(1) ·ep-Rcode -25422

←483 Solution sct

SE/Electrical scm III CNPG-2017 Dec

qp- code—

q NO29>

Maximum demand = Total plant capacity

= 150 MW — 1mark

Energy produced = 876×10⁶ KWh — 1mark

Average load = Energy produced / period.

= 876×10⁶ / 8760 = 10⁵ KW — (1) — 2mark

Plant load factor = average load / maximum demand.

= 10⁵ / 150×10³ = 0.6667 — (3) mark

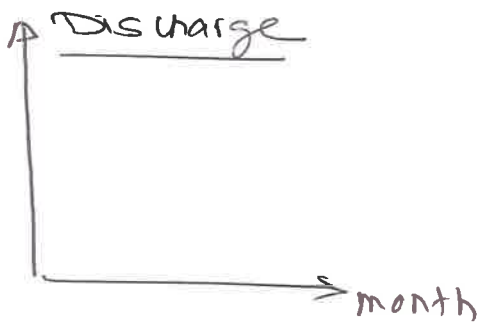
Plant use factor = annual energy produced / max energy that can be produced.

= 876×10⁶ / ((2+60×8000)+(30×2000))10³

= 0.8588 — (3) marks

Q2

Q No 3b) Plot hydrograph on graph papers.




— (3) mark

mean flow $q$ = 1 million = $10^6$ — (1) mark

$q$ = flow during year / no of months — (1) mark

= area under curve / no of months — (1) mark

$$= \frac{[40\times1 + 25\times1 + 20\times1 + 10\times1 + 0 + 50\times1 + 75\times1 + 100\times1 + 110\times1 + 66\times1 + 50\times1 + 40\times1]\times10^6}{12}$$ — (2) mark

$$= \frac{48.83\times10^6}{12}\ m^3/month.$$

$= 48.83\times10^6\times12 = 585.96$ m³ per year.

$$q = \frac{48.83\times10^6\times12}{365\times24\times3600} = 18.58\ m^3/s$$ — (2) mark