(Please write your Roll No. Immediately) Roll No._____

First Term Examination

September 2019

Ist Semester [B.Tech.] **September, 2019**

Paper Code: ETCH 113

Subject: Applied Chemistry

Time: 1.5 hours **Max Marks: 30**

Note: - Attempt three questions in total

Q.No1. is compulsory and attempt any two more questions from the remaining.

Q1. **Do any five parts**

a) Define Octane and Cetane number.
b) Name the Catalyst and Promotor in Haber's Process.
c) For one component system, the triple point is invariant point. Discuss
d) What is the relationship between GCV and NCV? Under what conditions they are equal.
e) Why a good gasoline engine fuel is a bad fuel for diesel engines.
f) Define the term Component in regard to Phase Rule. Also give one example.
g) What is Catalytic Poisoning? Give example

10 marks

Q.2 a) How Calorific value of a fuel can be determined by Bomb's Calorimeter? Explain with the help of a neat diagram.
b) The composition by weight of a coal sample is C=80%, H=6%, O=8%, S=1%, N=2% and ash=3%. Calculate the minimum air required for complete combustion of 1kg of fuel?

6, 4 marks

Q.3 a) Draw the neat and labelled phase diagram of water and explain the diagram in detail?
b) Calculate the degree of freedom in the following
Sulphur System, $S_{rhombic} \rightleftharpoons S_{monoclinic} \rightleftharpoons S_{liquid} \rightleftharpoons S_{vapour}$
c) State the difference between Triple point and Critical point.
d) Predict the number of components for dissociation of $KClO_3$ in a closed vessel.

5,2,2,1 marks

PTO

Q.4) a) Give the mechanism and kinetics of enzyme catalyzed reaction. (Michaelis Menten Equation)? Also determine the order of reaction at $S>k_m$, $S< k_m$ and give the graphical representation.

b) When acidic $KMnO_4$ solution is added to a hot solution of oxalic acid, the colour is decolorized slowly in the beginning, but after sometime, it disappears rapidly. Why?

8, 2 marks

(Please write your Exam Roll No:) Exam Roll No: .....

MID Term Examination

First Semester [B.Tech.] Sep. 2019

Paper Code: ETCS-111 **Subject: Fundamentals of Computing**

Time : 1Hr 30 Min **Max. Marks : 30**

Note : Question No. 1 is compulsory. Attempt any two more questions from the rest.

Q1. **Answer the following:** [2 X 5 =10]

(a) How many types of system file in DOS?
(b) What is the difference between XCOPY and DISKCOPY?
(c) What is an operating System? Write names of four different operating System?
(d) What is cache Memory?
(e) What is the difference between Application software and System software?

Q2. (a) What is memory hierarchy? Explain all types in details. [5]

(b) Explain the architecture of Linux? Discuss the following commands: [5]

Cat , mv , cp, chmod .

Q3. (a) How can we grant or revoke the file access permission of file owner and group? [5]

(b) What is the difference between internal and external Dos commands? Explain any five internal and external dos commands? [5]

Q4. (a) What is the advantage of using secondary memory? Give its characteristics. Explain the different types of secondary storage available? [5]

(b) Explain the difference between Multiprogramming, Multitasking, Multiprocessing and Timesharing? [5]

(Please write your Roll no. immediately) Roll No._____

Term Examination

I-Semester [B.Tech] Sept.2019
Paper Code: ETEE-107 **Sub.**: Electrical Technology
Time: 1 ½ Hrs **Max. Marks**: 30
Note: Attempt Q.No. 1 which is compulsory and any two more questions from remaining. (Assume any missing data)

Q1(a) Find the value of resistance R as shown in **Fig.1** so that current drawn from the source is 250mA.

(b) Explain the meaning of term *bandwidth* of a series resonant circuit.

(c) State the "Reciprocity theorem".

(d) Justify "average power consumption in a pure inductor is zero when ac voltage is applied".

(e) Establish an expression for the rms value of a sinusoidal current in terms of its maximum value. **[2x 5]**

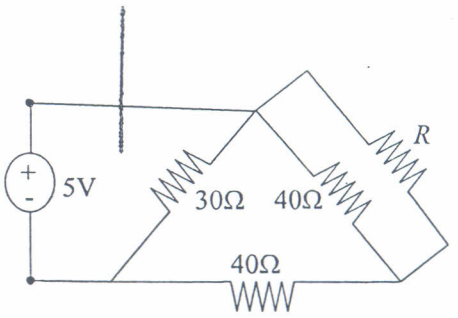

Fig.1

Q2 (a) Derive the condition for maximum power transfer to a purely resistive load. In the circuit shown in **Fig.2** find R_L for maximum power in it. **[5]**

(b) For the circuit shown in **Fig.3** find the voltage V_1 by using mesh analysis. **[5]**

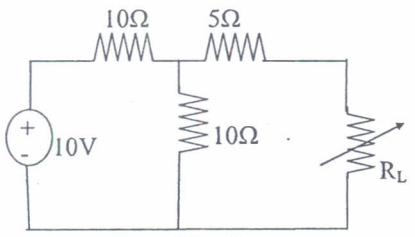

Fig.2

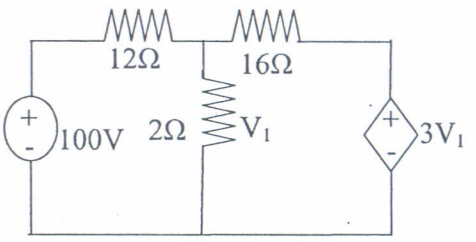

Fig.3

Q3(a) For the circuit shown in **Fig.4** find the current in 2Ω resistor using Thevenin's theorem. **[5]**

(b) A voltage $v(t) = 120\sin 314t$ is applied to a series circuit consisting of 15Ω resistance, 0.04H inductance and a capacitance of 50μF. Calculate.

i. Expression for the current *i(t)*

ii. Phase angle between voltage and current **[5]**

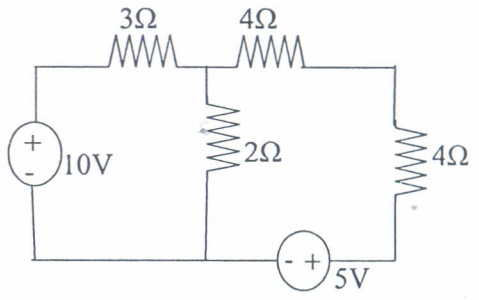

Fig.4

4(a) A circuit having a resistance of 4Ω, an inductance of 0.5H and variable capacitance in series is connected across 100V, 50Hz supply. Calculate (i) the capacitance to give resonance (ii) the Q-factor of the circuit. **[5]**

(b) Draw the phasor diagram to illustrate clearly the relation between v and i in case of (*i*) R-L-C series circuit (*ii*) R-C parallel circuit. **[5]**

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Bharti Vidyapeeth College of Engineering

B.Tech –Semester-I

Human Values & Professional Ethics

Question Paper (Regular)

Course Code: ETHS 109 September, 2019

Time: 1.5 Hrs Max. Marks: 30

Note: Question No. 1 is compulsory; attempt any two of the remaining questions. All the questions carry equal marks.

Q1. Explain any two of the following (5×2 Marks)

(i) Need for Value education in today's scenario
(ii) Self-Exploration
(iii) Happiness

Q2. Values and skill complement each other. Elaborate. (10 Marks)

Q3. What is your present vision of a happy and prosperous life? (10 Marks)

Q4. Differentiate between prosperity and wealth with examples. (10 Marks)

Your Roll Number: .....

B. Tech, Semester-I, September 2019
Mid-term examination.
Paper Code: ETMA-101: Subject: Applied Math-1
(Regular)

Time: $1\frac{1}{2}$ hour Maximum Marks: 30

Instructions: • Write your roll number on the space provided at the top of this page immediately on receipt of this question paper.
• Answer **three** questions • Question No. 1 is compulsory.

(1) (a) State Raabe's Test. [2 Marks]

(b) Discuss the absolute convergence of the series [2 Marks]

$$\sum_{n=1}^{\infty}(-1)^n \frac{1}{\log(1+n)}.$$

(c) Find Taylor series expansion of the function [2 Marks]

$$f(x) = e^x \log(1+x)$$

about the origin.

(d) Find the asymptotes of the curve $\frac{a^2}{x^2} + \frac{b^2}{y^2} = 1$. [2 Marks]

(e) Evaluate $\int \sin^5\theta\, d\theta$. [2 Marks]

(2) (a) Test the convergence of the series $\sum_{n=2}^{\infty}\left(\frac{1}{n^2\log n}+1\right)$. [5 Marks]

(b) If $y = b\cos(n\log(x/n))$, show that [5 Marks]

$$x^2y_{n+2} + (2n+.1)xy_{n+1} + 2n^2y_n = 0.$$

(3) (a) Determine the asymptotes of the curve [5 Marks]

$$x^3 + x^2y + xy^2 + y^3 + 2x^2 + 3xy - 4y^2 + 7x + 2y = 0.$$

(b) Show that the radius of curvature at any point of the curve [5 Marks]

$$x = a(\theta + \sin\theta), \quad y = a(1-\cos\theta)$$

is $4a\cos(\theta/2)$.

(4) **(a) Evaluate $\int_0^{\pi/2}\sqrt{\tan x}\, dx$ using Gamma function.** [5 Marks]

(b) Discuss the convergence of the series $\sum_{n=0}^{\infty}\frac{n!}{(n+1)^n}x^n$ for all positive values of x. [5 Marks]

OR

Trace the curve $y^2(2a-x) = x^3$.

✠

(Please write your Roll No. immediately) **Roll No.....**

Mid-Term Examination

First Semester [B.Tech.] **September & 2019**

Paper Code: ETME – 105 ***Subject: Manufacturing Process***

Time: 1 ½ Hrs. Max. Marks: 30

Note: Attempt Q.No.1 which is compulsory and any two more questions from remaining.

Q1. (2 x 5)

(a). Define Core and state its functions.

(b). What are the functions of Gating System?

(c). Which Mechanical properties are associated with the products made of Low Carbon Steel.

(d). What are the functions of Chills and Chaplets?

(e). What is Master Pattern?

Q2.

(a). What are the objectives of Heat Treatment process. How Tempering operation is performed? (6)

(b). Design a Pattern for the Casting of size (30 x 30 x 30 cm^3) (cube) considering 1% Machining allowance, 0.8% Shrinkage allowance, 1.2° Draft allowance and 0.5 % Rapping allowance. (4)

Q3.

(a). Describe briefly about the different steps in Investment Casting. (6)

(b). Differentiate between Hot chamber and Cold chamber Die casting. (4)

Q4.

(a). Describe with the help of a neat sketch the working of a Cupola furnace while considering different temperature zones. (6)

(b). Define Upsetting and Drawing down operations in forging. (4)

FIRST TERM EXAMINATION

First Semester [B.Tech.] September 2019

Paper Code: ETPH- 103 **APPLIED PHYSICS -I**

Time: 1 Hour 30 Minutes **Maximum Marks:** 30

Note: Q. No. 1 is compulsory and attempt any two more questions.

Question No:1- **(2 X 5)**

a) What do mean by term "Interference"? Give the necessary conditions for obtaining interference fringes.

b) Explain why interference fringes are circular in Newton's rings.

c) Distinguish between Fresnel and Fraunhofer classes of diffraction.

d) What is difference between polarized and unpolarized light? Also define plane of vibration and plane of polarization.

e) An optical fibre has a numerical aperture of 0.20 and a cladding refractive index of 1.59. Determine the acceptance angle of fibre in water whose refractive index is 1.33.

Question No:2-

a) Explain the formation of interference fringes by means of Fresnel biprism when monochromatic light is used and derive the expression for the fringe width. How will you measure the wavelength of monochromatic light using biprism method? **(7)**

b) A wedge-shaped air film is illuminated by light of wavelength 4650 Å. The angle of wedge is 40 second. Calculate the fringe separation between two consecutive fringes. **(3)**

Question No:3-

a) Discuss the phenomenon of Fraunhofer diffraction at a single slit and show that the intensities of successive maxima are in the ratio of $1 ; 4/9\pi^2 ; 4/25\pi^2 ; 4/49\ \pi^2$ ..... **(7)**

b) In Fraunhofer diffraction at a single slit of width 1.2×10^{-6}m, find the half-angular width of the central bright maximum if slit is illuminated by light of wavelength 5890Å. **(3)**

Question No:4-

a) Describe in brief the phenomenon of double refraction in Uniaxial crystals? Compare the properties of ordinary and extraordinary rays. **(3)**

b) Explain the term 'absorption', spontaneous' and stimulated emission of radiation. Explain why laser action cannot occur without population inversion between atomic levels. **(4)**

c) Describe the structure and principle of a typical optical fibre. Differentiate between step index and graded index fibres. **(3)**

Roll no: _____

B. TECH. FIRST SESSIONAL EXAMINATION
FIRST SEMESTER 2018

Subject: Engineering Chemistry **Time: 90 Minutes**
Paper Code: ETCH-113 **Maximum marks: 30**

Note: Attempt Q.1, which is compulsory and any two more questions from the remaining.

Q.1) a. What is ignition temperature? Discuss about explosive limit. **[5x2]**
b. How does ash left after the coal is burnt differs from the originally present in the sample?
c. In phase diagram of ice, the fusion curve of ice has a negative slope, whereas the sublimation curve has positive slope. Explain.
d. ``Light speeds up many reactions and is sometimes spoken of as a catalyst." Criticise the statement.
e. What is the difference between negative catalyst and catalytic poison?

Q.2) a. What are the various steps involved in a gaseous reactions taking place on the surface of solid catalyst. Which is the rate determining step. **[5]**
b. Give a labelled phase diagram of water system and discuss the importance of triple point. **[5]**

Q 3) a. A petroleum gas has the following composition:
Ethane = 5%, Propane = 10%, Butane = 40%, Butene = 10%,
Isobutane = 30%, Propene = 5%.
Calulate the volume of air required for complete combustion of 100 m^3 of the gas and the percentage compostion of the dry flue gases if 35% excess air is supplied. **[5]**
b. Define enzyme catalysis. Give the kinetics and mechanism of enzyme catalyzed reaction. **[5]**

Q.4) a. How do you determine the rate of hydrolysis of ethyl acetate by an alkali and the order of reaction. **[4]**
b. How do you explain Knocking in a diesel engine? How it can be controlled? What is cetane number. **[6]**

(Please write your Roll no. immediately) Roll No----------

First-Term Examination

1st Semester, B.Tech, September 2018

Paper Code: ETCS-111 Subject: **Fundamental of Computing**

Time: 1.5 hours Max Marks: 30

Note: Attempt Q.No 1 and any two more Questions.

Q1. a) Differentiate between Micro, Mini, Mainframe and Supercomputer?

b) Explain any five types of input devices?

c) Differentiate between compiler and interpreter?

d) List any four features of Linux?

e) Explain **useradd** and **userdel**? **(2*5=10)**

Q2. a) Explain five component model of a computer? **(5)**

b) Explain storage devices? **(5)**

Q3. a) Explain the following commands in DOS: **(5)**

DIR (5 attributes)
MKDIR
CHKDSK
TYPE
ATTRIB

b) Explain windows 2000 architecture? **(5)**

Q4. a) Explain the root directory structure of LINUX. **(5)**

b) Write short note on the following: **(5)**

I. Registry editor
II. Booting

First Term Examination (September 2018)

B.Tech (1st Semester)

Paper Code: ETEE -107 **Max. Marks: 30**

Subject: Electrical Technology **Time: 1.5 Hrs**

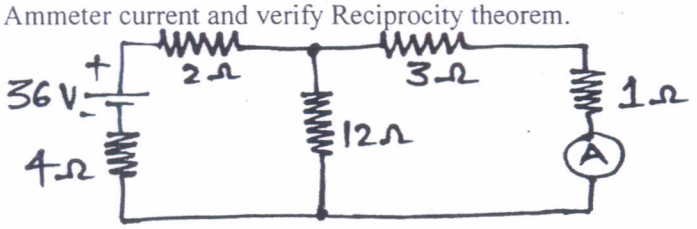
NOTE: Q1. is Compulsory. Attempt any two from the rest.

Q1. Answer the following in brief. [5*2]

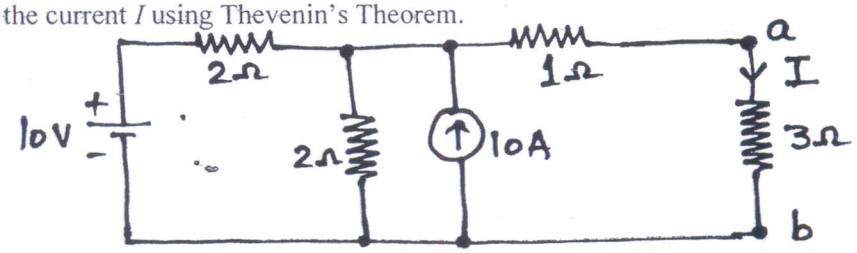
a) Define power factor for a single-phase AC circuit.
b) Define superposition theorem.
c) A sinusoidal alternating current has a maximum value of 10A. Find the instantaneous value at (i) $\frac{1}{12}$ cycle; (ii) $\frac{1}{6}$ cycle; (iii) $\frac{1}{2}$ cycle; (iv) $\frac{5}{8}$ cycle.
d) What is the relation between phase voltage, current and line voltage, current in a balanced 3-phase star and delta connected network.
e) Explain the voltage-dependent current source and current-dependent current source in a DC circuit.

