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Sirlis	Subject Name - Basic Mechanical Engineering
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	A STATE OF THE STA
dida	Experiment Not 8 000
کے ا	paile painting and an tons agreement of side (8)
*	Name of the experiment - working and operation
70	of Boiler/Thermal power plant-
*	Aim - To study the different components of
Λ	boiler and its significance in thermal
	power plant.
	A pally by the first by the control of the control
*	objective-To-understand the different parts
	and working of thermal powerplant.
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Summary

* Thornal Power Plant

Thermal power plant is the most conventional source of electric power generation At present about 55% of total electricity, production in India is from Coal Based Tremal Power Stations. Amal based thermal power plant converts the chemical energy of the coal into electrical energy. This is achieved by burning coal in the furname releasing the heat of combustion, which raises steam in the boiler, the high pressure, high temperature steam is expanded through the turbino rotating it which is coupled to a generators converting mechanical energy into electrical energy.

Schematic Diagram of Thormal Power Plant.

Steam
Torbine

Boiler

Pomp

VOVE CONTROL * Working-The working fluid in the thermal power plant is water/steam. The ideal thermalynamic cycle for the thermal power plant is Rankine cycle (Refer the diagram). The process 1-2 is pumping water from condenser pressure to boiler prossure. In boiler the water is heated at constant pressure first to saturation temperature (process 2-3), then it is omerted into steam (phase transformation process 8-4) and then it is superheated (process 4-5) The superheated steam then expands in torbine from boiler pressure to condenser pressure (process 5-6) producing machanical work The saturated or unsaturated steam coming from turbine condenses in the mondensor (process 6-1) the torbine is coupled with generator converting the mechanical energy into electrical energy.

* Boiler - radio Mermal Power Plant *

a container into which water can be fed and steam can be taken out at desired pressure, temperature and flow. This calls for application of heat on the container.

* Fronomiser-

It is located near the steam drum in the boiler. It is there to improve the efficiency of boiler by extracting heat from flue gases to heat water and send it to boiler drum.

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Tt is also located near the steam drom * Superheaterin the boiler. It converts the caturaled steam to dry steam. It is used to increase efficiency by extracting heat from the Aue guess to heat the saturated steam and to sometimes to * Fan or draught system -In a boiler it is ossential to supply a controlled amount of air to the fornace for offective combustion of fuel and to evacuate hot gases formed in the Furnace through the various hoot transfer area of the boiler. This can be done by using a chimneyor mechanical device such as fans whichacts as pomp. · There are two types of draught i) Natural draught (ii) Mechanized draught in orth own to the 1) Forced draught system.

(3) Balanced draught system. * istram Torbine-pit on vot belong in a steam turbines have been used predominantly as prime mover in all thormal power stations. The steam turbines are mainly divided intw two groups+ O Impulse Torbine @ Impulse-Reaction Torbine.

1 Impulse larbine 2 impose meaches

* condenser condenses the stream from the oxhaust of the turbine into liquid to allowit to be pumped.

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	Questions - materials
OOK IV	mode of von borhook oils it
(21)	what are the advantages of thermal power
12019	plant? money of been eith more yet of
two	Might beat from the Audious reliain
Ans	Advantages of Thormal power plant are-11
	Fuel used in cheaper.
6	Space required is less compared to Hydro
	Power Plantillong endinglish of at
(3	Partion of generated steam can be used as
91	process steam for various industries
	Initial cost is less compared to Diese!
	Power Plants - nevo vertained from anoine
PE	Plants can be located near the load centre
	which reduces transmission line cost & loss
	of energy in transmission lines
	Explain a margin to topusto love to V. G.
(32) what are the disadvantages of thermal
	boner blant sustains + 4000 pp posses
N- 5 \	and the state of t
Ans;	Disadvantages of Thermal power plant are.
6	Operation & Maintenance Cost High. Time needed for exection of plant is high
Harry	before it is put to operation.
(3)	1 ame avantity of water is married
(4)	Coal & Ash Handling cancer conjust - moleman
(5)	Pollution causes health amblems to waters
. agic	Coal & Ash Handling causes sorious problems. Pollution causes health problems to workers & mobitants near the power plant.
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atto	The condenses condenses the strong from
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(33)	what are the heat recovery systems in thornal
	power plant! Adoleted to the boldes
1	The book made and a side of the land
Ans 3	The heat recovery systems in thornal power plant are -
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	Economiser du Marinesasa
	Steam Drom.
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