ADAMAS UNIVERSITY
SCHOOL OF ENGINEERING AND TECHNOLOGY
END-SEMESTER EXAMINATION: JULY 2020

Name of the Program: B. Tech
Stream: EE
PAPER TITLE: Renewable Energy Resources
Maximum Marks: 40
Total No of questions: 08

Semester: VIII
PAPER CODE: EEE44112
Time duration: 3 hours
Total No of Pages: 02

Instruction for the Candidate:

1. At top sheet, clearly mention Name, Univ. Roll No., Enrolment No., Paper Name & Code, Date of Exam.
2. All parts of a Question should be answered consecutively. Each Answer should start from a fresh page.
3. Assumptions made if any, should be stated clearly at the beginning of your answer.

Answer all the Groups

Group A

Answer all the questions of the following $5 \times 1 = 5$

1. **a)** What is the typical open-circuit voltage of a solar cell?
b) What is the energy payback period of wind generation?
c) What is the range of wind speed suitable for wind power generation?
d) Which turbine is used in a tidal range plant?
e) What is geothermal energy?

GROUP –B
(Short Answer Type Questions)

Answer *any three* of the following $3 \times 5 = 15$

2. What are the salient features of a vertical axis wind turbine? [5]

3. Calculate the open-circuit voltage and maximum power output of MHD engine with following specifications
Plate Area = 0.2 m^2
Distance between plates = 0.4 m
Flux density = 2 Wb/m^2
Average gas velocity = 1000 m/s
Conductivity of the gas = 10 mho/m [5]

4. Derive the expression for the total useful energy of dry rock. [5]

5. A deep ocean wave of 2m peak to peak appears for a period of 8 s. Find the wavelength, phase velocity, and power associated with the wave. At this power rate, what is the average annual wave energy in MWh/m? [5]

GROUP –C
(Long Answer Type Questions)

Answer *any two* of the following $2 \times 10 = 20$

6. a) With the help of block diagrams explain the operations of standalone and grid-interactive Solar Photovoltaic systems.
b) Describe the principle of the MHD generating system. [7+3]

7. a) A PV system feeds a dc motor to produce 1 hp power at the shaft. The motor efficiency is 85%. Each module has 36 multi-crystalline silicon solar cells arranged in a 9 x 4 matrix. The cell size is 125mm x 125mm and the cell efficiency is 12%. Calculate the number of modules required in the array. Assume global radiation incident normally to the panel as 1 kW/ m^2.

b) What is a PV cell? What is the fill factor of a PV cell? [5+5]

8. a) Explain heaving float-type wave energy technology.

b) What are the merits of oscillating water column type wave energy technology?

c) What are the limitations of tidal energy? [6+2+2]

ADAMAS UNIVERSITY
SCHOOL OF ENGINEERING AND TECHNOLOGY
END SEMESTER EXAMINATION (JULY 2020)

Name of the Program: B.Tech | **Semester:** VIII
Course Name: Electric Drive System | **Course Code: EEE44114**
Maximum Marks: 40 | **Time duration: 3 Hours**
Total No of questions: 12 | **Total No of Pages: 2**

Instruction to the Candidate:
1. At top sheet, clearly mention Name, Univ. Roll No., Enrolment No., Paper Name & Code, Date of Exam.
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GROUP –A

1. Answer all the *five* questions of the following: **5 x 1 = 5**

(i) What are the different components of load torque?

(ii) Mention two application of DC drive.

(iii) Which speed control method is used to get speed higher than the base speed of DC shunt motor

(iv) Which performance parameters will decrease when the supply voltage of a D.C motor is increased?

(v) Which type of drive is used for metal-cutting machines tools and rolling mills?

GROUP –B

(**Short Answer Type Questions**)

Answer *any three* of the following **3x5 = 15**

2. Derive the expression for equivalent torque for a drive load with rotational motion.
3. State the functions of various converters used in electric drives.
4. When plugging is employed for stopping an induction motor, why is it necessary to disconnect it from supply when speed reaches zero?
5. State and explain the important features of various braking methods of an induction motors.

GROUP –C

(**Long Answer Type Questions**)

Answer *any two* of the following

2x10=20

6. A drive has the following parameters:

T = 150 – 0.1N, Nm, where N is the speed in rpm.

Load torque T_l = 100, N-m.

Initially the drive is operating in steady state condition. The characteristics of the load torque are changed to T_l = -100, N-m. Calculate initial and final equilibrium speeds.

7. Explain the principle and an application of variable speed and constant frequency generation schemes for induction motors.

8. A one quadrant chopper is used for rheostatic breaking of a separately excited dc motor. Ra = 0.1ohm, breaking resistance = 7.5 ohm,voltage constant 1.4v/A-rad/sec, armature current 120A and field current is 1.6A.The duty cycle of chopper is 0.35. Find

a) average voltage across chopper

b) power dissipated in breaking resistance.

c) Motor speed.

