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| Name: |  |
| Enrolment No: | |

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES

End Semester Examination, December 2019

Course: Renewable Energy Policies (EPEC8007)

Semester: III

Programme: M.Tech Renewable Energy Engineering

Time: 03 hrs.

Max. Marks: 100

Instructions: Clearly mention any assumptions with proper justification

SECTION A

| S. No. | | Marks | CO |
|--------|---|-------|-----|
| Q 1 | Explain the Targets of Phase I of JNNSM | 4 M | CO1 |
| Q.2 | Explain the 'Mandatory' requirement of earning REC | 4 M | CO1 |
| Q.3 | Explain in brief Decentralized Energy Generation. | 4 M | CO2 |
| Q.4 | Explain the 'Generalized objective(s)' of policy (document) formation. | 4 M | CO1 |
| Q.5 | Explain challenges in meeting Remote Village Electrification Programme. | 4 M | CO3 |

SECTION B

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| Q.6 | With neat diagram explain the 'Policy formation process' also explain the involvement of various bodies in forming the policy. | 8 M | CO1 |
| Q.7 | An IPPC has signed a MoU with DISCOM for sale of Renewable Energy by participating in Reverse bidding @ 2.47 PU for 25 years during June 2017 in state of Rajasthan. The IPPC has Installed 100 MW power plant. Out of which 20 MW are supplied to nearby industrial area and 80 MW are dedicated for DISCOM. IPP is feeding energy in to grid lines extended by DISCOM. Explain if IPP is eligible for REC. Estimate the approximate annual RECs that can be earned by IPP. Make suitable assumptions and justify all. | 8 M | CO1 |
| Q.8 | Briefly explain highlights of India's policy in Bio Energy & Wind Energy | 8 M | CO4 |
| Q.9 | Explain the various schemes initiated by Govt. of India to improve and modernize the livelihood at Indian Villages (Energy prospective). | 8 M | CO2 |
| Q.10 | With neat diagram explain the 'Grid Interactive SPP', In view of grid interactive SPP, explain the various challenges and ways to mitigate the challenges. | 8 M | CO3 |

SECTION-C

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|------|---|------|--------------------------|
| Q.11 | Write a brief note on following: 1) Power for all, Electricity Act 2) Wind-Solar Hybrid Policy 3) Challenges faced by JNNSM – Phase I & Phase II | 20 M | CO2 CO4 CO1 CO3 |
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|--|---|-----------------|------|------|-------|-------|-------|-------|----------------|-----|----|----|----|----|---|--|-----|-----|-----|-----|------|------|------------|-------------|
| | 4) International policy framework Rural Electrification | | | | | | | | | | | | | | | | | | | | | | | |
| Q.12 | <p>With neat diagram explain RE Mechanism. Prepare a business model for following case: A model village is proposed to make energy independent with the help of Roof Top Solar Power Plants. The village has population of 1200 within 230 families & 10 other building as school, Spiritual place, community hall, Dispensary etc. The installed capacity of Roof Top system is as following</p> <table border="1"> <tr> <td>Capacity of SPP</td> <td>2 kW</td> <td>3 kW</td> <td>4 kW</td> <td>5 kW</td> <td>10 kW</td> <td>15 kW</td> </tr> <tr> <td>No of families</td> <td>100</td> <td>55</td> <td>40</td> <td>30</td> <td>10</td> <td>5</td> </tr> <tr> <td>Avg. Monthly Energy Consumption / family</td> <td>200</td> <td>300</td> <td>400</td> <td>500</td> <td>1000</td> <td>1500</td> </tr> </table> <p>The flat rate tariff at the village is Rs. 3.50 per unit. With reference to current rooftop policy (FY 2019-10) and guidelines issued by MNRE, prepare a business model with payback period based on following description:</p> <ol style="list-style-type: none"> 1) All systems: Domestic Roof top. 2) Type of scheme: Net metering 3) Cost of grid interactive Solar Power Plants @ 50,000/- /kW Flat 4) Subsidies, as per Circular dated July 28, 2019 <p>You are also planning to form a cluster of all these Rooftop systems to claim for REC. Make a (economical) proposal for the same. Also, calculate the revised payback period, if averaged price for REC is Rs.2200/- per REC. Assume suitable data as necessary with justification.</p> | Capacity of SPP | 2 kW | 3 kW | 4 kW | 5 kW | 10 kW | 15 kW | No of families | 100 | 55 | 40 | 30 | 10 | 5 | Avg. Monthly Energy Consumption / family | 200 | 300 | 400 | 500 | 1000 | 1500 | 4+8+8 M | CO1& CO3 |
| Capacity of SPP | 2 kW | 3 kW | 4 kW | 5 kW | 10 kW | 15 kW | | | | | | | | | | | | | | | | | | |
| No of families | 100 | 55 | 40 | 30 | 10 | 5 | | | | | | | | | | | | | | | | | | |
| Avg. Monthly Energy Consumption / family | 200 | 300 | 400 | 500 | 1000 | 1500 | | | | | | | | | | | | | | | | | | |