Q2. (a) State and prove maximum power transfer theorem for D.C. networks. [5]

(b) Calculate Ammeter current and verify Reciprocity theorem. [5]



Q3. (a) Determine the current *I* using Thevenin's Theorem. [5]



(b) A choke coil having a resistance of 10Ω and inductance of 0.05H is connected in series with a condenser of 100μF. The whole circuit has been connected to 200V, 50Hz supply. Calculate:

(i) Current, (ii) Power factor, (iii) Power input, (iv) Apparent power and (v) Reactive power of the circuit. [5]

Q4. (a) Derive expression for power in balanced 3-phase star-connected circuit. [5]

(b) A balanced star-connected load of $(8+j6)\Omega$ per phase is connected to a balanced 3-phase, 400V supply. Find the line current, power factor and total power. [5]

BHARATI VIDYAPEETH'S COLLEGE OF ENGINEERING , DELHI

FIRST SEMESTER[B.TECH.]

FIRST TERM EXAMINATION, SEPTEMBER 2018

Sub: Human Values and Professional Ethics — Maximum Marks:30

Paper Code: ETHS-109 — Time:1.5 Hrs.

Note:

- Attempt**Q1.**which is compulsory and anytwo more questions from remaining.

Q1. (a) Fill in the blanks: **(10x1 = 10)**

1. Human value designs the _____ of an individual.
2. A Sanskrit term used to describe self-investigation is_____.
3. True happiness leads to_____.
4. The aim of value education is to promote _____at all levels viz. individual, family, society and nature.
5. _____ helps to ensure proper Swasthaya.

(b) Write True or False:

1. Human values and moral values are the same.
2. Value education and self-exploration leads to one's innate happiness.
3. The courseof value education cannot be verified.
4. Happiness is the need of the material body
5. Eating and breathing are the activities of 'I'.

Q2. **(2.5x4 = 10)**

1. Define 'Self – Exploration'.
2. Explain briefly the basic requirement for fulfillment of human aspirations.
3. What do you mean by happiness and prosperity? Explain.
4. What is the main objective of education imparted in present day scenario?

Q3. **(5x2 = 10)**

1. What are the main causes for the health disorders of present day?
2. What are the benefits of self- exploration?

Q4. **(5x2 = 10)**

3. Define Family? How can one establish harmonious relationships in family?
4. What's the need to understand 'Myself' for a human being?

Please write your roll no. immediately
Mid-Term Examination

Roll No.....

First Semester (B.Tech)

Paper code: ETMA-101

Subject: Applied mathematics

Time: $1\frac{1}{2}$ Hour

Maximum Marks: 30

Note: Attempt Q. No. 1 and two more questions. All question carry equal marks.

Q. 1. (a) Show that $\beta(m,n) = \beta(m+1,n) + \beta(m,n+1)$ (2.5)

(b) Solve $\int_0^2 x^{m-1}(2-x)^{n-1}\,dx$. (2.5)

(c) Discuss the convergence of the series $\sum_{n=1}^{\infty} \frac{1}{(\log n)^n}$ (2.5)

(d) Expand $\frac{1}{x}$ in power of $(x-1)$. (2.5)

Q. 2. (a) If $y = (x^2-1)^n$, *prove that* $(x^2-1)\,y_{n+2} + 2x\,y_{n+1} - n(n+1)\,y_n = 0$. Hence find y_0 . (6.0)

(b) Test for convergence of the series $\frac{x}{1.2} + \frac{x^2}{2.3} + \frac{x^3}{3.4} + ...$ (4.0)

Q. 3. (a) State the Leibnitz's Theorem and find the n^{th} derivative of $x^3 \sin x$. (6.0)

(b) Pr*ove that* $\log(1+e^x) = \log 2 + \frac{x}{2} + \frac{x^2}{8} - \frac{x^4}{192} + ...$ (4.0)

Q. 4. (a) Find the asymptotes of the curve $2x^3 - x^2y + 2xy^2 + y^3 - 4x^2 + 8xy - 4x + 1 = 0$. (6.0)

(b) The focal length of a mirror is found from the formula $\frac{2}{f} = \frac{1}{v} - \frac{1}{u}$, find the percentage error in f, if u and v are both in error by 2%. (4.0)

Roll no .....

First Semester (B.Tech)

Sessional Examination

Paper code: ETME-105 Subject: Manufacturing Process

Time: 1.5 hour Maximum Marks: 30

Semester: 1st

Note: Question 1 is compulsory. Attempt total three questions. Each question contains equal marks.

Qus.1

(a) Name the different pattern allowances used in sand mould casting. Discuss Draft and matching allowances. (2·5M)

(b) Differentiate between hot working and cold working. (2·5M)

(c) Differentiate among Strength, hardness and toughness with some examples. (2·5M)

(d) How is forging different from casting with respect to properties obtained in a product? (2·5M)

Qus.2 (a) Sketch and explain different types of extrusion processes and their uses. (5M)

(b) Discuss five major casting defects along with their remedies. (5M)

Qus.3 (a) what do you mean by charging of Cupola? Explained different zones and reaction involved in cupola. (6M)

(b) Explain any five tools used in fitting shop with diagrams. (4M)

Qus.4 (a) With the help of neat sketches explains various forging operations. (5M)

(b) What is die casting? Explain the difference between hot chamber and cold chamber die casting. (5M)

(Please write your roll no. immediately) Roll no.....

Mid Term Examination (Sep. 2018)

I semester [B.Tech] Sub: Applied Physics - I
Paper code: ETPH-103 Max. Marks: 30
Time: 1 ½ hrs.

Note: Attempt three questions in all. Question no.1 is compulsory.

1) (a) How will you identify the central fringe in biprism experiment?

(b) What are the differences between fringes obtained by fresnel's biprism and those obtained by Newton's rings?

(c) Mention one important use and limitation of half wave plate.

(d) Find the maximum order of spectra which can be seen if the width of grating element is less than twice the wavelength of light.

(e) Calculate the specific rotation if the plane of polarization is turned through 26.4°on traversing 20 cm length of 20% sugar solution. (2x5=10)

2) (a) Explain the formation of fringes in Newton's rings experiment. Show that the spacing between rings goes on decreasing with increased order.

(b) Why interference fringes are observed in thin films and not in thick films? (8+2)

3) (a) Discuss the phenomenon of Fraunhoffer diffraction at a single slit and deduce the position of maxima and minima. Also find the ratio of intensities of successive maxima.

(b) In a plane transmission grating the angle of diffraction for second order maxima for wavelength $5x10^{-5}$ cm is 30^0. Calculate the number of lines in one centimeter of the grating surface. (7+3)

4) (a) What is double refraction? Explain how Nicol prism is used both as a polarizer and an analyser?

(b) Calculate the thickness of a calcite plate which will convert plane polarized light into circularly polarized light. The principle refractive indices are μ_0= 1.658 and μ_e= 1.486 and the wavelength of light used is 589nm. (7+3)

7/11/09
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(Please write your Roll Number immediately) Roll No._____

Second-Term Examination

First Semester [B.Tech] November – 2009
Paper Code: ETCS-109 Subject: Introduction to Computer and Auto CAD
Time: 1 ½ Hrs Max Marks: 30

Note: Q1 is compulsory & Attempt any two questions out of the remaining questions.

WE WISH YOU BEST OF LUCK

Q1 (a). Fill in the blanks (any five) (1 x 5)

III. The smallest portion of the screen (VDU) is termed as _____.
IV. The pictorial representation of a program is termed as _____.
V. In Windows XP 'XP' stands for_____.
VI. The command for find out the User and Group in Unix is _____.

(b). Check whether the following statements are True/False (any five) (1 x 5)

I. DOS is a multi processing Operating system.
II. The External Commands of DOS are being executed by the user.
III. Windows XP can support both FAT and NTFS file system.
IV. UNIX is a DOS based Operating System.
V. CAT is a DOS Command.
VI. UNIX can also support DOS but DOS can not support UNIX.

Q2.(a). What is the role of AutoCAD? Discuss some of its applications. (2, 3)
(b). Give at least five advantages of AUTO CAD. (5)

Q3.(a). Differentiate between Graphical Using Interface and Character Based Interface? (4)
(b). What is the role of a Server in the Client Server Technology? Draw a diagram and give an example. (3, 3)

Q4.Write short notes on any four. (2.5 x 4)

(i) Multi-Processing.
(ii) Batch Processing System.
(iii) Algorithms.
(iv) Windows XP.
(v) Editing in AutoCAD.

(Please write your roll no. immediately) roll no.....

Term Examination (Regular)2017-18

I semester [B.Tech] Sub: Applied Chemistry

Paper code:ETCH-113 Max. Marks: 30

Time:1 ½ hrs.

Note: Question 1. is compulsory .Attempt any two more.

1. (a) Gross and net calorific value will be the same if_____. (1 X 10)

(b) The decomposition of coal by heating it out of contact with air to give a solid residue, coke is called _____.

(c) The substance with octane number 100 is_____.

(d) The quality of diesel fuel depends on_____.

(e) Name the catalyst used in catalytic cracking of heavy oil_____.

(f) _____ is a example of metastable state.

(g) Decomposition of calcium carbonate represented by the equation $CaCO_3(s) \longrightarrow CaO(s) + CO_2(g)$ in a closed vessel constitutes a system with number of phases equal to_____.

(h) The activity of a catalyst is completely destroyed by the foreign substance called_____.

(i) Adsorption of H_2 on Nickel is an example of _____.

(j) The optimum pH and optimum temperature for enzyme catalyzed reaction are _____ And _____.

2. (a)Calculate the weight & volume of air required for the complete combustion of 4 m^3 of CH_4. (4)

(b). Draw and explain the phase diagram of water system and also discuss the significance of temperature of triple point (6)

3. (a). Derive a general expression for the rate of reaction of an acid catalyzed reaction. (5)

(b). 1.56 gm of the coal was Kjeldahlized and NH_3 gas thus evolved was absorbed in 50 ml of 0.1 N H_2SO_4. After adsorption the excess acid required 8.25 ml of 0.1 N NaOH for exact Neutralization. 2.50 g of the coal sample in a quantitative analysis gave 0.1555 g of $BaSO_4$ Calculate the percentage of S and N in the coal sample. (5)

4 (a) How calorific value of a non volatile fuel can be determined ? Explain with the help of neat Diagram. (6)

(b) Distinguish between proximate and ultimate analysis. (2)

(c) what is eutectic mixture? (2)

(Please write your Roll No immediately) Roll No.....

Regular Paper, Sep 2017

Year: B.Tech 1st Sem Max marks:30

Subject Code: ETCS-111 Subject: Fundamentals Of Computing

Note: Attempt any three questions.

Q.1 a.)What is a computer system? Draw the block diagram of computer. (5.0)

b.) What is the difference between compiler and interpreter? (2.0)

c.) What is Flash memory? (3.0)

Q.2 a.) Differentiate between SRAM and DRAM. (3.0)

b.) What do you mean by volatile and non-volatile memory? (3.0)

c.) Differentiate between application software and system software with example? (4.0)

Q.3 a.) Explain the concept of multiprocessing operating system. (2.0)

b.)How o create a file in MS-DOS? (1.0)

c.)Explain CHKDSK and XCOPY Dos Command. (2.0)

d.) Give three advantage & disadvantage of computer. (5.0)

Q.5 Write short note on:

a.)Dot Matrix and Laser printers (5.0)

b.)Shell and Kernel Linux (5.0)

****

Roll no: _____

B. TECH. FIRSTSESSIONAL EXAMINATION
FIRST SEMESTER

Sub. Name: HVPE **Time allotted: 90 Minutes**
Paper Code: ETHS-109 **Maximum marks: 30**
Note:All Questions are compulsory

Q.1 Fill in the blanks: **[5]**

i. A sanskrit term used to describe self-investigtion is _____.
ii. Moral values are contant while human values are_____.
iii. An example of non-materialistic desire is _____.
iv. _____ stand for our longings and deep desires.
v. _____ desires are quantifiable.

Q.2 Write short notes on following:
i. Explain different core values. **[4]**
ii. What are instrumental values. Explain **[4]**
ii. Society: an extension of family/Guidelines for value Education. **[4]**

Q.3 Explain briefly about the different programs used to attain Sanyam.
or **[6]**
"Human beings are an integral part of nature!". Discuss.

Q.4 Human values shape the personality of an individual. Justify the statement.
or **[7]**
"Trust is the key to all other emotions." Comment.

Your Roll Number: .....

Bharati Vidyapeeth College of Engineering (GGSIPU, New Delhi)
B. Tech, Semester-1, September 2017
Mid Term Examination.
ETMA-101: Applied Math-1
(-)

Time: 1:30 hour | Maximum Marks: 30

Instructions:
- Write your roll number on the space provided at the top of this page immediately on receipt of this question paper.
- Answer **three** questions.
- Question No. 1 is compulsory.

(1) (a) State Cauchy integral test. [2 Marks]

(b) Determine Maclaurin's series of the function $e^{\cos x}$. [2 Marks]

(c) Find n^{th} derivative of the function $y = \frac{x^3}{x^2+x+1}$. [3 Marks]

(d) Test the convergence of an infinite series $\sum_{n=1}^{\infty}(1 - \cos(\pi/n))$. [3 Marks]

(2) (a) Test the convergence of an infinite series [5 Marks]

$$\sum_{n=1}^{\infty} \frac{n^n\, x^n}{n!}; \quad x \in \mathbb{R}^+.$$

(b) If $y(x) = e^{m.\cos^{-1}x}$, then find the value of $y_n(0)$. [5 Marks]

(3) (a) Test the convergence of an infinite series $\sum_{n=1}^{\infty}\left(\frac{1}{\sqrt{n}} + (-1)^n \frac{1}{3n-2}\right)$. [5 Marks]

(b) Determine the value of the integral $\int_0^{\pi/4} \tan^4 x\, dx$. [5 Marks]

(4) (a) Find asymptotes of the curve [5 Marks]

$$y^3 - 6xy^2 + 11x^2y - 6x^3 + x + y = 0.$$

(b) Find the curvature of the curve $y = c\log\{\sec(x/2)\}$. [5 Marks]

First Term Examination (September 2017)

B.Tech (1st Semester)

Paper Code: ETEE -107 **Max. Marks: 30**

Subject: Electrical Technology **Time: 1.5 Hrs**

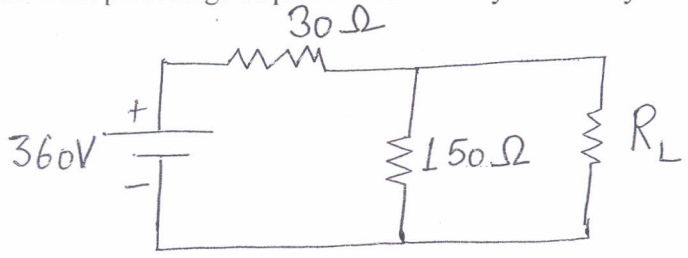
NOTE: Q1. is Compulsory. Attempt any two from the rest.

Q1. Answer the following in brief. [5*2]

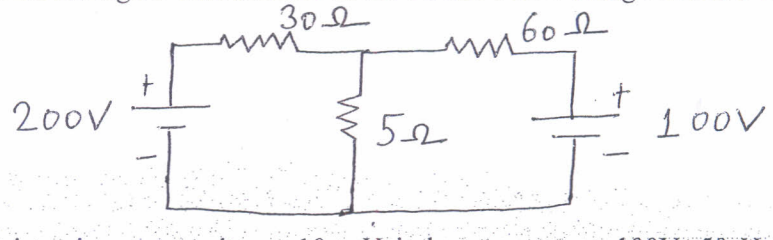
a) State Norton's theorem.
b) An alternating emf of frequency 50 Hz has an amplitude of 100V. Write down the equation for the instantaneous value. Also find the instantaneous value of the emf after 1/600 second.
c) What is Q factor in series resonance.
d) What is the relation between phase voltage, current and line voltage, current in star and delta connection.
e) Calculate the rms value, the form factor and peak factor of a periodic ac waveform.

Q2. (a) Prove that under maximum power transfer condition the power efficiency of the circuit is only 50%. [5]

(b) Find the value of R_L for the figure given below so that it abstracts maximum power and also calculate that power. What percentage of power delivered by the battery reached R_L. [5]



Q3. (a) Find the current through 5 ohm resistor in the circuit below using Norton's Theorem. [5]



(b) A 4 ohm resistor is connected to a 10 mH inductor across a 100V, 50 Hz voltage source. Find input current, voltage drops across resistor and inductor, power factor of the circuit and the real power consumed in the circuit. [5]

Q4. (a) Draw the vector resolution of currents for a delta connected 3 phase circuits. [5]

(b) The load in each branch of a star connected three-phase circuit consists of 10 ohm resistance and 0.06 H inductance in series. The Line voltage is 430 V. Calculate the phase voltage and the phase current. [5]

(Please write your roll no. immediately) Roll no.....

