

Hall Ticket Number :

--	--	--	--	--	--	--	--	--	--	--

R-15

Code: 5G282

IV B.Tech. II Semester Regular Examinations March 2019

**Utilization of Electrical Energy**

( Electrical and Electronics Engineering )

Max. Marks: 70

Time: 3 Hours

Answer *all five* units by choosing one question from each unit ( 5 x 14 = 70 Marks )

\*\*\*\*\*

**UNIT-I**

1. a) State the advantages and disadvantages of Electric Drive over mechanical Drive 7M
- b) Explain the following loads with suitable examples.  
i) Continuous      ii) Intermittent      iii) Variable 7M

**OR**

2. a) Compare the 3-Phase Induction motor and DC shunt motor from the point of view for speed control. 7M
- b) A 230 V, DC shunt motor runs at 900 rpm on No-load with full field and has an armature resistance of 0.7 Ohms. The armature current to give full load torque is 15 A. If a resistance of 6 Ohms is put in series with the armature, determine the speed-torque characteristic. Also find the current drawn from the supply. 7M

**UNIT-II**

3. a) Describe the constructional features of a Resistance oven. What are the properties that element must possess? 7M
- b) A 40 KW, 3-phase 400 V resistance oven is to employ Ni-cr strip of 0.3 mm thickness. The heating elements are star connected. If the wire temperature is to be 1127°C and heat of charge is to be 727°C, estimate the suitable width and length of the wire required. Radiating efficiency=0.6, Specific resistance of Ni-cr 1.03 micro-ohm-m. Emissivity 0.9 7M

**OR**

4. a) Explain the advantages and disadvantages of Dielectric heating. 7M
- b) Describe with a neat sketch, various methods of electric resistance welding. 7M

**UNIT-III**

5. a) State and prove Inverse square law and cosine law. 7M
- b) A lamp taking 3.5 A at 100 V emits 6000 lumens. Calculate its efficiency in  
i) Lumens per Watt  
ii) Mean Spherical Candle Power per watt  
iii) A lamp taking 0.5 A and 250 V is rated at 125 MHCP. Find its efficiency in MHCP per watt and Lumens per watt. 7M

**OR**

6. a) What are polar curves as applied to light sources? Show how these curves are used for finding in MHCP and MSCP? 7M
- b) Prove that the relationship between plane angle and solid angle is

$$\omega = 2\pi(1 - 0.5\cos\theta) \quad 7M$$

<b>UNIT-IV</b>
----------------

7. a) Explain different advantages of electric traction. 7M  
 b) Explain plugging, rheostatic braking and regenerative braking as applied to 3-phase Induction motor. 7M

**OR**

8. a) With the help of a complete Speed-Time curve, Discuss how different parameters of this curve change with the type of train service. 7M  
 b) A train is required to run between stations 1 Km apart, a scheduled speed of 25 kmph, the duration of stops being 20 seconds. The braking retardation is 4 kmphs. Assuming a trapezoidal speed-time curve, calculate the acceleration, if the ratio of maximum speed to average speed is to be 1.35. 7M

<b>UNIT-V</b>
---------------

9. a) Define and Discuss the significance of the following terms.  
 i) Dead weight    ii) Accelerating weight    iii) Adhesive weight. 7M  
 b) A 400 ton goods train is to be halted by a locomotive on a gradient of 2 % with an acceleration of 1 kmphs. Coefficient of adhesion is 0.2, track resistance is 40 N/ton and effective rotating masses 10 % of dead weight. Find the weight of the locomotive and number of axles, if the the axle load is not to be beyond 22 tonnes. 7M

**OR**

10. a) What is coefficient of adhesion? How the value of coefficient of adhesion affects the slipping and skidding of the driving wheels of traction unit? 7M  
 b) An electric train weighing 400 tonnes runs along an up gradient of 1% with following speed-time curve  
 i) Uniform acceleration of 1.5 kmphs for 30 sec.  
 ii) Free running for 36 seconds  
 iii) Coasting for 25 seconds  
 iv) Braking at 2.6 kmphs to rest.  
 If tractive resistance is 45 N/tonne, rotational inertia effect 10 %, overall efficiency of transmission and motor 75 % determine specific energy consumption. 7M

\*\*\*

Hall Ticket Number :

--	--	--	--	--	--	--	--	--	--	--

R-15

Code: 5G285

IV B.Tech. II Semester Regular Examinations March 2019

**Design of Electrical Systems**

( Electrical & Electronics Engineering )

Max. Marks: 70

Time: 3 Hours

Answer *all five* units by choosing one question from each unit ( 5 x 14 = 70 Marks )

