopper	D	Class D chopper
	Answer		

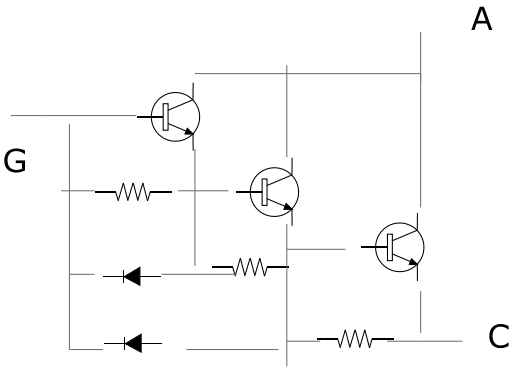
Ref482



in this diagram

A	A-Anode, B= Cathode, C- Gate	B	A-Gate, B= Cathode, C- Anode
C	A-Cathode, B= Anode, C- Gate	D	
	Answer		

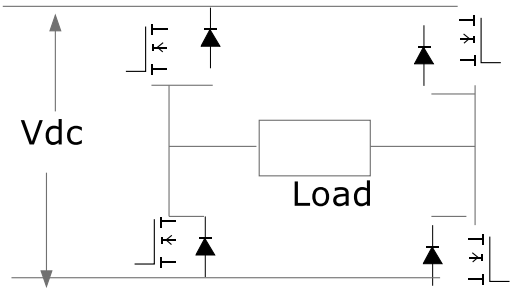
Ref483



This circuit is

A	Single stage Darlington pair transistor	B	Two stage Darlington pair transistor
C	Three stage Darlington pair transistor	D	
	Answer		

Ref484



This circuit makes

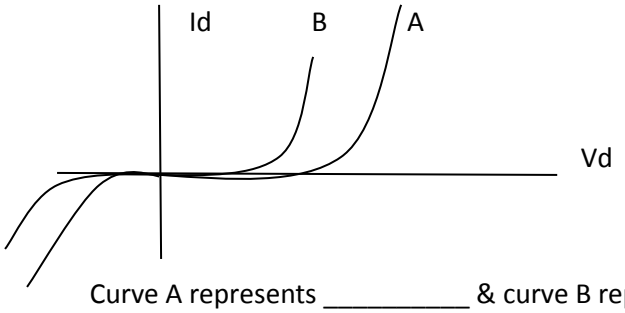
A	DC-DC converter	B	AC-DC converter
C	DC-AC Inverter	D	
	Answer		

Ref485

These converters are used to obtain a variable AC output voltage from a_____ and a single phase converter with a triac .

A	Variable dc source	B	Fixed dc source
C	Variable ac source	D	Fixed ac source
	Answer		

Ref486



Curve A represents _____ & curve B represents _____.

A	Hot carrier diode, PN Junction diode	B	PN Junction diode, Hot carrier diode
C			

	Answer		

Ref487

6 steps inverter can be used for

A	Single phase AC motor	B	DC motor
C	Three phase AC motor		
	Answer		

Ref488

RMS current produced by current source inverter is

A	$I_{1\,rms} = 0.5\ Id$	B	$I_{1\,rms} = 0.78\ Id$
C	$I_{1\,rms} = 0.707\ Id$	D	$I_{1\,rms} = 1.4142\ Id$
	Answer		

WK 12-EE206 AC Machines

EE206 AC Machines

TUTORING LESSONS

EE206 Part 1 EE206 Part 2 EE206 Part 3

Test & Assessment

http://www.filefactory.com/file/5stgiskbar09/n/G043_G045_Online_Test_1_Answer_doc

http://www.filefactory.com/file/7h9o99zngfq1/n/G043_G045_Online_Test_1_Question_pdf

SUBMIT THE SCANNED COPY OF ANSWER to

Dr Kyaw Naing

PO BOX 227

Marrickville, NSW 1475, Sydney, Australia

Study the EE206 file notes and do the exercises

G043+G045 Online Test

Ref374

Which is correct formula

A	T= F x r P = 9.55 / NT	B	T= F x r P = NT/ 9.55
C	T= F + r P = NT/ 9.55	D	T= F x r P = 9.55 / N+T
	Answer		

Ref376

The heat taken away by blower is

A	P = 640V (t2 – t1)	B	P = 320V (t2 – t1)
C	P = 1280V (t2 – t1)	D	P = 160V (t2 – t1)
	Answer		

Ref378

The 6 poles wound rotor induction motor is excited by three phase 60 HZ source. Calculate the rotor frequency for (a) Standstill (b) 500 rpm same direction (c) 500 rpm opposite direction.