Mid Term Examination (Sep. 2017)

I semester [B.Tech] **Sub: Applied Physics - I**
Paper code: ETPH-103 **Max. Marks: 30**
Time: 1 ½ hrs.

Note: Attempt three questions in all. Question no.1 is compulsory.

1) (a) Why two independent sources of light of the same wavelength cannot produce interference fringes?

(b) Distinguish between Fresnel and Fraunhoffer diffraction.

(c) Define Stoke's law in optics.

(d) Find the angle of incidence for which we get plane polarized light by reflection from a glass plate with μ=1.56.

(e) Calculate the specific rotation if the plane of polarization is turned through 26.4°on traversing 20 cm length of 20% sugar solution. (2x5=10)

2) (a) Discuss the formation of Newton's rings by reflected light and derive an expression for the diameter of n^{th} dark ring.

(b) In a Fresnel's biprism experiment sodium light is used initially and 60 fringes are observed in field of view of the eye piece. Calculate the number of fringes that would be observed in the same field of view if the sodium light is replaced by a light of wavelength 5460Å. (7+3)

3) (a) Discuss the phenomenon of Fraunhoffer diffraction at a single slit and find the ratio of intensities of successive maxima.

(b) In a Fraunhoffer's diffraction pattern using two slits, the third, sixth and ninth order maxima are found to be missing. If the slit width is 0.05 mm then calculate the inter slit separation. (8+2)

4) (a) Discuss the polarizing and analyzing action of Nicol prism.

(b) Calculate the thickness of a calcite plate which will convert plane polarized light into circularly polarized light. The principle refractive indices are μ_0= 1.658 and μ_e= 1.486 and the wavelength of light used is 589nm. (7+3)

Please write your Roll No. immediately Roll No.

TERM EXAMINATION-SEPTEMBER 2016

B.Tech-I Sem **Subject: Applied Chemistry**
Paper Code: ETCH-113 **Max Marks: 30**
Time: $1\frac{1}{2}$ h

Note: Question No. 1 is compulsory. Attempt any two more. All Question carry equal marks.

Que.1 Differentiate between followings: 2×5

(a) Caking Coals and Coking Coals
(b) Thermal and Catalytic Cracking
(c) Negative Catalyst and Catalyst poison
(d) Triple point and eutectic point
(e) High Temperature and Low Temperature carbonization.

Que.2

(a) Why the good fuel for petrol engine is a bad fuel for diesel engine? 3
(b) The following mechanism has been proposed for enzyme catalysis: 5

$$E + S \underset{k_2}{\overset{k_1}{\rightleftharpoons}} ES$$

$$ES \xrightarrow{k_3} P + E$$

Using steady state approximation for [ES], show that the reaction rate is given by

$$\text{Rate} = \frac{k_3[E_0][S]}{[S] + k_m}$$

Where, symbols have their usual meaning.

(c) Write down the no of components, no of phases and calculate the degree of freedom for the following equilibrium: 2

$$Fe(s) + H_2O(g) \rightleftharpoons FeO(s) + H_2(g)$$

Que.3

(a) A gas has the following composition by volume: H=22%, CH_4=4%, CO=20%, CO_2=6%, O_2=3% and N_2=45%. If 25% excess air is used, find the weight of air actually supplied per m^3 of this gas. 5
(b) Derive Gibb's Phase rule. 5

Que.4

(a) 1.56 g of a sample of coal was kjeldahlized and NH_3gas thus evolved was absorbed in 50 ml of 0.1N H_2SO_4. After absorption, the excess acid required 6.25 ml of 0.1 N NaOH for exact neutralization. 2.6 g of the coal sample in a quantitative analysis gave 0.1755g of $BaSO_4$. Calculate the percentage of N & S in the coal sample. 4
(b) Discuss Pattinson's process of desilverisation of Pb. 3
(c) Write about octane no and cetane no. 3

(Please write your roll no. immediately) Roll no.....

Term Examination (Regular)2015-16

I semester [B.Tech] **sub: Applied Chemistry**
Paper code:ETCH-113 **Max. Marks: 30**
Time:1 ½ hrs.

Note: Question 1 is compulsory. Attempt any two more.

1. (a) Why Bituminous coal is suitable for carbonization?

(b). Phosphate conditioning is suitable at all operating pressures Give reason to support this Statement.

(c). 2.50 g of the coal sample in a quantitative analysis gave 0.1555 g of $BaSO_4$ Calculate the percentage of S in the coal sample.

(d). Why the complex of Ca^{2+} or Mg^{2+} with EDTA is more stable then the complex of Ca^{2+} or Mg^{2+} with EBT.

(e). What are the corrections to be made in the calorific value of a fuel, determined by Bomb Calorimeter. (2X5)

2. (a)Calculate the volume of air required for the complete combustion of 4 kg of CH_4. (3)

(b). Describe fixed-bed catalytic cracking method to obtain gasoline from heavy oil (4)

(c). Distinguish between proximate analysis and ultimate analysis. (3)

3. (a). In water softening methods, name the corrective and preventive methods of treatment (2)

(b). Explain with chemical equations the demineralization of hard water and regeneration of ion exchange resin. (4)

(c). 200 ml of a sample of water required 20 ml of N/50 HCl using methyl orange as a indicator. Another 200 ml of the same sample required 8 ml of N/50 HCl using phenolphthalein as indicator. Express alkalinity in terms of mg of $CaCO_3$ per liter? (4)

4. (a). 50 ml of a sample water consumed 15 ml of 0.01M EDTA before boiling and 5 ml of the same EDTA after boiling. Calculate the total hardness, permanent and temporary hardness. (4)

(b) Write short notes on :

(i) Octane and Cetane Number (3)

(ii) Caustic embrittlement (3)

(Please write your roll number immediately)

First Term Examination

Roll No.....

First Semester (B.Tech)- Regular **SEPT-16**

Subject: FOC **Paper Code: ETCS-111**

Time: 1.5 hours **Max. Marks: 30**

Attempt any three questions. Question 1 is compulsory

Question 1.

a) Define EPROM. (2)
b) Difference between RAM and Cache Memory. (2)
c) Define registry editor with example. (2)
d) Write four examples of application software. (2)
e) Write command to change file permission with example. (2)

Question 2.

a) Describe architecture of Windows operating system. (5)
b) Define five component model of computer with diagram. (5)

Question 3.

a) Differentiate Windows 2000 and Windows NT. (5)
b) Write difference between Internal and External command with example. (5)

Question 4.

a) Write short notes on following commands (choose any four) (5)

1) RMDIR 2) CHKDSK 3) DEL 4) CD 5) IPCONFIG

b) Explain concept of user and group creation with following condition (5)

1) Create user " IT" and add this user with group "BVP"
2) Delete User and group

(Please write your roll no.....)

Mid Term Examination

1st Semester (Common for all semester)

Subject Name: Electrical Technology
ETEE-107

Subject code:

Max. Marks: 30

Max. Time: 90 min

Note: Question no. 1 is compulsory. Attempt any two Questions from rest of the paper.

Q.1 (a) A coil consisting of 2000 turns of copper wire has cross-sectional area of 0.8 mm^2. The mean length per turn is 20 cm and resistivity of copper is $2*10^{-8}$ ohm m at normal working temperature. Calculate: (i) resistance of the coil and (ii) the power dissipated, when the coil is connected across a 110v d.c. supply.

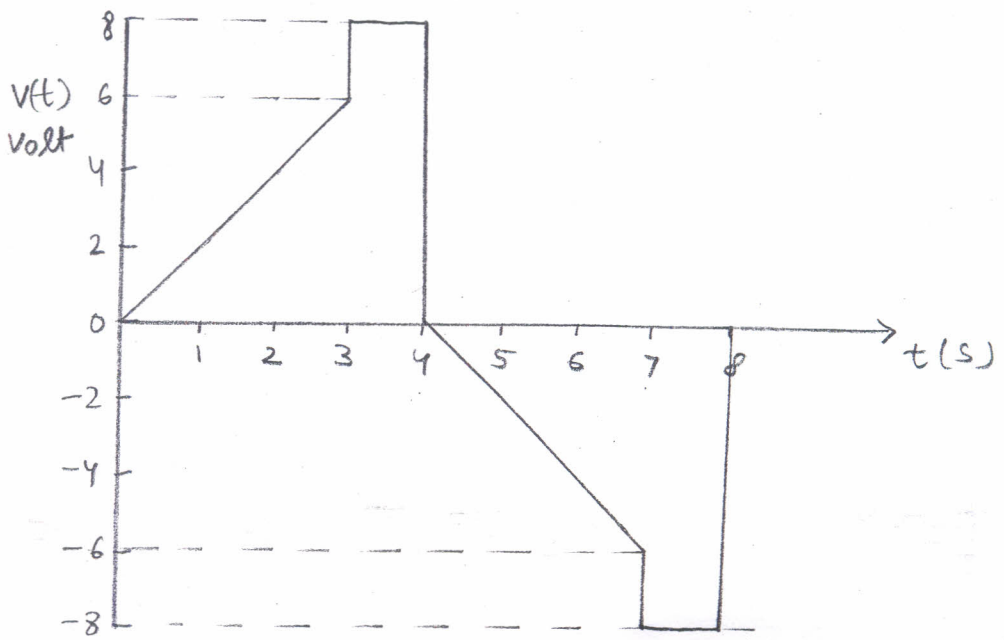
(b) The resistance of two coils is 25 ohms, when they are connected in series and 6 ohms when connected is parallel. Determine the individual resistance of the two coils.

(c) State Millman's theorem.

(d) A circuit consists of resistance R and capacitive reactance of 60 ohms connected in series. Determine the value of R for which power factor of the circuit is 0.8. Draw also its phasor diagram.

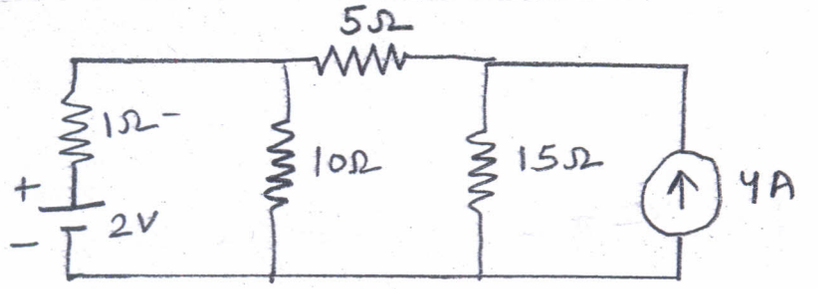
(e) Define the following terms in case of A.C. : (i) Cycle (ii) Amplitude (iii) Frequency (iv) Phase (2×5)

Q. 2 (a) A voltage wave has the variation as shown below: (i) determine the average and effective values of the voltage. (ii) if the voltage of the part (i) is applied to a 50 ohms resistor, find the power dissipated in watts.



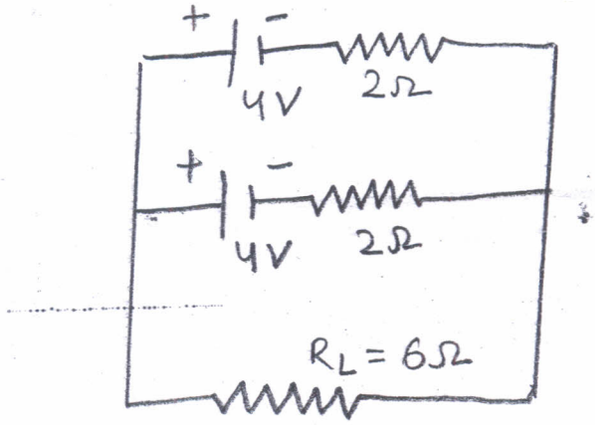
(5)

(b) Use Thevnin's theorem, find the current through 5 ohm resistor in the given circuit.



(5)

Q. 3 (a) Find the load current in 6 ohm resistor in the given circuit by using superposition theorem.

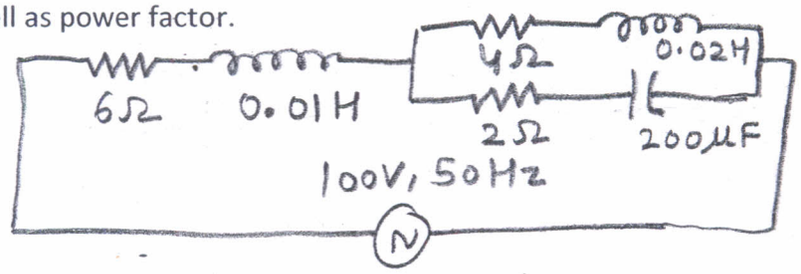


(5)

(b) Two wattmeters connected to measure the input to balance three phase circuit indicate 2500 W and 500 W respectively. Find the power factor of the circuit (i) when both reading are positive and (ii) when the latter reading obtained after reversing the connections of the current coil.

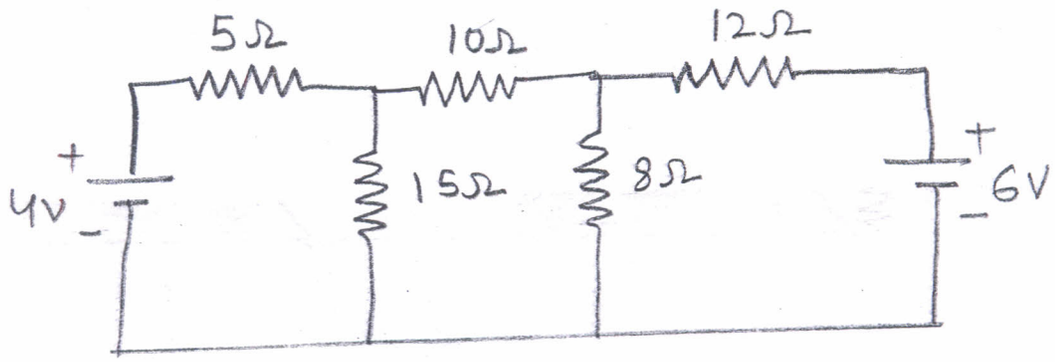
(5)

Q. 4 (a) Determine the current in the circuit as shown in figure and also find the power consumed as well as power factor.



(5)

(b) A network is arranged as shown in figure, determine the value of the current in the 8 ohm resistor using mesh equations



(5)

(Please write your Roll no. 2016 .....)

First Terminal Examination

1st Semester (Common for all branches)

Subject name: Electrical Science | Subject code: ETEE 107

Max. Marks: 30 | Times: 90 min

Note: Attempt three Questions. Question no.1 is compulsory.

Q. no. 1(a) Explain Norton's theorem with suitable diagram.

(b) Three 3 Ω resistors are connected to form a triangle. What is the resistance between any two of the corners?

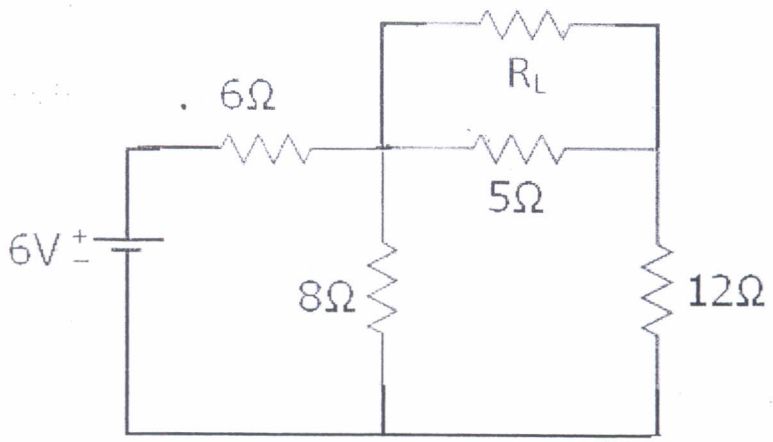
(c) With reference to alternating quantities, define the following terms: Waveform, Cycle, Frequency, amplitude.

(d) Define peak factor and form factor. State their values for sinusoidal quantities.

(2.5*4)

Q. no. 2 Drive expressions for the conversion of a star-connection network into equivalent delta-connection network and vice versa. (10)

Q. no. 3 Find the value of R_L for the given network below that the power is maximum? And also find the Max Power through load-resistance R_L by using maximum power transfer theorem? (10)



Q. no. 4 Derive the expression for resonance for a series RLC circuit. Explain in detail with diagram. Also write the expression for lower cut off frequency, upper cut off frequency, bandwidth and Quality factor. (10)

Your Roll Number: .....

Bharati Vidyapeeth College of Engineering (GGSIPU, New Delhi)
B. Tech, Semester-1, September 2016
Mid Term Examination.
ETMA-101: Applied Math-1
(-)

Time: 1:30 hour | Maximum Marks: 30

Instructions:
- Write your roll number on the space provided at the top of this page immediately on receipt of this question paper.
- Answer **three** questions.
- Question No. 1 is compulsory.

