Topic Date: _ Advantages of AC supply.) They are chepper to produce on a large scale using principle of Electromagnetic Induction. 2) They can be easily transmitted over long distances using transformer 3) The Voltage/Current can be casily stepped up or stepped down to minimise power losses. Disadvantages of AC supply. * Since AC current and Vallage varies continously so it is very difficult to calculate power. Representation for alternating current and Graphical voltage. In AC Jn SHM x = xo Sinwt I = To Sinust To = peak current. Vo V = Vo Sinwt

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How do we perform calculations involving ac supply. -> For calculation purposes we use a value of current/Voltage known as RMs value. (koot meen square) What is a RMS value? RMS value for current or Voltage is defined as a steady value or a constant value which produces power in a circuit at the some rate as produced by the actual AC supply. i.e. it is refrered to a de equivalent for an AC supply. How to cakulate rms value D For Current: To = Peak Current T_{ms =} 10 = 7.1A- 10| Power will be some for circuit I T and 2 there are it is called rms value. Circuit 2 71% of peak current is RMS value.

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b) How to calculate RMS value for Power? Prms = Irms × Vrms $\frac{P_{cms}}{\sqrt{2}} = \frac{T_0}{\sqrt{2}} \frac{V_0}{\sqrt{2}}$ in general PRMs is 50% of Peak Power. Pros = Pa Po 5°1. P. use mean current, voltage and power insted ⇒Con we RMS current, voltage and power? mean Current + <I> = OA (Zero) 2 men voltager O + f Hence Man RMS is use

Topic: Date: How ever for power mean power and RMS power is Some Hing. 1.5KJ Q1) N Y= 2005in 30 Tt Find? i) peak Voltage? < ii) mean voltage? iii) rms voltage? iv) frequency of AC supply? v) Time period of AC supply? vi) Peale Power. Vii) Prean / Prms

Topic: Date: viii) Suggest what happenens if frequency of AC supply is doubled to the peak power? IF Frequency doubles than w doubles 30 K -> 60 K However this change will not influence peak power because it depende upon peale Voltage. 2) How to calculate rms value other than a.c. supply **q** 1/2 -3 rms = root mean square Step 1 = Square the graph mcon = Total Area → (81 × T/2) + (9 × T/2 81 total time Stco 2 A mean of I? => 45 9 T T/2 Step3 = Do square root Irms = J45 = 6.7A

Topic:	Date:
Example	2
15	
~×5 ,	
225	$\sqrt{2} = 25 \times T = 225$
	$\frac{125 \times 1}{T} = 221$ $\frac{125 \times 1}{\sqrt{225}} = 15 \text{ V}$
	T
Jf we	have a square wave than RMS value becomes
	$l_{ms} = V_0$

Topic:	Date:
Example 3 I 4	
-20 V	
T2 400	
	mean of $I^2 = 16 \times T/3 + 400 \times 2T/3$ T
$T_{cms} = \sqrt{2}$	$\frac{1}{272} = 16.5A$

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