A	50HZ, 70 HZ, 170HZ	B	60HZ, 35 HZ, 85 HZ
C	25 HZ, 35 HZ, 40 HZ	D	15 HZ, 35 HZ, 125 HZ
	Answer		

Ref380

A three phase induction motor having synchronous speed of 1200 rpm draws 80kw from three phase feeder. Copper loss & iron loss in stator amount to 5kw. If the motor runs at 11452 rpm, calculate the efficiency of motor.

A	45%	B	87.5%
C	75%	D	35%
	Answer		

Ref382

Locked rotor test is performed to determine.

A	Core parameter	B	Winding parameter
C	Load parameter	D	35%
	Answer		

Ref384

A three phase 208 V induction motor having synchronous speed 1200 rpm runs at 1140 rpm. When connected to 215V , driving at constant load, calculate the speed if voltage is 240V

A	1152 rpm	B	800 rpm
C	700 rpm	D	500 rpm
	Answer		

Ref386

The system that reverses the supply connection to the motor terminals when the stop switch is pressed is

A	Dynamic braking	B	Plugging
C	Forward reverse	D	Time delay starter
	Answer		

Ref388

A 500HP 720 rpm synchronous motor connected to 3980V three phase line generates an excitation voltage Ef=1790V (L-N) when the dc excitation current is 25 amp. The synchronous reactance is 22Ω, torque angle between Ef & V is 30°.Calculate shaft torque.

A	2000 N-m	B	3715 N-m
C	1500 N-m	D	750 N-m
	Answer		

Ref390

In a synchronous motor, when power factor is unity, the line current is

A	Maximum	B	Minimum
C	Unchanged	D	
	Answer		

Ref392

Under excitation makes the power factor of a synchronous machine to become

A	Unity	B	Leading
C	Lagging	D	
	Answer		

EE207 DC Machines

EE207 DC Machines

TUTORING LESSONS

EE207 Part 1 EE207 Part 2 EE207 Part 3

Test & Assessment

http://www.filefactory.com/file/2ejf6p7o0j0f/n/G044_Online_Test_1_Answer_doc

http://www.filefactory.com/file/5iyno92bji67/n/G044_Online_Test_1_Question_pdf

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Study the EE207 File notes and do the exercises

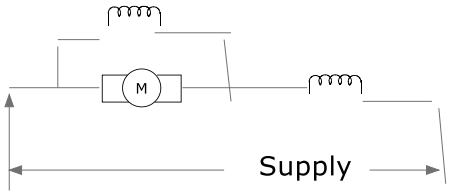
G044 Online Test

Ref394

Power provided by dc generator is

A	P = B I V	B	P = B L V I
C	P = B I L	D	P = B L V
	Answer		

Ref395



This connection is

A	Series	B	Shunt
C	Short shunt compound	D	Long shunt compound
	Answer		

Ref396

Calculate the coil span for

(a) 36 slots, 4 poles simplex lap (b) 36 slots, 2 poles, Duplex wave

A	1 to 10, 1 to 39 & 1 to 35	B	1 to 9, 1 to 38 & 1 to 34
C	1 to 8, 1 to 37 & 1 to 33	D	1 to 7, 1 to 36 & 1 to 32
	Answer		

Ref397

The brushes on a 0.4 m diameter commutator are rocked 0.03m circumferentially. The machine has 6 poles, simplex lap wound, 378 conductors 800 Armature current. Calculate cross magnetizing and de-magnetizing ampere turn / pole.

A	600 AT/pole, 1500 AT /pole	B	1250 AT/pole, 3000 AT /pole
C	300 AT/pole, 750 AT /pole	D	150 AT/pole, 375 AT /pole
	Answer		

Ref398

Motor particulars 3.75 KW, 230V, 18A, 1750 rpm Ra=0.3Ω , brush drop 2V on load.

