Section- 3-

Q.1. (a) **Open cycle M.H.D. System:**

→ In an open cycle system the working fluid is used on the once through basis. The working fluid after generating electrical energy is discharged to the atmosphere.

→ Generally coal is used as fuel it produce more conductive plasma. this is because of more carbon ~~ato~~ atom as compared to Hydrogen atoms. The working temperature is approximately 2300°C.

→ parts of open cycle M.H.D. systems:
(i) Compressor (ii) pre-heater (iii) Combustor (iv) Nozzle (v) Generator Dust (vi) Inverter (vii) Inverter (viii) Gas chamber (ix) Speed recovery system.

Section- 3-

Q.1. (b).

→ In this system the very high thermal efficiency is achieved with low cycle cost in closed plant it provides more ~~use~~ useful power at low temperature at 1600°C. The ducts of these units are small because of high pressure.

→ Helium or Argon is used as a working fluid

→ Exchanger get ionized, alkali metal is mixed

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— Continue —

Section - 3- Q.1(b)

with inert gas to provide the necessary conductivity in closed cycle plant, where recovery is possible.

→ The working fluid in closed cycle is seeded with cesium & circulated in a closed loop.

→ The ionized gas passes through the ~~magnif~~ magnetic field to produce DC power.

→ It shows the schematic of liquid metal MHD generator. The super-heated metallic vapours is expanded through the supersonic nozzle & enters in the generator in liquid form with the velocity of 150 m/sec.