ASSIGNMENT-1
BRANCH: EX
SEM: 4TH
LAST DATE OF SUBMISSION: 19/02/2015

IES COLLEGE OF TECHNOLOGY, BHOPAL

B.E. (4th SEM) ASSIGNMENT-1

ENGINEERING MATHEMATICS (BE -401)

DATE OF ASSIGN: 02/02/2015 **DATE OF SUBMISSION: 19/02/2015**

Q.1	a) Define Limit. (b) What is Analytic function? (c) If f(z) be regular function of z,prove that $\{\frac{\partial^2}{\partial x^2}+\frac{\partial^2}{\partial y^2}\}\|f(z)\|^2 = 4\|f(z)\|^2$ or (c) show that $\int_0^{2\pi}\frac{d\theta}{a+b\cos\theta} = \int_0^{2\pi}\frac{d\theta}{a+b\sin\theta} = \frac{2\pi}{\sqrt{(a^2-b^2)}}$ where a$> b > 0$	
Q.2	a) Define Harmonic function. b) Determine whether $\frac{1}{z}$ is analytic or not. (c).Find poles and order opoles and residues	
Q.3	Define contour integrations.	
Q.4	Prove that Cauchy Riemann equation and define residues formula.	

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B.E. (Fourth Semester) Assignment 1

(Electrical & Electronics Eng.Branch)

ELECTRICAL & ELECTRONIC MATERIAL (EX-402)

DATE OF ASSIGN: 02/02/2015 **DATE OF SUBMISSION: 19/02/2015**

1	What are the thermodynamic properties of semiconductor? Give the relevant theory (RGPV-DEC 2011)
2	Describe the effect of temperature on dielectric constant. What is dielectric loss? Derive the formula used.
3	Explain the properties of and uses of following conducting material. (i)Tin (ii) Silver (iii)Molybdenum Explain the following:
4	Give the classification of conductor and the characteristic of good conductor. What do you understand by superconductivity and thermal conductivity? (RGPV-DEC 2012)
5	How do you classify the semiconducting, conducting, insulating material? Also explain the energy band diagram? Give example of one each. (RGPV-DEC 2011)

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BE (Fourth Semester) Assignment –I

Electrical and Electronics Engineering

Electrical Machine-I (EX-404)

DATE OF ASSIGN: 02/02/2015 **DATE OF SUBMISSION: 19/02/2015**

1.	Draw the phasor diagram of a single phase transformer for lagging power factor, leading power factor load and unity power factor load.(2)	2
2.	Define voltage regulation.	2
3.	Derive the condition for maximum efficiency and regulation.	3
4.	Derive the E.M.F. equation of single phase transformer.	3
5.	Derive the expression of saving of copper in an auto transformer as compared to an equivalent two winding transformer.	7
6.	An auto x-mer supplied a load of 5 kW at 125 V at unity power factor. If the primary voltage is 250V, determine (a) Transformation ratio (b) Secondary current (c) Primary current (d) Number of turns on secondary if the total number of turns is 250 (e) Power transformed and (f) Power conducted.	7
7.	Give the lab circuit diagram to perform open and short circuit diagram of single phase transformer with brief explanation and then draw the equivalent circuit diagram using data obtained from the O.C. and S.C. test.	7

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B.E. (4^{th} SEM) Assignment -1

EDC-II (EX-405)

DATE OF ASSIGN: 02/02/2015 **DATE OF SUBMISSION: 19/02/2015**

Q.1	What is op-amp? List four basics building blocks of an op-amp and explain?	
Q.2	Explain differential amplifier in single ended input condition?	
Q.3	Explain offset voltage and current, input bias current for ideal op-amp?	
Q.4	Explain op-amp as a differentiator with input & output waveforms?	
Q.5	What is Frequency response of an op-amp and explain frequency compensating techniques?	