Calculate final torque if field flux is reduced to 96%

A	50.56 N-m	B	100 N-m
C	150 N-m	D	40 N-m
	Answer		

Ref399

7.5KW 230V 1750 rpm shunt motor, armature resistance 0.35Ω, shunt field resistance 62.2Ω

If no load current is 7.7 amp, full load efficiency 86% , brush drop 3V at full load & 1 V at no load. Calculate % regulation.

A	5.7%	B	10%
C	12%	D	15%
	Answer		

Ref400

The winding resistance of a 500V, 60KW dc shunt motor are Ra=0.2Ω Rf=200Ω, mechanical losses are 1.4KW.Determine the efficiency of the machine.

(a)When the line current is 102.5A (b) At full load.

A	70%, 75%	B	90.93%, 90.9%
C	95%, 93%	D	78%, 87%
	Answer		

Ref401

The resistance of an armature winding at 25°C was found to be 0.26Ω. After a heat run , it becomes 0.296Ω. Calculate the temperature rise of the winding.

A	Δt = 70 °C	B	Δt = 36 °C
C	Δt = 15 °C	D	Δt = 12 °C
	Answer		

Ref402

A 75KW 500V generator has a voltage regulation 4% , calculate

(a) The open circuit voltage

(b) Assuming the voltage varies uniformly between no load and full load current. Calculate the KW output of a terminal voltage 510V.

A	500V, 20 KW	B	250V, 10 KW
C	520V, 38.25 KW	D	500V, 10 KW
	Answer		

Ref403

A 4 poles wound armature operating in a field of flux 0.01wb in wound with360 armature conductors. Determine the expression of torque as a function of speed. If Vt=250V and Ra=0.1Ω.

A	1000 – 1.3 N	B	2000- 2N
C	3000 – 4N	D	2860 – 1.38N
	Answer		

Ref404

The resistance of the armature of a 240V dc shunt motor is 0.5Ω . It is required that the current at starting be limited to 200% of full load current & full load current is 15A.

Determine

(a) Total resistance of armature current at starting

(b) The number of studs on the starter

(c) r3.

A	8Ω, 4, 1Ω	B	10Ω, 3, 0.5Ω
C	8Ω, 2, 1Ω	D	4Ω, 2, 1Ω
	Answer		

Ref405

Which is not a dc motor braking method?

A	Plugging	B	Dynamic braking
C	Mechanical braking	D	Ward Leonard
	Answer		

Ref 406

Which equipment does not produce ripple?

A	PWM Switching	B	Rectifier circuit
C	DC Generator	D	PV Inverter
	Answer		

EE202 Electrical Circuits (Needs to do)

EE202 Electrical Circuits

TUTORING LESSONS

EE202 Part 1 EE202 Part 2 EE202 Part 3

Test & Assessment

http://www.filefactory.com/file/52h82a0t0f3f/n/E025_Online_Test_1_Question_pdf

http://www.filefactory.com/file/1qw3qtvp9qd5/n/E025_Online_Test_1_Answer_doc

http://www.filefactory.com/file/4m4fl31kp6w3/n/G048_Online_Test_1_Answer_doc

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SUBMIT THE SCANNED COPY OF ANSWER to

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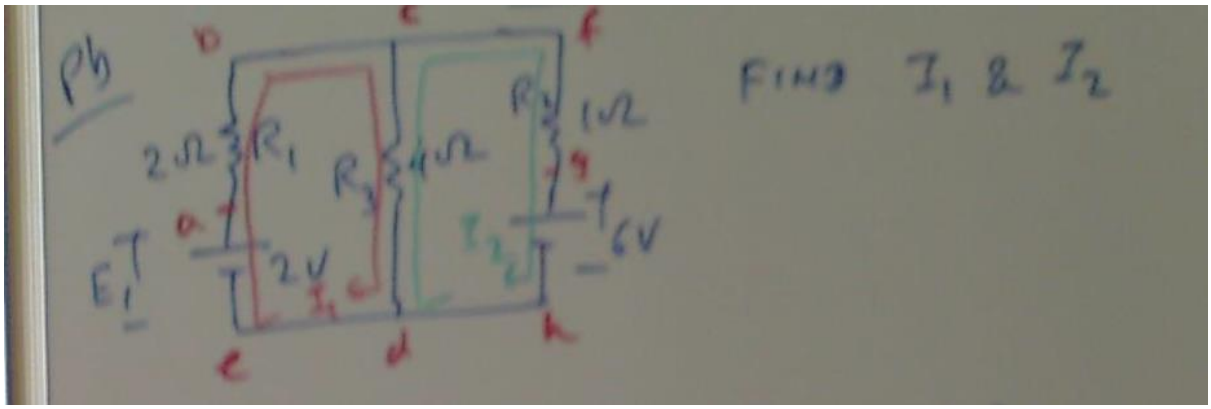