---

(1) (a) Find n^{th} derivative of the function $y = \log(5x + 6)$. [2 Marks]

(b) State Cauchy root test. [2 Marks]

(c) Determine the asymptotes parallel to axis for the curve $xy+x+1 = 0$. [2 Marks]

(d) Can the function defined by $f(x) = \log x$ be expanded as a Maclaurin's series? [2 Marks]

(e) Evaluate $\int \sec^4 x\, dx$ [2 Marks]

(2) (a) Test the convergence of an infinite series [5 Marks]

$$\sum_{n=1}^{\infty}(-1)^n \frac{x^n}{n^3}; \quad x \in \mathbb{R}.$$

(b) If $y(x) = (\sin^{-1} x)^2$, then show that [5 Marks]

$$(1 - x^2)y_{n+2} - (2n + 1)xy_{n+1} - n^2 y_n = 0.$$

---

(3) (a) Test the convergence of an infinite series $\sum_{n=2}^{\infty}\left(\frac{1}{n} + (-1)^n \frac{1}{\log n}\right)$. [5 Marks]

(b) Determine Taylor's series expansion of function $f(x) = \cos x$ about the point $x = \frac{\pi}{3}$. [5 Marks]

(4) (a) Find asymptotes of the curve $x^4 - y^4 + xy = 0$. [5 Marks]

(b) Find the curvature of the curve $r = a(1 + \cos\theta)$. [5 Marks]

First Terminal Examination (*Regular*) **Roll No.....**

Subject: Manufacturing Processes September 2016
1st semester (B.Tech) Paper code: **ETME 105**
Time: **1hr 30 min** Max Marks: **30**

Note: *Section **A** is compulsory and attempt any two from section **B**. Draw neat sketch wherever required.*

Section A

Q1. Write short notes on the following: **(5x2 = 10)**

a) What is Refractoriness and Bench life of sand?
b) Enlist three advantages of hot working over cold working process.
c) What is the difference between pattern and core?
d) Define ductility and toughness.
e) Define Swaging and Drifting operation.

Section B

Q2. a) Explain investment casting with diagram. Also write its advantage over other casting processes.
b) Define different zones of cupola furnace with chemical reactions. 5+5

Q3. a) What are the different types of gate used in sand casting process?
b) Write any five bench work and fitting tools with neat sketch. 5+5

Q4. a) Explain with diagram, five casting defects with their possible causes and remedies.
b) What is the difference between press forging and drop forging? 5+5

(Please write your roll no. immediately) **Roll No. _____**

Mid term examination

I[st] Semester, B.TECH. (All branches) **Feb./March 2016**
ETME 110 **Engineering Mechanics**
Time 1hr. 30 min **Max. Marks 30**

Note: Attempt Q. No. 1 and any two more questions.

Q1 (a) What is the difference between Resultant and Equilibrium?

(b) What is the essential condition for three, non-parallel, co-planer forces to be in equilibrium? Explain with example.

(c) If a given area has two or more axes of symmetry, where will its centroid be located? Explain with example.

(d) Why is the coefficient of static friction greater than coefficient of kinetic friction?

(e) Give two advantages of method of sections. **(2x5)**

Q2 (a) A bar AB of weight 100N is hinged at A and is pulled by a cable attached at B by a force F. Find the force F and the magnitude and direction of the reaction at A if bar is in equilibrium position as shown in fig.Q2 (a). **(7)**

(b) Two identical iron spheres, each of radius 5cm and weight 150N are connected with a string of length 16cm, and rest on a horizontal smooth floor. Another sphere of radius 6cm and weight 200N rests over them. Determine the tension in the string and reaction at all contact surfaces. [Fig.Q2 (b)] **(3)**

Q3 (a) Find the moment of inertia about the horizontal axis passing through CG of the given fig.Q3 (a). **(7)**

(b) Determine the centroid of the bent wire ABCDE shown in fig.Q3 (b) **(3)**

Q4 (a) A truss is loaded and supported as shown in fig.Q4 (a). Compute the axial force in all the members of truss? **(7)**

(b) The tongs are used to handle hot steel tubes that are being heat treated in an oil bath. For a 20^{o} jaw opening, what is the coefficient of static friction between the jaws and the tube that will enable the tongs to grip the tube without slipping [Fig.Q4 (b)]? **(3)**

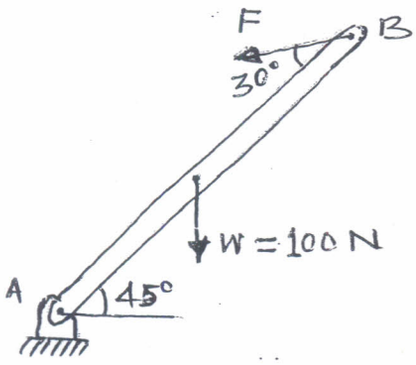


Fig. Q2 (a)

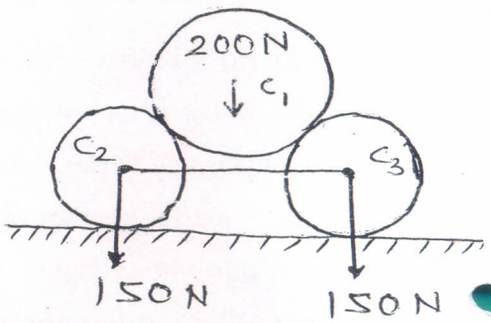


Fig. Q2 (b)

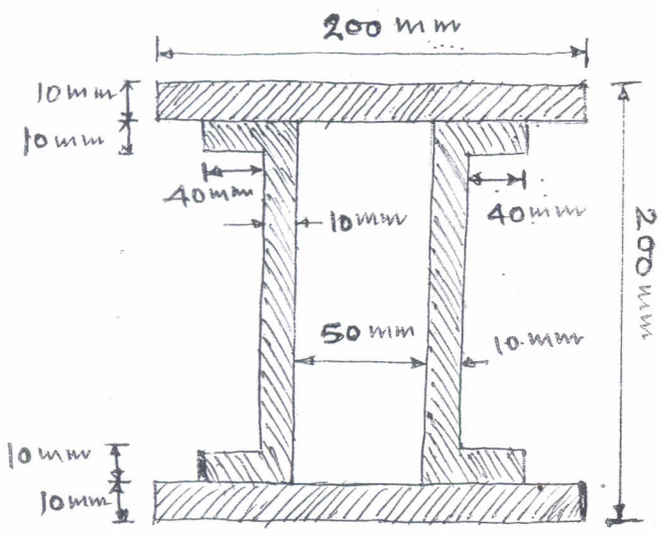


Fig. Q3 (a)

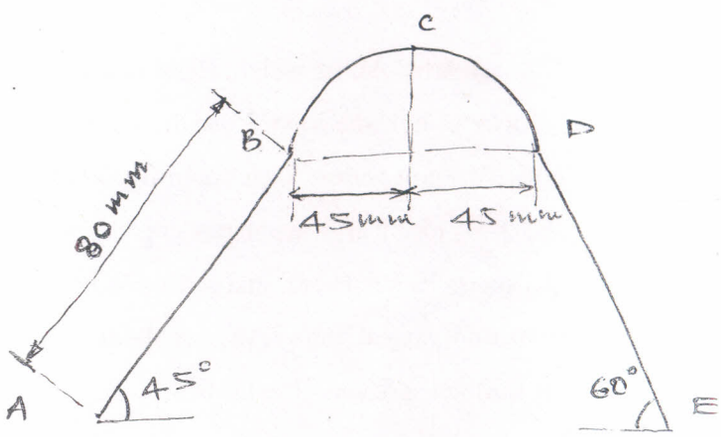


Fig. Q3 (b)

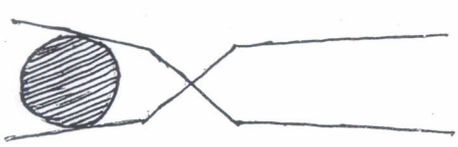


Fig. Q4 (b)

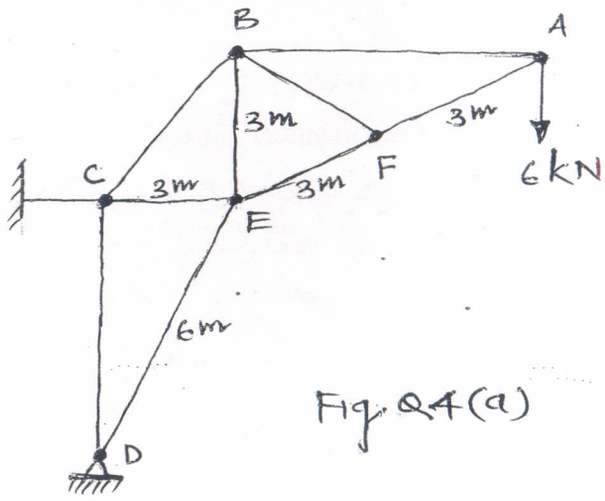


Fig. Q4 (a)

Mid Term Examination
(Regular)

First Semester (B.Tech) | **20th September 2016**
Paper Code: ETPH-103 | **Sub: Applied Physics-I**

Time: 1.30 hr. | **Max. Marks: 30**

Note: Attempt Q1 and any two more questions.

[2x5=10]

Q1 a) Two coherent sources whose intensity ratio is 81:1 produce interference fringes. Deduce the ratio of maximum to minimum intensity of the fringe system

b) Draw a labelled ray diagram depicting interference by a biprism

c) Distinguish between Fresnel and Fraunhofer diffraction

d) What particular spectra would be absent if the width of transparencies and opacities of the grating are equal

e) Differentiate between plane polarised, circularly & elliptically polarised light

f) What are the essential conditions for lasing action to happen?

[4+4+2]

Q2 a) Obtain the condition of maxima & minima for interference fringes formed due to reflection by thin film of uniform thickness. Why excessively thin film seen by reflected light appears dark?

b) A glass wedge of angle 0.01 radiance is illuminated by monochromatic light of wave length λ=6000Å falling normally on it. At what distance from the edge of wedge will the 10^{th} fringe be observed by reflected light.

c) Explain why in Newton's rings experiment fringes are circular with dark ring at the centre.

[4+4+2]

Q3 a) Describe the phenomena of diffraction of light from single slit of width 'b' & obtain the angular positions of principle maxima and minima

b) Calculate the highest order of maxima that can be seen in the diffraction pattern of light of wavelength 5000 Å by a diffraction grating having 2500 lines/cm.

c) State Rayleigh's criterion of resolution

[4+4+2]

Q4 a) What is the phenomenon of double refraction; differentiate between e-ray and o-ray.

b) Two Nicol Prisms are oriented with their principal planes making an angle of 60^0. What percentage of initial un-polarized light will pass through the system?

c) Information capacity of optical fibre system is far more superior to copper cable system. Justify

First Term Examination

Subject: Manufacturing Processes | **Roll No. .....**
1st semester (B.Tech) | Paper code: **ETME 105**
Time: **1hr 30 min** | Max Marks: **30**

Notes: *Section A is compulsory and attempt any two from section B.*
Draw neat sketch wherever required.

Section A

Q1. Write short notes on the following:- **(5x2 = 10)**

a) What is Hardness, and how is it measured?
b) What is Duralmin and its composition?
c) What is the difference between Casting and Moulding?
d) What is the purpose of heat treatment?
e) What is Recrystallization?

Section B

Q2. a) Explain Investment Casting process with its applications.
b) Difference between Press forging and Drop forging. **5+5**

Q3. a) Explain any five casting defects with its causes and remedies.
b) Explain five measuring tools with its diagram used in bench work and fitting. **5+5**

Q4. Explain Cupola furnace construction with its zone reactions and uses. **10**

First Term Examination Roll No.....

Nov. 2014

Sub: Applied Chemistry-1 Paper code-ETCH-113

Time: $1^1/_2$ hs. Max Marks: 30

Note: Attempt Q No. 1 and any two more.

1.a. Why corrections are made in determination of calorific value by bomb's calorimeter.
b. Differentiate between caking coals and coking coals.
c. Hydrocarbons that are poor gasoline fuel are quite good diesel fuel. Why?
d. Why rough surface of a catalyst is more effective then smooth surface.
e. Differentiate between promoter and inhibitor with example. (2x5)

2.a Describe the method of a carbonization of coal to yield coke . (4)

b. Calculate the gross and net calorific value of coal sample having the following composition: C= 80%, H= 7%, O=3%, S=3.5%, N=2.1%and ash=4.4%. (3)

c. 1.56 gm of a sample of the coal was Kjeldahlized and NH_3 gas thus evolved was absorbed, the excess acid required 8.25 mL of 0.1 N NaOH for exact neutralization. Determine the % of Nitrogen in the sample of coal. (3)

3.a. A gaseous fuel has the following composition by volume: H_2=22%, CH_4=4%, CO=20%, CO_2=6%, N_2=45% and O_2=3%. If 25% of excess air is used, find the weight of air actually supplied per m^3 of this gas. (6)

b. Derive a general expression for the rate of reaction of an acid catalyzed reaction. (4)

4.a. Write short note .
i. Octane and Cetane No. (3)
ii. Wilkinsons's catalyst (3)
iii. Proximate analysis. (4)

First Term Examination(Regular)

I Semester [B.Tech] NOV-2014

Subject Code: ETCS-111 Subject: Fundamental of Computer

Time: 1.5Hrs Max. Marks: 30

Note: Attempt Q.1 and any two more Questions.

Q.1.a) Define assembler with example. 2

b)Difference between High Level Language and Low Level Language. 2

c) How DOS is different from any other GUI based Operating System 2

d) Difference between Primary memory and Secondary memory. 2

e) Give four example of Application Software. 2

Q.2. a) Difference between Compiler and Interpreter. 5

b) Define Types of ROM.Give example where do we use ROM in Computer. 5

Q.3 a) Define DOS and also explain concept of Booting. 3

b) Explain the following DOS commands.

1) CHDIR 2) RMDIR 3) COPY 4) PATH 5) DATE

6) PROMPT 7) CHKDSK 7

Q.4.a) Write an Algorithm defines Roots of Quadratic Equation. 5

b) Draw flow chart for finding the area of triangle and its type. 5

FIRST TERM EXAMINATION

1st Semester (B.Tech. all branches) **Nov., 2014**

Paper Code: ETEE-107 **Sub: Electrical Technology**

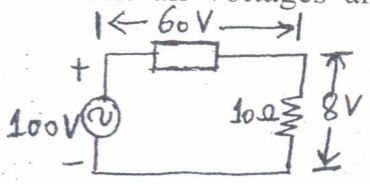
Time: 1 1/2 Hrs **Maximum Marks: 30**

Note: Q.1 is compulsory. Attempt any two more questions from the rest. Assume appropriate data if necessary.

Q.1. a) Consider the sinusoidal waves:

$E_1 = A\sin(wt + 30^0)$, $E_2 = B\cos(wt - 60^0)$. What is the phase angle relation between the two waves? (1)

b) In the given circuit all voltages are in rms. What is the unknown element? (1)

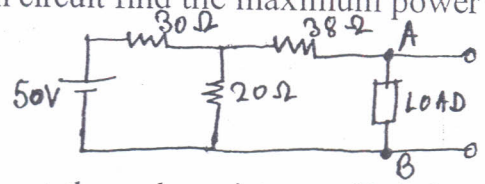


c) Three resistors each of R Ω is connected in Delta. If they are transformed into Star connection, what will be the resistance of each resistor (arm of star connection). (2)

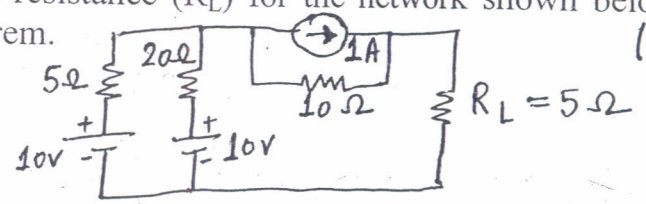
d) If $A = 4\angle 30^0$ & $B = 2\angle 60^0$. What will be the value of A/B. (1)

e) Convert 4A source with its parallel resistance of 15 Ω into its equivalent voltage source. (2)

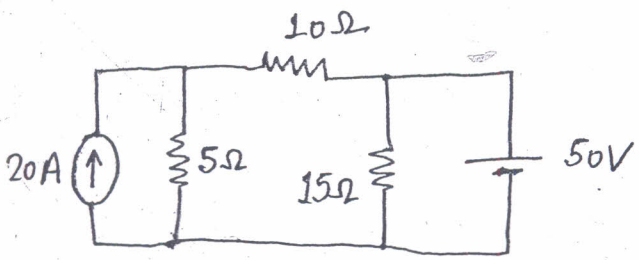
f) In the given circuit find the maximum power delivered across the load. (3)



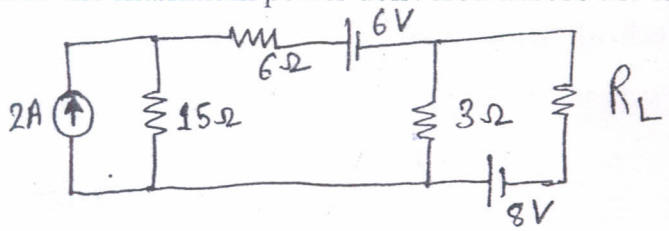
Q.2.a) Find the current through resistance (R_L) for the network shown below using Superposition Theorem. (5)



b) Find the current through the 10 Ω resistor using thevenin's theorem. (5)



Q3.a). Find the value of R_L for maximum power to be transferred across the load. Also, find the maximum power delivered across the load. (6)



b) In an AC circuit applied voltage is (200+jo) volt and current is $10\angle -60^0$ Amp. Calculate Impedance, Resistance, Inductance, and complex power. (4)

Q4.a) An RLC series circuit has R= 10 Ω, L= 1mH and C= 1μF, Calculate (6)

i. Resonance Frequency
ii. Impedance & current at resonance
iii. V_L, V_C & V at resonance

b) A current of I= (3+4j) Amp is drawn by a series a.c. circuit from an a.c. Voltage source of voltage V= (100+ j0) Volt. Find the nature and values of individual elements of this series circuit. The supply frequency is 50Hz. (4)

BHARATI VIDYAPEETH'S COLLEGE OF ENGINEERING, DELHI
FIRST SEMESTER [B.TECH.]
FIRST TERM EXAMINATION, November 2014

Sub: Human Values and Professional Ethics — *Maximum marks: 30*
Paper code: ETHS-109 — *Time: 1.5 Hrs.*

NOTE:

- ***Attempt all questions in section A.***
- ***Internal choice is given in questions of section B.***

Section-A

Q1. (a) Fill in the blanks: (10X1=10)

(i) The four dimensions of a human being are thought, _____, work and realization.
(ii) Needs of the body are temporary while the needs of self are _____.
(iii) Respect is right _____.
(iv) Self-exploration is one of the methods of _____.
(v) _____is the state of non-contradictory joy.