(END)

ADAMAS UNIVERSITY
SCHOOL OF ENGINEERING AND TECHNOLOGY
END SEMESTER EXAMINATION (JULY 2020)

Name of the Program: B.Tech **Semester:** VIII
Course Name: High Voltage DC Transmission **Course Code: EEE44116**
Maximum Marks: 40 **Time duration: 3 Hours**
Total No of questions: 12 **Total No of Pages: 2**

Instruction to the Candidate:
1. At top sheet, clearly mention Name, Univ. Roll No., Enrolment No., Paper Name & Code, Date of Exam.
2. All parts of a Question should be answered consecutively. Each Answer should start from a fresh page.
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GROUP –A

1. Answer all the *five* questions of the following: **5 x 1 = 5**

(i) What kind of DC cable use in HVDC system?

(ii) What is advantage of HVDC?

(iii)Which pulse converter are preferable for Modern HVDC systems and why?

(iv) What are the various sources of Harmonics?

(v) What are the different filter use in AC side of HVDC system?

GROUP –B
(**Short Answer Type Questions**)
Answer *any three* of the following **3x5 = 15**

2. What is an HVDC-VSC system? Give the single line diagram of the system**. (3+2)**
3. What is advantage of voltage source controlled IGBT HVDC schemes? Estimate the steady state stability of a 1-phase AC line with sending end and receiving end voltage maintained at 132 kV when the sending end voltage is loading by 90^0 electrical degree given the reactance of the line is10Ω. (2+3)
4. Why are filter not needed on DC side with HVDC voltage source converter?
5. What are the order of harmonics present on AC side of the VSC converter DC system?

GROUP –C
(**Long Answer Type Questions**)

Answer *any two* of the following

2x10=20

6. Determine the cost of 5^{th} harmonics filter for a bipolar 4-bridge 12-pulse converter rated 1200A. 300 kV. The filter is connected to 400 kV, 3-ph, 50 Hz supply. Filter is to be designed for operation with one bridge out of service.

Cost capacitor 25 lakhs/ MVAR

Inductance 40 lakhs/ MVAR

Take $\alpha=15^0$ p.f.= 0.866 and network impedance angle limited to 80^0.

7. Calculate the secondary line voltage of the transformer for 3 phase bridge rectifier to provide a DC voltage of 120 kV. Assume $\alpha= 35^0$ $\mu= 10^0$ What is the effective reactance X_L if the rectifier gives 1000 A of DC output current?
8. Give the schematic diagram of an HVDC link. What are the important components?

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(END)

ADAMAS UNIVERSITY
END-SEMESTER EXAMINATION: JULY 2020

Name of the Program: B. Tech
Stream: ECE/EE
PAPER TITLE: Management II
Maximum Marks: 40
Total No of questions: 00

Semester: VIII

PAPER CODE: MBA44116
Time duration: 3 Hours
Total No of Pages: 00

Instruction to the Candidate:

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Answer all the Groups

Group A

Answer all the questions of the following $\mathbf{5 \times 1 = 5}$

1. **a)** Define marketing management.
b) What is the main difference between centralization and decentralization?
c) Define an initiative.
d) What did Taylor want to communicate through mental revolution?
e) Define Unity of direction.

GROUP –B
(**Short Answer Type Questions**)

Answer *any three* of the following $\mathbf{3 \times 5 = 15}$

2. Explain briefly 'Remuneration of Employees' and 'Scalar Chain' as principles of general management.
3. What are the differences between Fayol's and Taylor's approach of management?
4. Explain 'unity of command' and 'equity' as principles of general management.
5. Write down few differences between unity of command and unity of direction.

GROUP –C
(**Long Answer Type Questions**)

Answer *any two* of the following $\mathbf{2 \times 10 = 20}$

6. Pawan is working as a Production Manager in CFL Ltd. which manufactures CFL bulbs. There is no class-conflict between the management and workers. The working conditions

are very good. The company is earning huge profits. As a policy, the management shares the profits earned with the workers because they believe in the prosperity of the employees.

a) State the principle of management described in the above paragraph.
b) Identify any two values which the company wants to communicate to society.

7. Volte India Ltd. is manufacturing LED bulbs to save electricity. However, it is running under heavy losses. To revive from the losses, the management shifts the unit to a backward area where labour is available at a low cost. The management also asks the workers to work overtime without any additional payments and promises to increase the wages of the workers after achieving its mission. Within a short period, the company starts earning profits because both the management and workers honour their commitments.

a) State the principle of management described in the above paragraph.
b) Identify any two values which the company wants to communicate to society.

8. Explain work study techniques that help in developing standards to be followed throughout the organization.