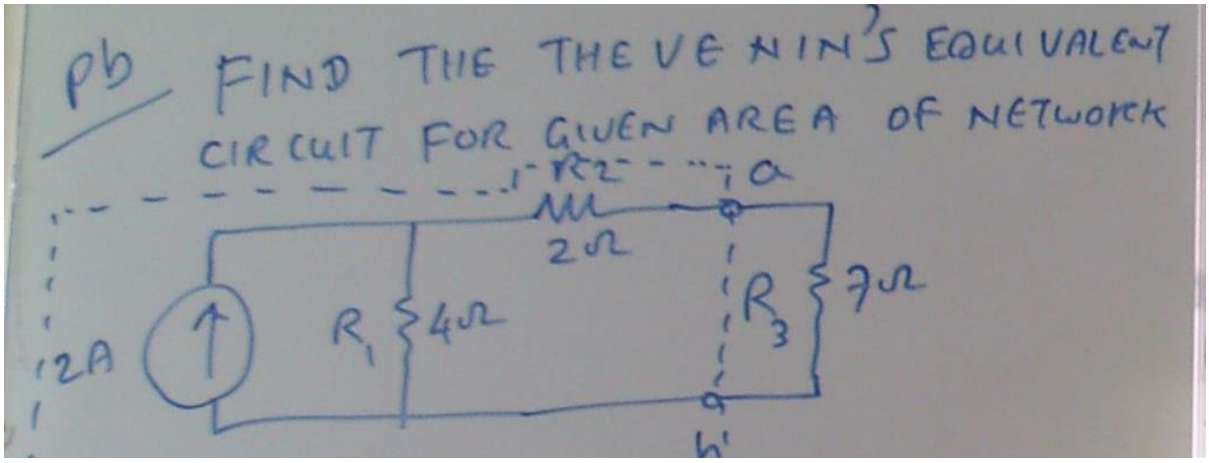

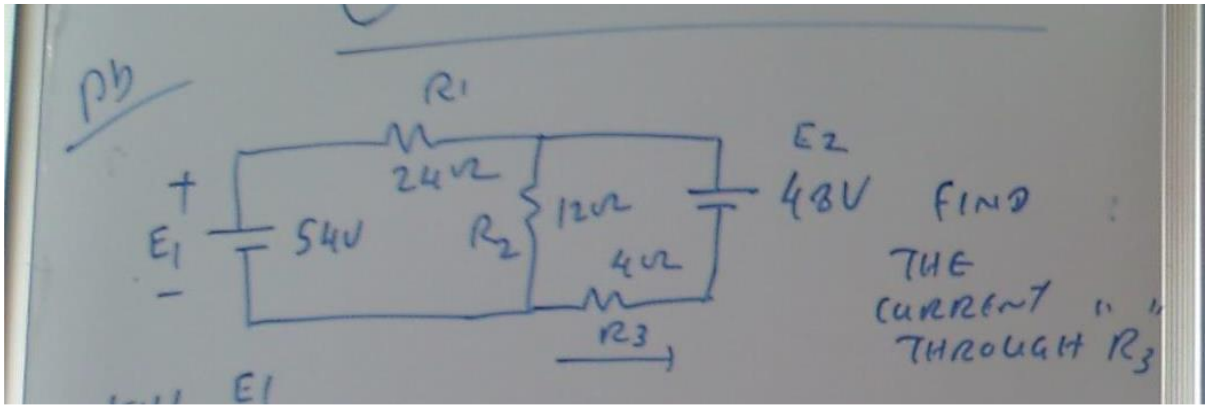

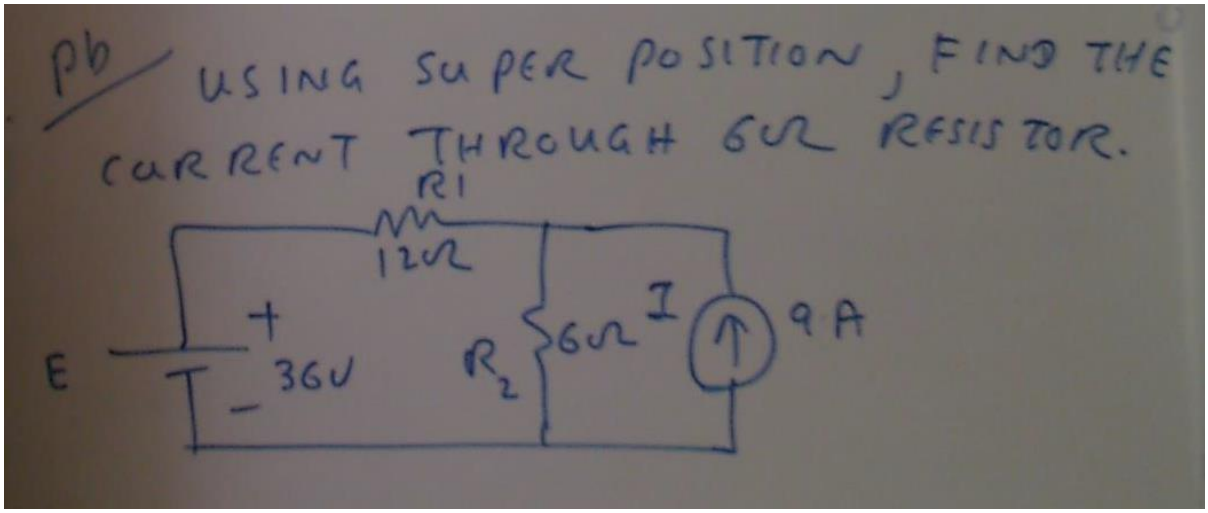

EE203 Three Phase Power Circuits (Needs to do)