(b) Write True or False:

(i) Natural acceptance is variable with time.
(ii) Preservation (Suraksha) means ensuring mutual fulfilment with nature.
(iii) Nature has self-regulation.
(iv) Excellence and competence are same and thus bring common results.
(v) When we evaluate something for less than what it is, it is called otherwise evaluation.

Section-B

Q2. Attempt any five questions: (2X5=10)

(i) Define 'Self Exploration'.
(ii) What is meant by universal human order?
(iii) What do you mean by SVDD and SSDD?
(iv) What is the difference between animal consciousness and human consciousness?
(v) What is the difference between materialistic and non-materialistic desires?
(vi) What do you mean by happiness and prosperity? Explain.

Q3. Attempt any two questions: (5X2=10)

(i) Explain how production activities can be enriching to all the orders of nature. Give any two examples.
(ii) Explain any five needs for value education.
(iii) What are the main causes for the health disorders of present day?

Question paper on the basis of new and old syllabus both

08

Please write your roll no. immediately
First Term Examination

Roll No.....
Sep-2014

First Semester (B.Tech)

Paper code: ETMA-101

Subject: Applied mathematics

Time: $1\frac{1}{2}$ Hour

Maximum Marks: 30

Note: Attempt any three questions. All question carry equal marks.

Q. 1. (a) To find n^{th} derivative of $y=\log(ax+b)$ (4)

(b) If $y = a\cos(\log x) + b\sin(\log x)$, *show that* $x^2 y_{n+2} + (2n+1)x\, y_{n+1} + (n^2+1)\, y_n = 0.$

or

If $y = (x^2-1)^n$, *prove that* $(x^2-1)\, y_{n+2} + 2x\, y_{n+1} - n(n+1)\, y_n = 0.$ (6)

Q. 2. (a) Test for convergence the series whose nth term is $\frac{n^2}{2^n}$. (4)

(b) *Expand* $f(x) = x^5 - x^4 + x^3 - x^2 + x - 1$ *in powers of* $(x-1)$ (6)

Q. 3. (a) Pr*ove that* $\log(1+e^x) = \log 2 + \frac{x}{2} + \frac{x^2}{8} - \frac{x^4}{192} + ...$ (6)

(b) Discuss the convergence of the series $\sum_{n=1}^{\infty} \frac{1}{(\log n)^n}$ (4)

Q. 4. (a) State the Leibnitz's Theorem and find the nth derivative of $x^3 \sin x$. (5)

(b) Find the approximate value of $\sqrt{10}$ up to four places of decimals using Taylor's theorem. (5)

Roll No. .....

First Terminal Examination (Regular)

Subject: Manufacturing Process
1st semester (B.Tech)
Time: 1hr 30 min

September 2014
Paper code: ETME 105
Max Marks: 30

Note: *Section **A** is compulsory and attempts any two from section **B**. Draw neat sketch wherever required.*

Section A **(5x2 = 10)**

Q1. Write short notes on the following:

a) Name at least eight engineering materials commonly used in manufacturing of components in industries.
b) Different types of pattern allowances.
c) State the function of riser and runner.
d) Write any four fitting tool with their application.
e) Write the difference between low carbon steel and high carbon steel with their application.

Section B

Q2. a) Explain centrifugal casting process and its limitation.
b) Describe various molding sand properties. **5+5**

Q3. a) Explain cold chamber die casting process.
b) Explain at least five types of patterns with diagram. **5+5**

Q4. Write the purpose of cupola. Describe different zones of cupola furnace with neat sketch. **10**

(Please write your Roll No. Immediately) Exam Roll No.....

FIRST TERM EXAMINATION

First Semester (B.Tech.) **November, 2014**
Paper Code: ETPH 103 **Subject: Applied Physics-I**
Time: 1.5 Hours **Max. Marks-30**
Note: Question number 1 is compulsory. Attempt any two more questions.

1. (2x5)

a) Give the schematic diagram showing formation of fringes using Fresnel Biprism.

b) Explain, why Newton's rings are circular and called fringes of equal thickness?

c) How many orders will be visible if the wavelength of an incident radiation is 5000 $\overset{0}{A}$ and number of lines on the grating is 2620 per inch?

d) What is Rayleigh's criterion of resolution? Derive an expression for resolving power of grating.

e) Two Nicols prism are oriented with their planes making an angle of 60^0. What percentage of incident unpolarised light will pass through the system.

2.

a) Discuss the phenomenon of interference of light in the thin films and obtain the condition of maxima and minima for reflected light. (7)

b) A beam of monochromatic light of wavelength 5.82×10^{-7} m falls normally on a glass wedge with the wedge angle of 20 second of an arc. If the refractive index of glass is 1.5, find the number of dark interference fringes per cm of the wedge length. (3)

3.

a) Describe Fraunhofer diffraction due to single slit and deduce the positions of maxima and minima. Show that relative intensities of successive maxima are nearly

$$1:\frac{1}{21}:\frac{1}{61}:\frac{1}{121}:.....$$ (7)

b) D_1 and D_2 lines of sodium light are 6 $\overset{0}{A}$ apart. What should be minimum number of lines in a diffraction grating to resolve them? (3)

4.

a) Distinguish between linearly, circularly and elliptically polarized light. Explain their production with the help of mathematical equation. (7)

b) Calculate the thickness of half wave plate for sodium light ($\lambda = 5893\ \overset{0}{A}$), if $\mu_0 = 1.54$ and ratio of velocity of o-ray and e-ray waves is 1.007. Is this crystal is positive or negative? (3)

.....x.....

Sub:-Applied Chemistry

Sub. Code:-ETCH-113

First Sessional, Oct 2013

First Semester

Duration: 1hr 30 min

Max Marks: 30

Note: - Question No-1 is compulsory. Attempt any two from the rest.

Question 1:- Give reasons of the following: - (2 X 5)

a) GCV is always higher than NCV.
b) In bomb calorimeter what we measure is GCV of the fuel.
c) Good gasoline is bad diesel engine fuel.
d) Negative catalyst and catalyst poisons are not same.
e) When acid KM_nO_4 solution is added to a hot solution of oxalic acid, the color is decolorizedslowly in the beginning, but after sometime it disappears rapidly.

Question 2: - (7, 3)

a) Give the mechanism and kinetics of enzyme catalyzed reactions(MichaelisMenton Equation).
b) Explain catalysis by metal salts(wilkinson's catalysis).

Question3: - (5,5)

a) Name the analysis of coal in which moisture, volatile matter, ash and fixed carbon are determined. Give significance of each component.
b) Asample of coal was found to have the following composition by mass:
C=75%, H=5.2%, O=12.1%, N=3.2% and ash= 4.5%
Calculate:
   i. Minimum air required for the complete combustion of 1 Kg coal.
   ii. Highest and the lowest calorific value of fuel.

Question 4: - (3,3,4)

a) Explain Cetane No. and Octane No.
b) What are advantages of catalytic cracking over thermal cracking?
c) 20g sample of coal was used for nitrogen estimation by Kjeldahl method. The evolved NH_3 was collected in 50ml (N/10) H_2SO_4. To neutralize excess acid, 25ml of 0.1N NaOH was required. Determine the percentage of N_2 in the given sample of coal.

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(Please write your Roll No. Immediately) Roll No. _____

First Term Examination

B Tech – Semester I **Oct., 2013**
Paper Code: ETCS – 111 **Subject: Fundamentals of Computing**
Time: 1 ½ Hours **Max. Marks: 30**

Note: Q. No.1 is compulsory. Attempt any two more questions from the rest.

Q1. a) Differentiate between internal and external commands.
b) What is the basic function of primary memory in the computer? Define various types of RAMs.
c) Name and differentiate the two main categories of computer software.
d) Draw a flow chart to print names of all the students having age 20 or more in a class. The input record contains the name and age of student.
e) Arrange the following in ascending order:
i) Nibble ii) Kilobyte iii) Petabyte iv) Megabyte
v) Terabyte vi) Byte vii) Bit viii) Gigabyte.

[2x 5]

Q2. a) What do you understand by booting a PC?
Separate internal and external commands from the following list. Also write their purposes and syntaxes.

i) edit **ii) ren** **iii) fdisk**
iv) rd **v) move** **vi) deltree**

b) Explain the different generations of computers with their basic characteristics.

[5+5]

Q3. a) What do you understand by input and output devices of a computer? Discuss any two from each in detail. Also define Sector, Track and Cylinder of a hard disk.

b) Draw a block diagram to illustrate the basic organization of a computer system and explain the functions of the various units.

[5+5]

Q4. Write short notes on **ANY TWO** of the following:

a) Blu Ray Disk
b) Direct Data Entry Devices
c) Impact & Non Impact Printers
d) Translators.

[5+5]

Please write you Roll No. immediately Roll No.....

First Semester Examination (Regular)

Ist Semester: Common to all Branches **Oct-Nov., 2013**
Paper Code: ETEC-107 **Subject: Electronic Devices**
Time: 1:30 Hr **Max. Marks: 30**

Note: Q1 is compulsory and attempt any two more questions from the rest.

Q1 (a) Define AC & DC resistance. Draw the necessary graph in this context. (2.5)

(b) Explain the effect of temperature of V-I characteristics of PN junction diode (2.5)

(c). Explain the working of PN junction Diode with help of suitable diagram. (2.5)

(d) What is mass action law? (2.5)

Q2 (a) A pure semiconductor (Ge) is simultaneously doped with donor and acceptor impurities to the extent of **1: 10^7** donor atoms & **1:10^{11}** acceptor. Find its conductivity. Given total no. of atoms $=4.421X10^{22}/Cm^3$, $n_i=2.5x10^{13}$atoms/cm^3, $\mu_n=3800cm^2$/V-sec, $\mu_p=1800cm^2$/V-sec (5)

(b) Discuss the different types of junction breakdown that can occur in Reverse biased diode (2.5)

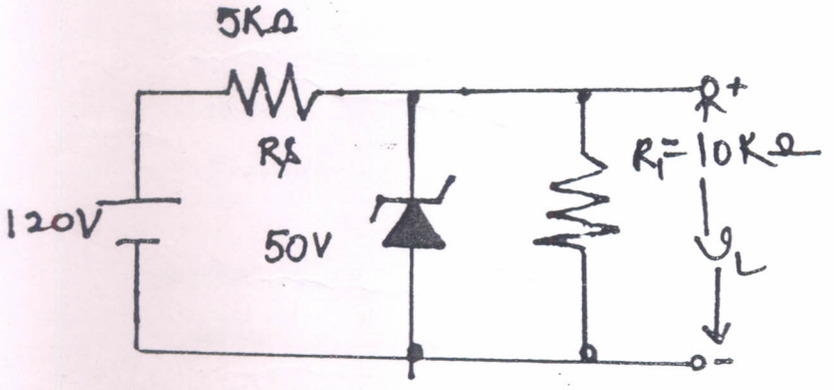
(c) Define the Fermi Function. Explain the Fermi level in a semiconductor having impurities. (2.5)

Q3 (a) A pure semiconductor (Ge) is doped with donor impurities to the extent of **1: 10^7** donor atoms. Find donor concentration, Electron Concentration, Hole concentration, ρ and σ of the doped semiconductor. (5)

(b) Define Transition and Diffusion capacitance. (2.5)

(c)Explain Varactor Diode giving its symbol, operation & applications. (2.5)

Q4 (a) For the Circuit shown in fig below .Find the o/p voltage, the voltage drop across R_S and the current through Zener Diode. (5)



(b) what is the difference between Conductors, Insulators and semiconductors? Explain it with energy band theory of crystals. (2.5)

(c)Explain the diode reverse recovery time of a P-N junction with the help of diagram. (2.5)

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(Please Write your Exam Roll No.) (Exam Roll No----------)

First Term Examination

First Semester (B. Tech.) Oct 2013

Paper Code:ETHS-109	**SUB: HVPE**
Maximum Marks: 30	**Time:1.30 hours**

Note: Attempt all the questions

Q.1 Fill in the Blanks:- (6)

a. ..... values are social and ethical standards common to every culture, society and religion.
i. Natural ii. Numerical iii. Physical iv. Human

b. The problem in our relationship with different entities around us is based on certain ..... which is not true.
i. Pre-assumption ii. Pre-determination iii. Pre-occupation iv. Pre-selection

c. ..... is ability to perform a specific task, action or function successfully.
i. Intention ii. Respect iii. Differentiation iv. Competence

d. Self Actualization is the need of ..... .
i. First Level ii. Second Level iii. Third Level iv. Fourth Level

e. Belongingness and love are the ..... .
i. Safety need ii. Social need iii. Deficiency need iv. Physiological need.

f. Healthy relationships are built on a foundation of secure attachment and are maintained with ..... .
i. Affection ii. Peace iii. Love iv. Care

Q.2 Write short notes on the following.

a. Natural Acceptance/Concept of self respect (4)

b. Classification of values/Happiness as basic human aspiration (4)

c. Society: an extension of family/Guidelines for Value Education (4)

Q.3 What are the needs of self 'I' and body? (6)
or
What are the comprehensive human goals in society?

Q.4 Explain the activities in 'I'? Are they continuous or temporary? (6)
or
What is prosperity? Differentiate between prosperity and wealth.

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(Please write your Roll No. Immediately)

Roll No.....

First Term Examination

First Semester (B.Tech)

October 2013

Paper Code: ETMA 101

Subject: Applied Maths –I

Time: $1\frac{1}{2}$ Hrs

Max Marks: 30

Note: Attempt question no 1 and any two more questions.
Assume missing data if any.

1)

a) Discuss the convergence of series $\sum_{1}^{\infty} \frac{1}{\log(n+7)}$ [3]

b) Find the Maclaurin Series Expansion of function $e^x \log(1+x)$. [3]

c) If $T=2\pi\sqrt{\frac{l}{g}}$, find the error in T corresponding to an error of 2% in l, where g is constant. [2]

d) Evaluate $\int_{0}^{\pi/4} \sin^7 x\,dx$ [2]

2)

a) If $y=\sin(m\sin^{-1}x)$ then show that

$$(1-x^2)y_{n+2}-(2n+1)xy_{n+1}-(n^2-m^2)y_n=0$$ [5]

b) Test the convergence of

$$\sum_{1}^{\infty}(-1)^n\frac{x^n}{n(n+3)} \quad ; x\in R$$ [5]

3)

a) Find the asymptotes of the curve

$$x^3+x^2y+xy^2+y^3+2x^2+3xy-4y^2+7x+2y=0$$ [4]

b) Find the radius of curvature if

$y=c\log\sec(x/c)$ at (x,y) where c is constant. [4]

c) State Cauchy Integral test. [2]

4)

a) Trace the curve

$$9ay^2=x(x-3a)^2$$ [5]

b) Evaluate $\int_{0}^{\pi/2} \sin^5 x\cos 2x\,dx$ [3]

c) Find Taylor series expansion of $y=\sin x$ about a point $x=\pi/4$ [2]

(Please write your roll no. Immediately) Roll no. ----------

First Terminal Examination, October-November 2013

1st sem. B. Tech (MAE)

Paper Code – ETME-105

Sub:- Manufacturing Process

Time 1.30 hr Maximum marks 30

Note: - Attempt in all three questions. Question No. 1 is compulsory. All questions carry equal marks.

Q.1. Explain the followings.

a) What is the objective of Heat Treatment Process?
b) Differentiate between Cast Iron and Wrought Iron.
c) Write the composition and uses of Brass or Bronze.
d) Differentiate between High Carbon Steel and Low Carbon Steel.
e) What is Spring Steel & High Speed Steel?
f) Differentiate between Pattern and Casting.
g) What is Core and Core print? 1*10
h) Why riser is not used in Die Casting?
i) Differentiate between Casting & Forging.
j) Differentiate between Flatter and Fuller.

