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National Institute of Technology, Hamirpur (HP)

Name of the Examination: B.Tech End Semester Examination 2023

First Semester

Course Name : Basic Electrical Engineering

Course Code

: EE- 101

Time: 3 hours

Maximum Marks: 50

Note: All the questions are compulsory. Assume suitably any missing data.





(c) The magnetic circuit made of wrought iron is arranged as shown in Figure 3.



The central limb has a cross sectional area of 8 cm^2 and each side of the limb has cross sectional area of 5 cm^2 . Calculate the ampere turns required to produce a flux of 1 mWb in the central limb, neglecting magnetic leakage and fringing. The magnetization of wrought iron is given by :

05

(05)

Flux density (Wb/m ²)			1.00	1.25
Magnetic	Field	Strength	200	500
(AT/m)			2	

OR

Write brief note on Types of Various Wiring Systems used in a commercial installation

Q4. (a)Write briefly Principle of working of a DC shunt generator. A DC shunt generator delivers 2.5450 A at 230 V and the resistance of the shunt field and armature are 50 Ω and 0.03 Ω respectively. Calculate the generated EMF? 2.5

(b) A PMMC instrument gives full scale reading of 25 mA when a potential difference across its terminals is 75 mV. Show how it can be used (a) as an ammeter for the range of 0-100 A (b) as a voltmeter for the range of 0-750 V. Also find the multiplying factor of shunt and voltage amplification.

 (c)Explain the constructional features of PMMC instruments with a neat diagram.
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 Q5.
 (a) State principle of functioning of a transformer. Explain its operation at no -load and On load under suitable lamp load.
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(b) Draw magnetic circuit of a DC or an AC Machine. Explain basic difference between them. 05