EE203 Three Phase Power Circuits

TUTORING LESSONS

EE203 Part 1 EE203 Part 2 EE203 Part 3

Test & Assessment

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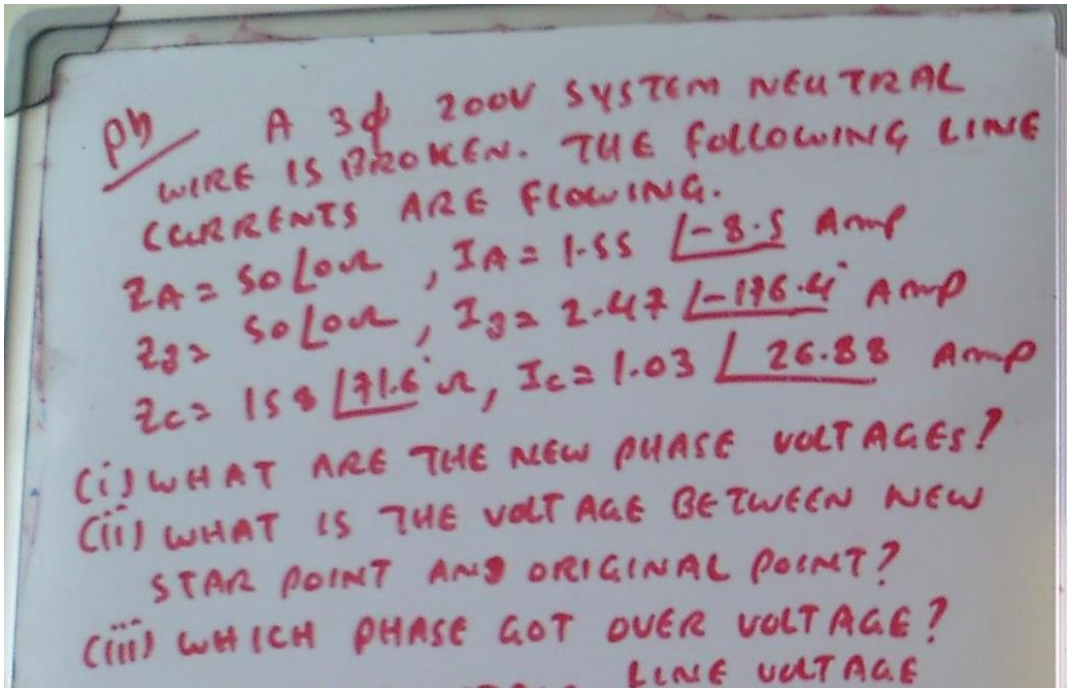