Q.2. (a) Explain the following heat treatment processes. 5

I. Normalizing
II. Annealing
III. Quenching
IV. Tempering
V. Case-hardening

(b) Differentiate between the following mechanical properties of materials. 5

I. Ductility and Malleability
II. Toughness and Hardness

Q.3. (a) What is Centrifugal Casting? What are its advantages over Sand Casting? Explain any one Centrifugal Casting with labelled diagram. 5

(b) Explain briefly different types of allowances. 3

(c) Name any three Casting Defects with their possible causes and remedy. 3

Q.4 (a) Enlist any four smithy tools with their uses. 2

(b) Name any four operation performed in blacksmith forging. 2

(c) Explain the Construction, Working and Zones of cupola furnace with the help of suitable diagram. 6

(Please write your Roll No. immediately) Roll No.....

First Term Examination (Regular)

1st Semester {B.Tech} October 2013

Paper code: ETPH-103 Sub: Applied Physics-I

Time: 1½ Hrs Max Marks: 30

Note: Attempt Q No. 1 which is compulsory and any two more questions from remaining.

Q. 1 (a) Explain the difference between interference and diffraction phenomenon.

(b) State the law of Malus.

(c) Calculate thickness of Quartz half wave plate, given μ_O and μ_E are 1.5442 and 1.5533 respectively, where wavelength of light used is 5890 Å.

(d) Give conditions of sustained interference.

(e) In a Fraunhoffer diffraction due to narrow slit a screen is placed 2m away from the lens to obtain the pattern. If the slit width is 0.2mm and the first minima lie 5 mm on either side of the central maxima, find the wavelength of light. (2x5 =10)

Q. 2 (a) What are Newton's rings. Explain the formation of Newton's rings by reflected system of light. Also show that spacing between rings goes on decreasing with increase in order. (8)

(b) A biprism is placed at a distance of 5 cm from slit illuminated by sodium light of wavelength 5890 Å. Find the width of fringes observed in eyepiece at a distance of 75 cm from biprism, given the distance between virtual sources is 0.005 cm. (2)

Q. 3 (a) Differentiate between Fresnel and Fraunhoffer diffraction. (2)

(b) Show graphically the distribution of intensity in Fraunhoffer diffraction due to single slit. Indicate the position of maxima and minima in the figure. What are the values of relative intensities of successive maxima. (6)

(c) What is the least separation between wavelengths that can be resolved near 640 nm in the second order, using diffraction grating that is 5 cm wide and ruled with 32 lines per millimetre (2)

Q. 4 (a) Distinguish between linearly, circularly and elliptically polarised light. Explain their production with the help of mathematical equations? (7)

(b)Two Nicols are oriented with their principle plane making an angle of 60°.What percentage of incident unpolarised light will pass through the system. (3)

Second Term Examination

First Semester (B.Tech) **October 2012**
Subject: Introduction to Computers **PaperCode: ETCS-109**
Time: 1 Hr **Max. Mark: 30**

Attempt any three questions. Question 1 is compulsory

Question 1

a) Differentiate between DiskCopy and XCopy 2
b) Differentiate between DIM & DIM1 command 2
d) Differentiate between OFF , LOCK and FREEZE in Layering. 3
e) Explain the following Unix command with example: cat , grep 3

Question 2

a) When was UNIX OS developed and by whom? Also Discuss its architecture. 6
b) Explain the booting process in DOS. 4

Question 3

a) Explain the following commands with examples: 6
Chamfer, Array, Hatch, Extrude
b) Explain the different types of coordinates used in AUTOCAD. 4

Question 4

a) Write a short note on Rendering in AUTOCAD. 4
b) Write a short note on Client Server Architecture. 4
c) What is the difference between MultiProcessing and MultiTasking Operating Sysems. 2

(Please write your roll no. immediately) roll no.....

1st term examination
(Sept. 2012)

I[st] semester [B.Tech] sub: Applied Chemistry
Paper code: ETCH-105 max. marks:30
Time:1 hrs.

Note: Question 1. is compulsory .Attempt any two more.

1. a. Explain 1 equiv. Of $Al_2(SO_4)_3$ requires 1 equiv. Of $Ca(OH)_2$ for softening purposes? (2.5)

b. Why is the presence of $NaAlO_2$ in water is equivalent to presence of equivalent of $Ca(OH)_2$. (2.5)

c. What is the internal treatment of hard water? (2.5)

d. What is coagulant? Explain with example. (2.5)

2. a. Distinguish between Purification and Softening of water with example. (4)

b. 50 ml of a sample water consumed 15 ml of 0.01M EDTA before boiling and 5 ml of the same EDTA after boiling. Calculate the total hardness, permanent and temporary hardness. (6)

3.a. Give the chemical reaction involve during :
(i) softening of water by ion exchange resin
(ii) regeneration of exhausted resins
(iii) their advantages and disadvantages. (6)

b. 200 ml of a sample of water required 20 ml of N/50 HCl using methyl orange as a indicator. Another 200 ml of the same sample required 8 ml of N/50 HCl using phenolphthalein as indicator. Express alkalinity in terms of mg of $CaCO_3$ per liter? (4)

4.a. What is meant by disinfection? What are the chemicals which are used as disinfectant? (4)

b. Calculate the amount of lime and soda required to soften 20,000 liters of water containing the following ion per liter: Mg^{2-} = 4.8 mg, Ca^{2-} = 16.0 mg, HCO^{-}_3 = 73.2 mg. (6)

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(Please write your roll no. immediately) roll no.....

2nd Term Examination

I semester [B.Tech] **sub: Applied Chemistry**
Paper code:ETCH-105 **max. marks:30**
Time:1 hrs.

Note: Question 1. is compulsory .Attempt any two more.

1.a. Why does volatility decrease with increasing number of carbon atoms in different fractions of petroleum? (2.5)

b) What is sweetening of petrol .Explain with reaction? (2.5)

c) What is a promoter? Can it alone act as a catalyst? (2.5)

d) The size of a weather balloon becomes larger and larger as it ascends up into higher altitudes. Why? (2.5)

2.a) What is carbonization? What are the differences between HTC & LTC (6)

b) Calculate the GCV & NCV of a coal sample having the following composition. C: 82%, H_2: 8%, O_2: 5%, S: 2.5%, N_2 : 1.4% and remaining ash. (4)

3.a) Discuss the Van der Waals equation at
(i) High P (ii) Moderate P (iii) Low P (6)

c) Calculate the weight and volume of air required for the complete combustion of 3 kg of Carbon. (4)

4.a) Deduce the kinetics of an acid catalyzed reaction. (6)

b) 2.0 g of a sample of coal was kjeldahlized and NH_3 gas thus evolved was absorbed in 50 ml of 0.1 N H_2SO_4. After absorption, the excess acid required 7.25 ml of 0.1 N NaOH for exact neutralization. Calculate the percentage of Nitrogen. (4)

First Term Examination

First Semester (B.Tech)
Subject: Introduction to Computers
Time: 1 Hr

September 2012
PaperCode: ETCS-109
Max. Mark: 30

Attempt any three questions. Question 1 is compulsory

Question 1

a) Define Hardware, Software & Firmware — 3
b) Define Mail Merge — 3
c) Solve — 4
   i) $(110.101)_2 = ?_{10}$
   ii) $(24.640625)_{10} = ?_8$

Question 2

a) Discuss the different types of RAM and ROM — 6
b) Write down the differences between Mini, Micro and Mainframe computers — 4

Question 3

a) Briefly discuss the generations of computers — 6
b) What is MS Excel? How can we apply a formula in MS Excel? — 4

Question 4

a) Write the EBCDIC code of "PRIMARY" — 2
b) Convert the following Gray coded numbers to their binary equivalent: — 2
   i) 11010011
   ii) 10101110
c) Multiply $(1110)_2$ by $(1010)_2$ — 2
d) Divide $(110101101)_2$ by $(101)_2$ — 2
e) Subtract 9 from -12 using 1's compliment — 2

(Please write your Roll No. immediately) Roll No. .....

First-Term Examination

First Semester [B. Tech.] **September, 2012**

Paper Code: ETEE207 ***Subject: Electrical Engineering Materials***

Time: 1 Hr. Maximum Marks: 30

Note: Attempt Q. No. 1 which is compulsory and any two more questions from remaining.

Q-1(a) What is **Atomic Packing Fraction** (APF)? Give the APF of a FCC unit cell. **(2)**

(b) Find the Miller Indices for a plane making intercepts 2, 1, 2 on x-, y-, z- axes respectively. The axes of cubic unit cell are **i**, **j** and **k**. **(2)**

(c) Absorption of energy is proportional to which part of complex dielectric constant and why? (2)

(d) Differentiate between Piezoelectric material and Electrostrictive material. (2)

(e) What are phonons? **(2)**

Q-2 Derive the expression for the coefficient of thermal conductivity, K and show that $K/\sigma T$, where σ is the conductivity of the metal in mho/m and T is the temperature in Kelvin. **(10)**

Q-3 Explain the behaviour of polarization under frequency switching. **(10)**

Q-4 Explain Superconductivity. What is the effect of magnetic field on Superconductors? Explain briefly the properties of Superconductors. **(5+3+2)**

First Semester (B. Tech)

Second Terminal Examination- November 2012

Communication Skills-I (ETEL III)

Time: 1 Hour *MM- 30*

Note: All questions are compulsory.

Q1. How can use of charts, graphs and tables make technical writing effective? (10)

Q2. Discuss with examples the concept of Chaos as the offshoot of Mathematics and Physics.

Or

What according to Carl Sagan is 'The Leaky Shield'? How is that so? Explain. (10)(150 words)

Q3. Punctuate the following (any four) (4)

(i) As Caesar loved me i weep for him as he was fortunate i rejoice at it as he was valiant i honor him but as he was ambitious i slew him.

(ii) what is wrong puja i asked

(iii) have you read shelleys to a skylark

(iv) listen whats that noise said david

(v) will my dear whats for lunch today he asked his wife

Q4. Differentiate between an efficient reader and an inefficient reader. (6)

FIRST SEMESTER (B. Tech)

I-TERM EXAMINATION – September 2012

Subject Code– ETEL –III | Subject – Communication Skills

Time – 1 Hour | Maximum Marks – 30

NOTE – All questions are compulsory.

Q 1: Correct the following sentences: [10]

a) I bow down to your will.

b) The committee are resolved upon this reform.

c) I have purchased good furnitures for my home.

d) He absented from the interview.

e) I don't want to speak a lie.

f) I am laid down with fever.

g) Who hanged this picture on the wall?

h) I have furnished three fourths of this book.

i) His illness was owing to overwork.

j) He worked for one and a half hours.

Q 2: Add question tags to the following sentences: [2]

a) Ramesh is very naughty.

b) I am only doing my duty.

c) He is never late.

d) Anita will come late today.

Q 3: Make antonyms by using prefixes: (attempt any four) [2]

a) Honour

b) Usual

c) Rational

d) Competent

e) Familiar

f) Violence

Q 4: Write one word substitution for the following expressions: [4]

a) To move faster

b) A person residing in a country of which he is not a citizen

c) One who owns and controls a business enterprise.

d) A disease communicable by contact.

Q 5: Write synonyms of the following: [2]

a) Able

b) Damage

c) Obtuse

d) Loyal

Q 6: Use the following words in your own sentences to bring out the difference in their meaning: [4]

a) Access, excess

b) Cemetery, symmetry

c) Altar, alter

d) Decease, disease

Q 7: Give the technical description of any one of these: [6]

a) Pressure cooker

b) Thermometer

c) Stethoscope

(Please write your roll number immediately) Roll No.....

First Term Examination

First Semester B.Tech
Paper Code: ETEL 113
Time: 1 hr

September 2012
Sub: Impact of Science and Technology on Society
Max marks: 30

Note: Attempt total 3 questions. Q No. 1 is compulsory.

Q.1 (a) Name any three research and development organizations. [3 marks]

(b) What is the nodal agency which formulates the policies of technical education in India? [2 marks]

(C) Expand the abbreviations: [2 marks]

ISRO

DRDO

TIFR

ICAR

(d) Define science, technology and their interrelationship. [3 marks]

Q.2 (a) What is the full form of UGC? What are the main objectives of UGC? [5 marks]

(b) Describe the function of NCERT. [5marks]

Q.3 What is meant by industrial revolution? Briefly discuss some of the major changes in technology that took place during this era. [10 marks]

Q.4 (a) How medical science has helped in better and prolonged life? [5 marks]

(b) What is the role of forensic science in detection of crime? [5marks]

Second Term Examination

First Semester (B.Tech) **October 2012**
Subject: Impact of science and technology on society **PaperCode: ETEL-113**
Time: 1 Hr **Max. Mark: 30**

Note: Question No. 1 is compulsory. Attempt any three questions.

Q1. (5 marks)

1. Construction of dams can cause:
a) Water pollution b) Noise pollution
c) Air pollution d) none of these

2. Biological magnification will have maximum impact on
a) Humans b) Dog c) Grasshopper d) Rat

3. Which of these is a main cause of ozone layer depletion?
a) CFC b) Carbon di oxide c) nitrogen d) all of these

4. Main invention which led to industrial revolution is
a) Steam engine b) Coal mining c) Invention of bulb d) none of these

5. WTO was formed on:
a) Feb 1, 1996 b) Jan 1, 1995 c) Jan 1, 1947 d) Oct 24, 1947

Q2) a) Who are the stakeholders of a forest. How can they help in its conservation?
b) What were the flaws in Ganga action plan that caused its failure. (5+5marks)

Q3) a) What are the positive and negative impacts of industrial automation on society?
b) Who is TRAI? What are its functions? (5+5 marks)

Q4) a) What are the main functions of IMF?
b) Explain the role of i) GATT (5+5marks)
ii) World bank and its constituent five agencies.

FIRST-TERM EXAMINATION
FIRST-SEMESTER (B.TECH)
SEPTEMBER-2012

Roll No.....

Subject: Manufacturing Process
Time: 1 hour

Paper Code: ETME 107
Max Marks: 30

Note: Sections A is compulsory and attempt any two from section B. Draw neat sketch wherever required.

Section: A

Q1. How do you classify various manufacturing processes? Why casting comes under primary manufacturing process? (3+2 =5)

Q2. Define elements of gating systems with the help of a neat sketch. (3+2 =5)

Section: B

Q3. Write short notes on following terms (2.5×4 =10)

(i) Positive and negative allowances of pattern

(ii) Explain any three casting defects and its remedies

(iii) Core print and chaplets

(iv) Define any three characteristics of mouldind sand

Q4. Explain with neat sketch of the following special casting processes (5×2 =10)

(i) Investment casting

(ii) True centrifugal casting

Q5. Explain different zones and operations of the Cupola furnace (no need to draw) (5+5 =10)

SECOND-TERM EXAMINATION

Roll No.....

FIRST-SEMESTER (B.Tech)
OCTOBER-2012

Subject: Manufacturing Process | **Paper code: ETME-107**
Time: 1 hour | **Maximum marks: 30**

Note: Section A is compulsory and attempt any two from section B. Draw neat sketch wherever necessary

SECTION-A

Q1. (i) Explain arc blow in welding process. (5×2 = 10)

(ii) Differentiate between different polarities related to welding process.

(iii) Name different types of measuring tools used in fitting shop.

(iv) Explain the function of flux and filler metal in metal joining process.

(v) State different types of gas flames which are used in oxy-acetylene gas welding.

SECTION-B

Q2. (i) What is the principle of arc welding? How is arc established in arc welding? (3+2 = 5)

(ii) Explain seam welding with a neat sketch. How seam welding differs from spot welding? (4+1 = 5)

Q3. (i) Explain different types of chisel used in fitting shop. Classify different types of files used in fitting shop. (2+3 = 5)

(ii) Discuss the working principle of TIG welding process with the help of suitable sketch and also state its merits and demerits. (3+2 =5)

Q4. (i) Differentiate between welding, soldering and brazing. (5)

(ii)What is the principle of atomic hydrogen welding? How does it differ from other arc welding process? (5)

First Term Examination

First Semester (B.Tech) | **31st October 2012**
Paper Code: ETPH-103 | **Sub: Applied Physics-I**
Time: 1.00 hr. | **Max. Marks: 30**

Note: Attempt Q1 and any two more questions.

Q1 a) What is Specific rotation? Give its formula and unit.
b) The Information capacity of an optical fiber system is far more superior to copper cable system. Justify
c) What are the types of Optical fibres? Show their refractive index profile.
d) Show that the angular momentum of a particle moving in a Central force is always conserved.
e) A particle of mass 100g is placed in a field of potential energy $U=5x^2+10$ J/Kg. Find the frequency. [2x5=10]

Q2 a) Two Nicol Prisms are oriented with their principal planes making an angle of 60°. What percentage of initial unpolarised light will pass through the system? [3]
b) Define Optic axis, e-ray and o-ray. What happens to e-ray and o-ray if they (i) travel along the optic axis (ii) travel perpendicular to the optic axis [3]
c) Explain the construction and working of Nicol prism. [4]

Q3 a) Describe schematically the basic elements of a fibre optic communication system.[3]
b) Compute the intermodal dispersion in a 10km length of an optical fibre. Given that refractive index of core, $n_1 = 1.558$ and fractional refractive index difference, $\Delta=0.026$ [3]
c) In transmission through optical fibers, how the distortion of signal due to the pulse dispersion can be (i) minimized and (ii) avoided? [4]

Q4 a) Draw a graph showing the variation of amplitude with time in case of heavily, critically and lightly damped oscillator. What is the significance of critically damped condition in analog instruments? [3]
b) What are the forces acting in a forced harmonic oscillator? Obtain the second order differential equation for forced harmonic oscillator. Forced harmonic oscillator [3]
c) What is sharpness of resonance? How does sharpness of resonance depend on damping (γ)? Show the sharpness of resonance through amplitude versus frequency curve for (i) low damping and (ii) high damping case. [4]

1st

Roll No...

