| A Reg. No. : | |
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Question Paper Code: 59910

B.E./B.Tech. DEGREE EXAMINATION, NOV 2018

Elective

Chemical Engineering

| 15 | SUCH910- ENERGY | Y ENGINEERING | | | | | | | | |
|---|---|-------------------------|------------------|--|--|--|--|--|--|--|
| (Regulation 2015) | | | | | | | | | | |
| Duration: Three hours | Answer ALL | | ximum: 100 Marks | | | | | | | |
| PART A - $(10 \times 1 = 10 \text{ Marks})$ | | | | | | | | | | |
| 1is a primary energy | is a primary energy sources which provide net supply of energy. CO1 | | | | | | | | | |
| (a) Coal | (b) Solar energy | (c) Wind energy | (d) Water energy | | | | | | | |
| 2. Oil Shale can be extract | . Oil Shale can be extracted from CO | | | | | | | | | |
| (a) Sedimentary rocks | (b) Igneous rocks | (c) Metamorphic rock | ss (d) Marble | | | | | | | |
| 3. Which type of economi | zer is used in Natural | Gas fired thermal plant | ts CO2-U | | | | | | | |
| (a) Condensing | (b) Steaming | (c) Integral | (d) Independent | | | | | | | |
| 4gaseous | gaseous fuel is called as town gas | | | | | | | | | |
| (a) Natural gas | (b) Coke oven gas | (c) Coal gas | (d) Mond gas | | | | | | | |
| 5. The fraction of the fre rotor is called as | y a CO3-U | | | | | | | | | |
| (a) Wind coefficient | (a) Wind coefficient | | t | | | | | | | |
| (c) Thermal Coefficient | | (d) Hydro coefficient | | | | | | | | |
| 6. Which of the following | 6. Which of the following is not a solar energy storage? | | | | | | | | | |
| (a)Thermal Energy stor | age | (b) Chemical Storage | | | | | | | | |
| (c) Electromagnetic End | Electromagnetic Energy storage (d) Magnetic Energy Storage | | | | | | | | | |
| 7. Geothermal energy utili | 7. Geothermal energy utilizeof the earth's core. CO | | | | | | | | | |
| (a) Pressure | (b) Temperature | (c) Volume | (d) Magma | | | | | | | |

| 8. | | ter elevation at ned as | high time-Water elev | vation at low tide" is | | CO4- R |
|-----|-----------------------------------|--------------------------------|-------------------------------|--------------------------|-----------------|----------|
| | (a) T | idal Range | (b) Tide elevation | (c) Spring tide | (d) None of the | ne above |
| 9. | (Hea | t Output/Heat Ir | nput)x100 is used to mea | asure | | CO5- R |
| | (a) F | uel efficiency | (b) Steam efficiency | (c) Boiler Efficiency | (d) Heat Effic | iency |
| 10. | | is a for | m of Electrical Energy | storage | | CO5- R |
| | (a) C | Compressed air | | (b) Lead acid battery | | |
| | (c) F | ly wheel | | (d) Electromagnetic l | Energy storage | |
| | | | PART - B (5 x | 2= 10 Marks) | | |
| 11. | Wha | t is coking coal? | • | | | CO1- R |
| 12. | Wha | t is the major dis | sadvantage of biomass a | and how can it be overce | ome? | CO2- R |
| 13. | Wha | t are the factors | make a solar cell very e | expensive? | | CO3- U |
| 14. | List out the types of Fuel cells. | | | | | CO4- R |
| 15. | Defi | ne Energy Audit | | | | CO5- R |
| | | | PART – C (5 | x 16= 80Marks) | | |
| 16. | (a) | Explain in de with Example | | nventional Energy sou | rces CO1- U | (16) |
| | | | Or | | | |
| | (b) | Explain in de Automobile in | | production in the field | d of CO1-U | (16) |
| 17. | (a) | What are rene and Disadvant | | ? Elaborate its Advanta | nges CO2-R | (16) |
| | | | Or | | | |
| | (b) | Write in detai Fuel needs? | l about alternate fuels f | from biomass for Dome | estic CO2- R | (16) |
| 18. | (a) | Write in detail | about solar energy stor Or | rage and their types? | CO3- U | (16) |
| | (b) | Elaborate Pow | ver generation methods | using Hydro Energy. | CO3- U | (16) |

19. (a) Classify fuel cells. Explain the reactions and with the help of CO4-U (16) neat sketch the construction, working of any one of the fuel cells.

Or

- (b) Explain the principles of Magnetohydrodynamic (MHD) power CO4- U (16) generation and classify MHD Systems.
- 20. (a) (i) Explain the direct And indirect benefits of waste heat CO5-U (8) recovery.
 - (ii) Discuss present Global issues and need for energy CO5-U (8) conservation.

Or

(b) Discuss Briefly about the principles of energy management and CO5- U technology assessment. (16)