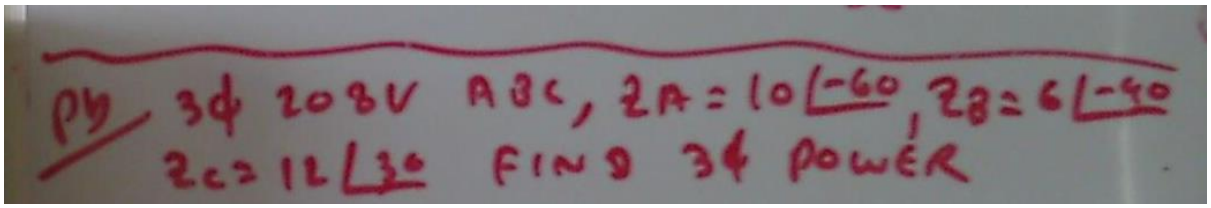

ME 305 Corrosion Prevention (Needs to do)

TUTORING LESSONS

ME 305+ ME 209

Basic Theory/ Chemical effect on materials

Q1.

Explain chemical reaction inside electric cell.

Q2

Explain corrosion.

Q3

Describe the followings.

(a)Galvanic corrosion (b) Corrosion removal (c) Resistance

Q4

Write the ways to protect corrosion.

Q5

What are the forms of corrosion?

Q6

Express stress corrosion cracking.

Q7

Write notes for followings.

(a)Carbon steel (b)Stainless steel (c)Aluminium (d) Copper alloy

ME 306 Theory-of-waves-in-materials (1 pt) (Needs to do)

TUTORING LESSONS

ME306

Study ME 306 Folder & write the note on what you have read.

Slide 7

Q1.Explain elastic volume & shear wave

Slide 3

Q2.Explain basic wave phenomena

Slide 2

Q3.Write the equation for Clausius equality

ADDITIONAL REFERENCES

MECHANICAL ENGINEERING LERCTURES

Certificate in Mechanical Trade Study Guide

BE (CIVIL & MECHANICAL) ENGINEERING INTERNATIONAL COURSE OUTLINE

Bachelor of Engineering (Mechanical) Year 3 ,4 & 5 Course Contents

Bachelor of Engineering (Civil) Year 3 ,4 & 5 Course Contents

CERTIFICATE (ELECTRICAL/CIVIL/MECHANICAL) INTERNATIONAL COURSE OUTLINE

Certificate in Electrical Engineering (Certificate III in Electro-technology-Electrician)

Certificate III in Electro-technology-Electrician

Certificate in Civil Engineering (Certificate in Construction Studies)

Certificate in Mechanical Engineering

Professional Certificate in Air-conditioning and Refrigeration (BAE511+ME511)

Mechanical Engineering

Certificate+ Diploma+ Advanced Diploma of Mechanical Engineering Course Outline

Certificate in Mechanical Engineering (CD Based Learning Instructions)

Diploma of Mechanical Engineering (CD Based Learning Instructions)

Advanced Diploma of Mechanical Engineering (CD Based Learning Instructions) Part 1

Advanced Diploma of Mechanical Engineering (CD Based Learning Instructions) Part 2

Bachelor of Engineering (Mechatronics) +Advanced Diploma of Mechanical Engineering Course outline

Professional Certificate in Engineering Metallurgy (BAE612)

BAE 612 Part 1

BAE 612 Part 2

K131 + EE 308