~~Third~~ Term Examination

First Semester (B.Tech) **September 2012**
Paper Code: ETPH-103 **Sub: Applied Physics-I**
Time: 1.00 hr **Max Marks: 30**

Note: Attempt Q1 and any two more questions.

Q1 a) Draw a labeled ray diagram depicting interference by a biprism.
b) Why do the Newton's rings get closer as the order of the rings increases?
c) Why circular fringes obtained in Michelson's interferometer are called fringes of equal inclination
d) Calculate the highest order of maxima that can be seen in the diffraction pattern of light of wavelength 5000 Å by a diffraction grating having 2500 lines per cm
e) State Rayleigh's criterion [2×5=10]

Q2.a) In a two slit interference pattern at a point we observe 10^{th} order maximum for wavelength 7000 Å. What order will be visible here, if the source of light is replaced by light of wavelength5000Å. [3]
b) How will you measure the thickness of a thin transparent sheet using the phenomena of interference? Obtain an expression [3]
c) Interference fringes are formed by a biprism whose acute angle is 20□ and refractive index is 1.5. The slit is at 10cm from the biprism and is illuminated by light of wavelength 6000 Å. Find the fringe-width on a screen placed at a distance of 1m from the biprism. [4]

Q3.a) Why for thin film, the interference pattern in reflected and a transmitted beam is complimentary (explain in brief with ray diagram).Also explain why excessively thin film seen by reflected light appears dark? [2+1]
b) Interference fringes are formed in a thin wedge-shaped air film when light of wavelength 5893Å falls on it. On viewing normally, 10 fringes are observed in a distance of 1cm. Calculate the angle of the wedge. [3]
c) Draw a well labeled diagram indicating the path of rays for Michelson interferometer. Obtain the expression for effective path difference between the rays entering the eye. [2+2]

Q4.a)A slit is placed in front of a lens of focal length 0.5m and is illuminated normally with light of wavelength 5890Å. The first diffraction minima on either side of the central diffraction maximum are separated by 2mm. Find the width of the slit? [3]
b) Obtain the condition of absent spectra from the grating spectrum. [3]
c) Two plane diffraction gratings A and B have same width of ruled surface but A has greater number of lines than B. Compare in the two cases: (i) Intensity of fringes, (ii) Width of principal maxima, (iii) Dispersive power and (iv) Resolving power. [4]

Write Your Roll No.: .....

Second Term Examination

1st Semester [B. Tech.], October-2011

Paper Code: ETMA-101 **Sub.:** Applied Mathematics-I

Time: 1.5 Hrs. **Max. Marks: 30**

Note: Attempt three questions. Q. No. 1 is compulsory.

Q.1. (a) Find the rank of the matrix $\begin{bmatrix} 1 & -1 & 3 \\ 2 & 3 & 5 \\ 5 & 0 & 14 \end{bmatrix}$. (2)

(b) Give one example each of a Hermitian and a Skew-Hermitian matrix of order 3. (3)

(c) Using Reduction formula, evaluate $\int_0^{\pi/2} \sin^7 x \cos^4 x dx$. (2)

(d) Find the area enclosed by the curve $r = a(1+\cos\theta)$. (3)

Q.2. (a) Find the value of λ so that the following equations have a non-trivial solution:

$$\begin{aligned} 2x+3y+4z &= 0 \\ x+2y-5z &= 0 \\ 3x+5y-\lambda z &= 0 \end{aligned}$$ (5)

(b) Use Cayley-Hamilton theorem to express $A^5 - 4A^4 - 7A^3 + 11A^2 - A - 10I$, where

$$A = \begin{bmatrix} 1 & 4 \\ 2 & 3 \end{bmatrix}$$ (5)

Q.3. (a) Find the eigenvalues and their corresponding eigenvectors of the matrix $A = \begin{bmatrix} 1 & 3 \\ -2 & 6 \end{bmatrix}$. (6)

(b) Use the method of elementary row operations to compute the inverse of $\begin{bmatrix} 0 & 0 & 1 \\ 3 & 1 & 0 \\ 2 & 1 & 4 \end{bmatrix}$. (4)

Q.4.(a) Find the area enclosed by the curves $y^2 = ax$ and $x^2 + y^2 = 4ax$. (5)

(b) Find the volume of the solid generated by revolving the area under the curve $y(x^2 + a^2) = a^3$ about its asymptote. (5)

(Please write your Roll No. immediately) Exam Roll No.....

SECOND TERM EXAMINATION

First Semester (B.Tech.) **November 2011**
Paper Code: ETPH-103 **Sub: Applied Physics-I**
Time: 1.5 Hours **Max.Marks-30**

Note: Q.No.1 is compulsory. Attempt any two more questions.

Q.1 a) Show that the areal velocity of a particle moving under a central force is constant.

b) Draw a graph showing the variation of amplitude with time in case of underdamped and overdamped harmonic oscillator.

c) What is the total energy of a 2.5 MeV electron .

d) Give the main conclusions of Michelson Morley experiment.

e) Prove that in a compound pendulum the centre of suspension and oscillation are interchangeable. [2x5]

Q. 2 a) List down the merits and demerits' of step index and graded index fiber. [3]

b) Using block diagram explain optical fiber communication system. [4]

c) For a step index multimode fiber, determine the dispersion per kilometer length. The refractive index of core is 1.48 and the refractive index of cladding is 1.46. [3]

Q.3 a) Establish the equation of motion of a forced harmonic oscillator. Show that the amplitude resonance occurs at a frequency lower than that of corresponding simple harmonic oscillator. [5.5]

b) How does sharpness of resonance depend on damping. Illustrate your answer with suitable diagram. [2.5]

c) A damped harmonic oscillator is functioning with following parameters

$$3\frac{d^2x}{dt^2} + 3\frac{dx}{dt} + x = 0$$

Calculate the relaxation time and the quality factor [2]

Q.4 a) Write Lorentz transformation equations and hence deduce transformation of velocity equation.Also show that no material particle can have velocity greater than the velocity of light. [7]

b) A beam of particles of half life $2 \times 10^{-8} s$, travels in the laboratory with speed 0.96c. How much distance does the beam travel before the number of particles is reduced to half its initial value. [3]

Write your Enrolment No. immediately here_____

FIRST TERM EXAMINATION - SEPTEMBER , 2011
First Semester (B.Tech.)

Paper Code : ETCH-105 *Paper Title* : Applied Chemistry
Time Permitted : One Hour and Thirty Minutes *Max. Marks* : 30

Note: Attempt three questions in all. Question No. 1 is compulsory.
All questions carry equal marks.

1.

a. Explain Temporary and Permanent Hardness of water.

b. Define Calgon Conditioning.

c. Why heat of neutralization of strong acid and weak base is less than 13.7 kcal ?

d. Describe Break-point chlorination.

e. A water sample contains 204 mg of $CaSO_4$ per litre. Calculate the hardness in terms of $CaCO_3$ equivalents.

(2 × 5 =10)

2.

a. Give details of EDTA method to determine the hardness of water.

b. Calculate the amount of lime (92% pure) and soda (98% pure) required per litre for chemical treatment of water containing : Ca^{2+} = 80ppm : Mg^{2+}= 32 ppm : HCO_3^- = 195 ppm; $FeSO_4.7H_2O$ added as coagulants = 73.5 ppm.

(6, 4)

3.

a. Derive Kirchoff's equation, on which principle it is based?

b. Define Flame temperature. Derive mathematical expression for flame temperature.

c. Discuss the alkalinity of water in condition P › (1/2) M and P‹ (1/2) M.

(4,4,2)

4.

a. State Hess's Law and illustrate its validity choosing a suitable example.

b. Standard hard water contains 15g of $CaCO_3$ per litre 20 ml of standard hard water require 25 ml of EDTA solution. 100 ml of sample hard water require 18 ml EDTA solution. The same sample after boiling require 12 ml EDTA solution. Calculate the temporary and permanent hardness of given sample of water in term of ppm.

(4, 6)

Write your Enrolment No. immediately here_____

SECOND TERM EXAMINATION - OCTOBER , 2011
First Semester (B.Tech.)

Paper Code : ETCH-105 *Paper Title* : Engineering Chemistry
Time Permitted : 01 Hour and 30 Minutes *Max. Marks* : 30

Note: Attempt three questions in all. Question No. 1 is compulsory.
All questions carry equal marks.

1.

a. What is compressibility factor? What is its value for ideal gas?

b. Define Octane no. and Cetane no.

c. Differentiate between gross calorific value and net calorific value.

d. Explain negative catalysts with example.

e. Write short note on Boyle's Temperature. Give example.

(2 × 5 =10)

2.

a. Explain the determination of calorific value of gaseous fuel by Boy's Gas Calorimeter.

b. 0.834 g fuel on complete combustion in excess of oxygen increased the temperature of water in calorimeter from 14.36 $^{\circ}$ C to 18.10 $^{\circ}$ C. The mass of water in calorimeter was found to be 1365 g and water equivalent of bomb, calorimeter etc is 135 g . Find the gross calorific value of fuel. If the fuel contains 8 % hydrogen, calculate its lower calorific value. (Latent heat of condensation of steam is 587 cal/g)

(6, 4)

3.

a. Give the mechanism and kinetics of enzyme catalysed reactions (Michaelis- Menton Equation).

b. Explain catalysis by metal salts (Wilkinson's Catalyst).

(7, 3)

4.

a. Derive Vandar Waal's equation of state. What is the significance of constants a and b ?

b. 1.26 g of a coal sample was used for nitrogen estimation by Kjeldahl method. The evolved ammonia was collected in 25 ml of N/10 H_2SO_4. To neutralise excess acid , 6.75 ml of.1N NaOH was required. Determine the % age of nitrogen in the given coal sample.

c. Explain the effect of pressure on deviations from ideal gas behaviour with diagram.

(5, 3, 2)

(Please write your Roll. No. immediately)

SECOND-TERM Examination

Roll. No. _____

First Semester (B.Tech.) November-2011
Subject: Introduction to Computers and AutoCAD Paper Code: ETCS-109
Time: 1.5 Hrs. Max. Marks: 30

Attempt any three questions. Questions 1 is compulsory

Question 1.

a) What is SPOOLING? (2)
b) What is AutoCAD? (2)
c) Explain ORTHO and OSANP settings in AutoCAD. (2)
d) What do you understand by FAT and NTFS? (2)
e) Explain Batch processing. (2)

Question 2.

a) Discuss the architecture of UNIX. (3)
b) Explain the difference between External and Internal DOS commands with two examples each. (4)
c) Explain the concept of Scheduling in context with process management. (3)

Question 3.

a) Explain the Absolute, Relative and Polar coordinate system in AutoCAD by taking an example. (3)
b) Explain the following AutoCAD commands:
(i) Extrude (ii) Explode (iii) Units (iv) Limits (4)
c) What is rendering? Write basic difference between "Photo Real" and "Photo Ray Trace" type of rendering. (3)

Question 4.

a) Explain Multi-user, Multitasking and Multithreading systems. (3)
a) What is the difference between ON/OFF and LOCK/UNLOCK of the Layers in AutoCAD? (4)
b) What are blocks and how they are used in an AutoCAD drawing? (3)

FIRST SEMESTER (B.TECH)

Roll no.....

FIRST TERMINAL EXAMINATION- SEPT2011

COMMUNICATION SKILLS-1 (ETEL-111) **MM-30**

1.5 HRS

NOTE : All Questions are compulsory

1) **CORRECT THE FOLLOWING SENTENCES** [5]

a) I have finished three fourths of this book. b) He is one of the most brilliant man of this country. c) I congratulate you for your success in the examination. d) Please wait ! Windows are shutting down. e) Rama and i have a mutual friend in Delhi. f) He said that honesty was the best policy. g) He went to the pahar ganj station to catch 8 o'clock train which is very close to my house. h) Collegiate are fond of pictures. i) He went to foreign for higher study. j) He filled water in the pot.

2) ADD QUESTION TAGS TO THE FOLLOWING SENTENCES [2]

a) The students must work hard. b) A seminar is going on in the hall. c) Anu will come late today. d) Sonu and Monu were not busy in the project.

3) WRITE ONE WORD SUBSITUTION FOR THE FOLLOWING EXPRESSIONS [2]

a) A state of high blood pressure b) Capable of being read c) Words inscribed on tomb of a person d) A state of perfect balance

4) WRITE SYNONYMS OF THE FOLLOWING WORDS [2]

a) Deadly b) Concise c) Hamper d) Savage

5) WRITE ANTONYMS OF THE FOLLOWING WORDS [2]

a) Logical b) Transparent c) Stale d) Homogenous

6) COMPLETE THE FOLLOWING SENTENCES [4]

a) You will repent ..... b) If you will lose your balance of mind .....

c) If I were you ..... d) Had they been sensible .....

7) SELECT APPROPIATE VERB TO AGREE WITH THE SUBJECT [5]

a) She...all her money on her clothes (spend) b) My watch ... repairing (need)

c)... where I put my umbrella ? (You remember) d) We... the most important news (just, hear)

e) While he ... the flowers , it ....to rain. (water, begin)

8) **USE THE FOLLOWING PAIR OF WORDS IN YOUR SENTENCES TO DIFFERENTIATE THE MEANING** [2]

a) Hale, Hail b)Affection , Affectation

8) **TECHNICALLY DESCRIBE (ANYONE)** [6]

a) Ball point pen b) Paper Punching Machine c) Scissors

First Semester(B.Tech.)

Roll no.....

Second Terminal Examination Nov.2011

MM.30

Communication skills-1(ETEL 111)

All Questions Are Compulsory

Q1. Discuss the importance of 'topic sentence' in paragraph writing. (3)
Q2. Discuss the importance of bar diagrams ,charts and other visual aids in technical writing. (3)
Q3. Punctuate the following sentences and use capital alphabet wherever it is necessary : (3)

the national manufacturing policy cleared recently by a group of ministers (gom) will increase the manufacturing sector 's contribution to gdp and create 100 million jobs the confederation of indian industry said on sunday the policy aims to enhance manufacturing contribution to 25% by 2025

Q4. Summarised the main ideas given in the chapter "Star Wars: The Leaky Shield". (3)
Q5. Discuss the main predictions of Einstein's Theory Of Relativity and its confirmation on the basis of C.P.Gilmore's "After 63 Years, Why Are They Still Testing Einstein?" (3)
Q6. The disorder that is called chaos is not so disorderly after all. Does this statement indicate the central argument of "Chaos :The Ultimate Asymmetry" . (3)
Q7. Write a paragraph on one of the following topics:
A candidate without any criminal record should be eligible for contesting elections (3)
Media is contributing significantly in maintaining democratic values.
Q8. Read the following paragraphs and answer the following questions:

The World Food Day is observed every year as an International Day on 16th Oct., the founding day of the **Food and Agriculture Organization** of the United Nations in 1945.The aim of observing this day is to raise public awareness regarding the plight of the world's hungry and malnourished and to encourage people worldwide to take action against hunger. The theme selected for this year's World's Food Day is 'Food Prices: From Crisis To Stability'. Due to combination of different factors such as increasing domestic demands and diversification in diet, the country has been witnessing high food prices in the recent past. Food inflation hits the poor and vulnerable the hardest since they spend the major proportion of their income on food items .Therefore , we are committed to combat inflation by all the means at our command.

In the short term ,to ensure food security and stabilize domestic prices, the policy of procuring and storage Public Distribution System and ensuring remunerative prices to farmers through announcement of Minimum Support Prices is considered important .In the medium term, policy measures to increase supply of food commodities to match demand are considered very important especially to practical measures to increase agriculture productivity. In the long term , a strategic commitment to increasing investment in the agriculture sector , both public and private ,as well as a boost to research and development efforts in the sector are the only options There are competing demands on land for food and energy security especially as climate change has emerged as a factor. Therefore development and harnessing of frontier technologies in agriculture are of vital importance.

While assuring remunerative prices to the farmers for their produce ,a number of initiatives have been taken in the recent past to enhance production of food commodities. Some of these new programs to enhance the production of fruits , vegetables, pulses , fodder , crops etc. are already delivering good results. The challenge is to realize higher agricultural productivity to absorb increasing input costs in order to stabilize food prices.

Q8.1.Write a précis of the above paragraphs in 150 words. (3)
Q8.2.What is the aim of observing Food Day? (1)
Q8.3What is the theme of this year ? (1)
Q8.4What are the causes of high food prices ? (1)
Q8.5What are the different measures to curve 'high food prices'.? (1)
Q8.6What are the main initiatives taken in the recent past ? (1)
Q8.7Write a suitable title for the current write up. (1)

12 Sept 2011

Write Your Roll No.: .....

First Term Examination

1st Semester [B. Tech.], September-2011

Paper Code: ETMA-101 **Sub.:** Applied Mathematics-I

Time: 1.5 Hrs. **Max. Marks: 30**

Note: Attempt three questions. Q. No. 1 is compulsory.

