## RADNIKA PARWARI 18C310062

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31	3	2021
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Assignment #3: Renewable Gnergy-I
1. (1) Muslem sures moderate 251 411 Mlusan
1/4 word Old dans 12 1 740 1
1. (1) Nuclear energy produces 25.6 thhlyear.  Unused PV potential = 11 Twh/year
Given, 60%. A unused AV potential is used to replace unclear  energy  - 60 x 11 twh/year = 6.6 Twh/year
- 69 x 11 twh/year = 6:6 Tuh/year
Thy
: Remainder of Nurleavenery to be = (25.6-6.6) Twhitear
Remainder of Murkarenergy to be = (25.6-6.6) Turifyear replaced = 19.0 twr/year
Selander of the selection of the selecti
I natural gas power plant-com produce Goo MW x 85 1
1 natural gas power plant-com produce (500 MW x 85)
: Number of Natural = 190 K10 <sup>12</sup> Wh/year gas plants required (365 K20) K(5 K85 K10 <sup>6</sup> ) W
gas plants required (365 K2D) K(5 K85 K106) W
= 6000 5·1034
N 5

(ii) PV plant accupies 27000 hectare of land

= 27000 Kl04 m² = 2.7 Kl08 m²

Panels occupy 30% of PV plant's area.

Effective PV plant-ana = 30 x 2.7 x 108 = 81 x 10 m²

Aresage daily solar radiation = 2.1 kWh/me ' being utilised by panel = 1.701/2 x 10 kWh = 1.701/2 x 10 kWh - Annual Energy Production = 1.701 x x 365 x 108 kwh/year = 620.865 x x x 108 kwh/year · Le produce 11 Trunfyear, this energy is required. -1(06)(i) Twh/year = 620.865(x) × 108 km2/year -> x = 0.6x11 x 1012 wh frear(x 100) = 10.632%.
620.865 x 108 x 103 whyear = 10.632%. (iii) Ele input- solar energy be x

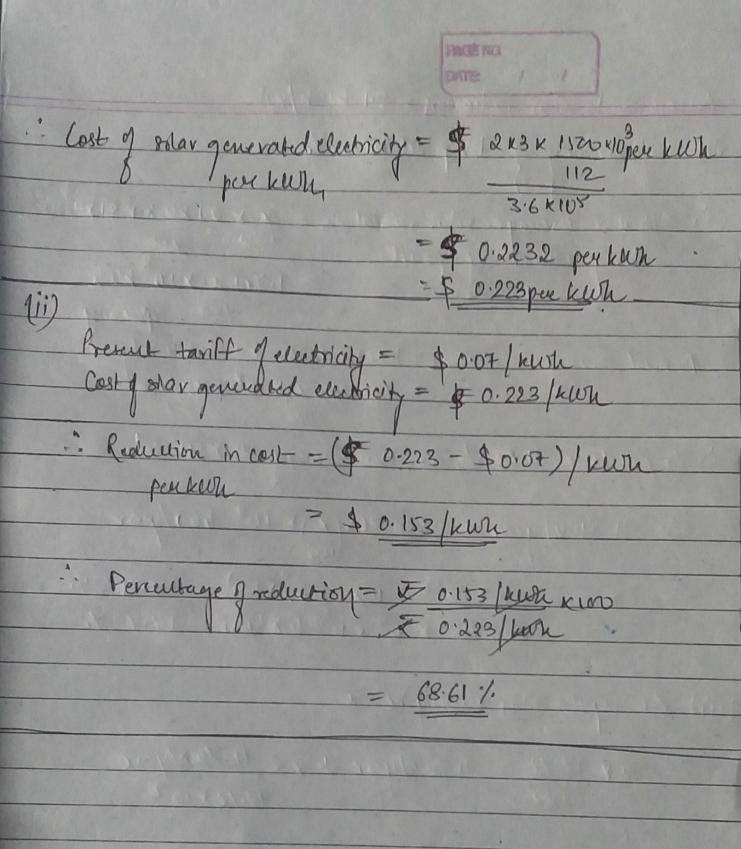
"  $u \times (17.72 = 0.6)(1) + un/year + x = (11) + un/year (0.6)$ 100

17.72 × 10<sup>-2</sup> Cod = 62.0767 (wh/year = 62.08 (wh/year 9% X 11 X O.6 TWN/year 0.594 (Wh/year (iv) Good Installed PV capacity =

2)i) Energy demand free month = 1500 kwh Lifeting a PV cell array = 20 years = (20 x12) neights Yotal energy demand in 20 = 1500 kwh/nuonth x(20 x12) north 3.6 K105 KWh Cost of solar cell = \$3 per W

Cost of solar cell lineway cost of pobrication, = \$2x3 per W

maintenance and capital interest) Cotal Power generated = 1500 kwhfronth = (1500) kw 112 Wyronth (112) : Cost of solar generated electricity = \$ 2x3x (1500)x10 = \$ 80.357142...



well of the year

LAGA LIPSO