Q.1. **(a)** Expand $\sin 5\theta$ in powers of $\sin\theta$ and $\cos\theta$ (2)

(b) Find five distinct values of $(32)^{1/5}$ and show them in complex plane. (3)

(c) If $y = (\sin^{-1}x)^2$, prove that $(1-x^2)\, y_{n+2} - (2n+1) \times y_{n+1} - x^2 y_n = 0$. (3)

(d) Test the convergence of the infinite series $\sum \frac{(\log n)^2}{n}$. (2)

Q.2. **(a)** Prove that $128 \sin^3\theta \cos^5\theta = -\sin 8\theta - 2\sin 6\theta + 2\sin 4\theta + 6\sin 2\theta$. (4)

(b) Prove that $\tanh^{-1} x = \sinh^{-1} \frac{x}{\sqrt{1-x^2}}$. (3)

(c) Find the general value of i^i and prove that these values form a G.P. (3)

Q.3. **(a)** If ρ_1 and ρ_2 are the radii of curvature at the extremities of a focal chord of a parabola, show that $(\rho_1)^{-2/3} + (\rho_2)^{-2/3}$ is a constant. (4)

(b) Find the asymptotes of $y(x-y)^2 = x + y$. (3)

(c) Expand $\tan^{-1}x$ in powers of $(x-1)$. (3)

Q.4.(a) Show by an example that a convergent series is not necessarily absolutely convergence. (4)

(b) Test the convergence of the series $\sum_1^\infty \sin\frac{1}{n}$. (3)

(c) Test the convergence of the series $\sum_1^\infty \left[\frac{(n+1)^{n+1}}{n^{n+1}} - \left(\frac{n+1}{n}\right)\right]^{-n}$. (3)

Roll No :.....

FIRST-TERM EXAMINATION

First Semester [B.Tech] - Sep 2011

Subject: Manufacturing Process **Paper Code: - ETME 107**

Time: 1:30 Hours **Max Marks: - 30**

Note : Attempt any three Questions . Question No.1 is compulsory.

(2 x 5)

Q.1 a) What are the factors which governs the selection of a proper material for pattern making?

b) Sketch any four tools used in foundry shop.

c) Imagine a gating system without riser. How does it affect the casting?

d) What is a function of core?

e) Discuss any four major casting defects?

Q.2 a) What is 'Pattern Allowance'? What are different patterns allowances? (4)

b) How does a Cold chamber die casting machine differs from Hot chamber die casting machine . Explain with the help of suitable Sketch. (6)

Q.3 a) What are the main characteristics of good moulding sand? (4)

b) What is the principal of Investment casting? Why is it called so? Explain the steps involved? (6)

Q.4 Write a short note on: *(any 4)* (2.5 x 4)

a) Open and closed die forging.

b) Centrifugal Casting

c) Binders in moulding sand.

d) Difference between press forging and hammer forging.

e) Upset forging

f) Charging of Cupola

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Roll No :.....

SECOND -TERM EXAMINATION

First Semester (B.Tech) - Oct 2011

Subject: Manufacturing Process **Paper Code: ETME 107**

Time : 1:30 Hrs. **Max Marks: 30**

Note : Attempt any three Questions . Question No.1 is compulsory.

Q.1 a) What do you understand by the term 'polarity' ?

b) What is the source of heat in resistance welding? **(2 x 5)**

c) Sketch and describe engineer's try square.

d) What is the function of coating on electrode?

e) How will you distinguish between oxygen cylinder and acetylene cylinder?

Q.2 a) Describe the process of Submerged arc welding with suitable sketch. State advantages and limitations. **(6)**

b) Compare spot welding with seam welding ? **(4)**

Q.3 a) Sketch and explain different types of gas welding flames. **(6)**

b) Explain the various types of files used in fitting shop. How they are classified? **(4)**

Q.4 Write a short note on: (any 4) **(2.5 x 4)**

a) Arc blow.

b) Brazing

c) Punches.

d) Percussion welding.

e) Taps and dies

****

(Please write your Roll No. immediately) Exam Roll No.....

FIRST TERM EXAMINATION

First Semester (B.Tech.) **September 2011**
Paper Code: ETPH-103 **Sub: Applied Physics-I**
Time: 1.5 Hours **Max.Marks-30**

Note: Q.No.1 is compulsory. Attempt any two more questions.

Q1. a) Show that the distance between adjacent bright bands is inversely proportional to the distance between the slits.

b) Explain why gratings of larger number of lines are preferred.

c) How the circular fringes of Michelson interferometer different from Newton's rings.

d) Deduce the missing order for double slit fraunhoffer diffraction pattern,if the slit width are 0.16 mm and they are 0.8 mm apart .

e) List one important limitation and use of half wave plate . [2x5=10]

Q2. a) Draw a labeled ray diagram depicting interference by biprism. [3]

b) Explain the working of Michelson Interferometer How will you measure the difference in wavelength between D lines of sodium light. [7]

Q3. a) Distinguish between Fresnel and Fraunhoffer diffraction. [2]

b) Define dispersive power.Set up an expression for dispersive power of a prism. [6]

c) Sketeh the intensity distribution in case of Fresnel's diffraction at a straight edge.[2]

Q4. a) State Brewster's law. Show that when a ray is incident at the Brewster's angle the reflected ray is perpendicular to refracted ray. [3]

b) Explain Huygen's theory of double refraction Explain with ray diagram.how a nicol prism is used as a polariser. [5]

c) A 20 cm long tube containing sugar solution is placed between crossed Nicols and illuminated by light of wavelength $6x10^{-5}$ cm. If the specific rotation is 60^0 and optical rotation produced is 12^0, what is the strength of the solution . [2]

(Please write your Roll No. immediately) Roll No.....

Second Term Examination

First Semester B.Tech
Paper Code: ETPH-103

November 2010
Subject: ISTS

Time: $1\frac{1}{2}$ Hours

Max. Marks: 50

Note: Attempt question number one and any two more questions.

1.

a. Name two discoveries leading to the Industrial Revolution.

b. Name the activities of Department of Science and Technology.

c. What are nomadic groups? What made them to settle at different regions of the world?

d. Draw a schematic diagram that shows the linkages between Science, Technology and Society. [5×4]

2.

a. What are the most societal impacts of the Industrial Revolutions? [7]

b. Name some of the important sites of Indus Valley civilization. What are important features of Indus Valley cities? [8]

3.

a. What do you understand by the universality principle? [7]

b. Explain briefly different aspects of Environmental sciences? [8]

4. Write briefly about

a. Democratic Institution of India.

b. Planning commission

c. DRDO [5×3]

Best of Luck

SECOND TERM EXAMINATION
INTRODUCTION TO COMPUTERS (First Semester)
AUG-NOV 2010 (Reappear)

Please write your Roll No. .....

Max Marks: 30
Maxtime:1hour30 min

Note: Question No.1 is compulsory. Attempt any two questions.

1. differentiate between the following : 2 marks each
   a) Primary and Secondary memory
   b) input and output devices
   c) SRAM and DRAM
   d) Mail merge and macro
   e) MICR and OCR

2. a) Explain the block diagram of the computer system in details. 5 marks

   b) What do you mean by the term "external representation of data"? 1 mark

   c) $(29)_{10} + (-25)_{10} = (\ ?\ )_{16}$ using two's complement method. 3 marks

   d) Convert 12 GB into MB and bits. 1 mark

3. a) What do you understand by the term Cache memory 2 marks
   b) How many types of input devices are there? Explain in details. 4 marks

   c) why do we say that the computer can understand only the language of '0' and '1'? 1 mark

   d) What is the difference between input device and peripheral device? What is the next name given to keyboard? 2 marks

4. (i) write short notes on any two : 5 marks
   a) Mail merge used in Ms word
   b) Generation of computers
   c) Basic architecture of a computer system
   d) Types of input devices

   (ii) normalize the following floating point numbers: 5 marks

   a) $(1110111.110)_2$

   b) $(0101.1101)_2$

   After normalization find the sum of them.

**********BEST OF LUCK**********

Roll No……..

First Term Examination

First Semester B.Tech — December 2010
Paper Code: ETEL111 — Subject: Communication Skills-I
Time: 11/2 Hours — Max. Marks: 30
Note: Attempt all questions.

Q.1.

(A) Correct any seven of the following sentences. [7]

a. I am tired with this work.
b. I tried but I could not prevail him.
c. He never has, and never will, take such a step.
d. The students of my college are more intelligent than yours.
e. We should refrain to do evil.
f. It is one of the best books that has been written.
g. A month has passed since I am coming here.
h. He ordered servant to leave.
i. A variety of pleasing objects charm the eye.

(B) Give a synonym each for any four [2]

(i) Gallant (ii) Indigenous (iii) Abandon (iv) Archaic
(v) Conceit

(C) Make antonyms of any four by using prefixes; [2]

(i) Mobile (ii) Secular (iii) Nutrition (iv) Proper
(v) Arm

(D) Frame sentence so as to explain the meaning of the following pairs of words: [3]

(i) Adapt-Adopt (ii) Miner-Minor
(iii) Complementary-Complimentary

Q.2. Give technical descriptions of any two of following with appropriate diagrams: [10]

(i) Electroplating (ii) Fluorescent tube light (iii) Pliers
(iv) Pressure Cooker (v) Earth Quake

Q.3.

(A) Give question tags for following statements: [2]

i. Jaidev is too noisy.
ii. He is never late.
iii. I am only doing my duty.
iv. The college will remain closed tomorrow.

Roll No.....

First Term Examination

First Semester B.Tech — December 2010

Paper Code: ETEL-113 — Subject: Impact of Science and Technology on Society

Time: $1\frac{1}{2}$ Hours — Max. Marks: 50 Marks

Note: Attempt question number one and any two more questions. [4x5]

1.

a. How do Chloro-Fluoro Methanes affect the Ozone layer?

b. What are the different types of mining practices? How do they damage the soil?

c. Give two examples of general purpose technologies. What is their importance in developing economy like India?

d. What is the rationale of enhancing the spending on education by the Government of India in recent years?

e. What is SEBI? List some of its important functions.

2. [8+7]

a. What are the major causes of air pollution? What are its consequences? Describe ways by which this pollution can be contained?

b. Write a paragraph on effect of snow-cover and arctic ice on the stability of Earth's thermal equilibrium?

3. [8+7]

a. What are the two forms socio-economic systems? Briefly discuss the merits and demerits of each system.

b. Outline some major economic and social impacts of Internet.

4. [8+7]

a. Explain single output production and multiple output production, giving at least one example of each.

b. Write briefly on the implantation of developmental activities in India.

x.....x

1st TERMINAL EXAMINATION (Dec 2010)

FIRST SEMESTER

MANUFACTURING PROCESS — ETME-107
Duration: 1 Hr 30 Min — Max. Marks:30

NOTE: 1. Question No. 1 is compulsory. Attempt any two out of the remaining.

Q1. Write short notes [2.5 each]
a) Pattern with loose pieces. (1) What is mould cavity.
b) Explain how the grain size and shape affect the performance of foundry sand.
c) Why are the following materials added to moulding sand: (i) Dextrine (ii) Silica flour (iii) Coal dust (iv) Wood flour & (v) Fuel oil.
d) List any five forging defects. (No explanation required)

Q2.a) What is meant by "Green strength" and "Dry strength" as applied to a moulding sand? [5]

b) How does a permanent mould casting method differ from sand casting? What are the common materials used for making permanent moulds? [5]

Q3.a) Give comparison of the three processes i.e. forging, machining and casting with regard to the properties of the components produced through them. [5]

b) What is press forging? What are its specific advantages over hammer forging? [5]

Q4.a) Write short notes with sketch wherever applicable on (i) Drawing out, ~~(ii) Drifting~~. [5]

b) Explain the characteristics of foundry sands. [5]

Q.2 write the construction & operation details of cupola with neat & clean diagram. (10)

1(b) Differentiate between press forging & Drop forging.

1(c) write the forging tool used in forging shop.

1st TERMINAL EXAMINATION (Dec 2010)

FIRST SEMESTER

MANUFACTURING PROCESS — ETME-107
Duration: 1 Hr 30 Min — Max. Marks:30

NOTE: 1. Question No. 1 is compulsory. Attempt any two out of the remaining.

Q1. Write short notes [2.5 each]

a) Pattern with loose pieces.
b) Explain how the grain size and shape affect the performance of foundry sand.
c) Why are the following materials added to moulding sand: (i) Dextrine (ii) Silica flour (iii) Coal dust (iv) Wood flour & (v) Fuel oil.
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b) What is press forging? What are its specific advantages over hammer forging? [5]

Q4.a) Write short notes with sketch wherever applicable on (i) Drawing out, (ii) Drifting. [5]

b) Explain the characteristics of foundry sands. [5]

Roll No.....

Second Term Examination

First Semester B.Tech
Paper Code: ETPH-103
Time: 11/2 Hours

November 2010
Subject: Communication Skills-I
Max. Marks: 30 Marks

Note: Attempt question number one and any two more questions.

Q. 1: Make a precis of the following passage in about 100 words and give it a suitable title. **[10+2]**

The search for the sources of India's strength and for her deterioration and decay is long and intricate. Yet, the recent causes of decay are obvious enough. She fell behind in the march of technique and Europe, which had long been backward in many matters, took the lead in technical progress. Behind this technical progress was the spirit of science and a bubbling life and spirit which displayed itself in many activities and in adventurous voyages of discovery. New technique gave military strength to the countries of Western Europe and it was easy for them to spread out and dominate the east. That is the story not only of India but also of almost the whole of Asia.

Why this should have happened so, is very difficult to unravel, for India was not backing in mental alertness and technical skill in earlier times. One senses a progressive deterioration during countries. The urge for life and endeavor becomes less, the creative spirit fades and gives place to the imitative. Where triumphant and rebellious thought had tried to pierce the mysteries of nature and universe, the wordy commentator comes with his glosses and long explanations. Magnificent art and sculpture give way to meticulous carving of indicate details without nobility of conception or design. The vigour and richness of language, powerful yet simple, are followed by highly ornate and complex literary forms. The urge to adventure and the overflowing life, which led to vast schemes of distance colonization and the transplantation of Indian culture in far lands; all these fade way and a narrow orthodoxy taboos even the crossing of the high seas. A rational spirit of enquiry, so evident in earlier times which might well have led to the further growth of science, is replaced by irrationalism and blind idolatry of the past.

Q. 2: Write a paragraph on one of the following topics in about 250 words. **[9]**

a) Role of T.V. and computer in the life of modern youth.

b) The most exciting book I have read.

c) Commonwealth Games: A boon or a bane?

Q. 3: Read the following passage and answer the questions that follow: **[9]**

Of man's earliest inventions we know very little. The first may have been the use of a stone to crack a nut. The next was possibly the use of a stick to strike an enemy. Once man found that stick and stone were useful, it was only a step further to the making of a rude weapon by fastening a stone to the end of a stick.

Man used sticks and stones long before he dared to meddle fire; for the early man, like all wild creatures, dreaded fire. Fire, of course, existed; for lightning must sometimes have set the forest ablaze just as it does today; and in those days volcanoes were much more active than they are now. The foregather hero who first dared to tame fire to his own use was the greatest of early discoverers; for once man had fire he was master of all lower creatures.

a) What may have been man's earliest inventions?

b) Why did not man tame fire as early as he came to know the use of sticks and stones?

c) What is there to show that fire existed long, long ago?

d) Why does the author of this passage call the first tamer of fire the greatest of early discoverers?

e) Frame sentences to use each of the following words as participle and gerund as

i. **Crack, Exist**

ii. Make abstract nouns from: **Enemy, Forget**

Q. 4: Answers any two of the following questions: $[4\frac{1}{2}+4\frac{1}{2}]$

i. What is Einstein's Theory of Relativity? Is it correct to say that 'Testing Relativity is the tough way of making a living'? Explain.

ii. Do you think Star Wars is a feasible shield against America's vulnerability? Why the shield is called a 'leaky' one?

iii. What do you understand by the term 'Chaos'? Do you agree with the statement, 'although chaos seems totally random, it is not'. Give illustrations in support of your answer.

(Please write your Roll No. immediately) Roll no. .....

I Mid Term Examination

First Semester September 2009

IMPACT OF SCIENCE AND TECHNOLOGY ON SOCIETY

(Paper code: ETEL – 113)

Time: 1 ½ hours MM: 30

Note: 1. Attempt any three questions. All question carry equal marks
2. Question number 1 is compulsory

Q. 1 Answer the following. (5X 2)

a. When and why was Atomic Energy Establishment Trombay renamed as Bhabha Atomic Research Centre?

b. Write full form of

(i) ICAR (ii) CSO

c. Name few renowned scientists and technologists who were associated with activities of Indian Institute of Sciences.

d. When and where Industrial Revolution begin?

e. State two developments which considerably changed the civilization of early man

Q. 2 Write short notes on any two (2 X 5)

a. Green revolution

b. Difference between science and technology

c. ONGC

Q. 3 Briefly state any four social realities of India. Discuss (4 + 2 X 3)

a. Any one Research and Development Institution

b. Any one Democratic Institution

Q. 4 Explain how communication has been improved due to change in technology. (10)