\*\*\*\*\*

**UNIT-I**

1. Describe the design aspects of lighting and minor building services 14M

**OR**

2. a) Explain the special features applicable for high-rise apartment buildings 7M

b) Explain the process and factors for selection of type of wiring 7M

**UNIT-II**

3. Discuss about the Classification of industrial installation and general characteristics. 14M

**OR**

4. Write brief notes on selection of switch gears and circuit breakers 14M

**UNIT-III**

5. a) Define power factor and explain the different causes and effect of low power factor 7M

b) What are the methods for power factor improvement? Explain 7M

**OR**

6. a) Discuss about the location of power factor capacitor 7M

b) Write short notes on optimal compensation 7M

**UNIT-IV**

7. Describe 5M

(i) TN system 5M

(ii) TT system and 5M

(iii) IT system 4M

**OR**

8. a) List the design considerations of earthing and explain in detail. 7M

b) Explain earth leakage protection with neat diagram 7M

**UNIT-V**

9. What is harmonics in power system? Explain the sources harmonics in details 14M

**OR**

10. Explain the different methods to reduce the impact of harmonics. 14M

\*\*\*

Hall Ticket Number :										
----------------------	--	--	--	--	--	--	--	--	--	--

<b>R-15</b>
-------------

**Code: 5G68A**

IV B.Tech. II Semester Regular Examinations March 2019

**Disaster Management**

( Common to All Branches )

Max. Marks: 70

Time: 3 Hours

Answer all five units by choosing one question from each unit ( 5 x 14 = 70 Marks )

\*\*\*\*\*

<b>UNIT-I</b>
---------------

1. a) Discuss about the statement 'Disasters occurs when Hazard meets the Vulnerability' with the help of any flow chart. 10M  
b) Differentiate the terms 'prevention' and 'mitigation' giving suitable examples. 4M

**OR**

2. a) Define the terminology 'Disaster, Hazard and Risk', differentiate them and relate them. 10M  
b) Define Impact and give classification. 4M

<b>UNIT-II</b>
----------------

3. a) Describe the earthquake about its characteristics and principle mechanism. 6M  
b) Write about the types of floods. 5M  
c) Differentiate manmade disasters vs natural disasters. 3M

**OR**

4. a) Discuss in detail about the vulnerable profile of India. 5M  
b) Write about the Nuclear Hazards in India. 4M  
c) Write about the ecological fragility of major rivers in India. 5M

<b>UNIT-III</b>
-----------------

5. a) Discuss the environmental, physical, social, economical impacts due to earthquake and tsunami taking suitable examples. 10M  
b) Enlist the causes of urban disasters taking an example of any city in India. 4M

**OR**

6. a) Discuss the environmental, health, psycho-social impacts due to nuclear radiation and volcanoes taking suitable examples. 10M  
b) Discuss the global disaster trends of earthquakes and tsunamis. 4M

<b>UNIT-IV</b>
----------------

7. a) Discuss about the early warning systems available in India to avoid major loss due to tsunamis. 6M  
b) Explain the importance of Community Based Participation towards achieving DRR. 5M  
c) Write the policies available in India for DRR. 3M

**OR**

8. a) Draw the 'Disaster management' cycle and explain any two phases in detail. 6M  
b) Differentiate structural and non-structural measures in DRR. 4M  
c) Discuss the roles of NDMA. 4M

<b>UNIT-V</b>
---------------

9. a) Enlist the positive impacts on upstream side and downstream side of a dam. 5M  
b) Discuss some of the impacts on surrounding areas due to mining. 5M  
c) Enlist the recovery and reconstruction activities required after earthquake. 4M

**OR**

10. a) Discuss the causes of urbanization and impacts on the existing urban area. 8M  
b) Discuss any one developmental project that you like mentioning the causes of it and its immediate and long term impacts. 6M

\*\*\*\*

Hall Ticket Number :

R-15

Code: 5G286

IV B.Tech. II Semester Regular Examinations March 2019

**Energy Auditing and Demand Side Management**

( Electrical and Electronics Engineering )

Max. Marks: 70

Time: 3 Hours

Answer *all five* units by choosing one question from each unit ( 5 x 14 = 70 Marks )

\*\*\*\*\*

**UNIT-I**

1. a) Briefly discuss about Primary energy usage in India 10M
- b) How standards and labeling promotes energy conservation 4M

**OR**

2. a) Explain briefly the difference between preliminary and detailed energy audits 6M
- b) Explain how measurements are done in energy audits. Discuss with respect to any two examples 8M

**UNIT-II**

3. a) Explain about RMS hp, voltage unbalance with suitable examples 7M
- b) Describe about the over motoring 7M

**OR**

4. a) Explain the constructional details of energy efficient motors 9M
- b) Draw the characteristics of variable duty cycle system of energy efficient motor 5M

**UNIT-III**

5. a) Write short notes on Energy Efficient lighting controls 7M
- b) Explain the role of energy measuring instruments in energy audit 7M

**OR**

6. a) Briefly explain about lux meter and tongue testers 7M
- b) Explain about design of good lighting system and practice 7M

**UNIT-IV**

7. Explain how cash flow model is developed. Also mention the reasons why cash flow model is important in energy economic analysis 14M

**OR**

8. a) Write the methods used for calculation of depreciation 7M
- b) Write short notes about time value of money concept 7M

**UNIT-V**

9. a) Explain the functions and benefits of demand side management 10M
- b) Distinguish between peak clipping and peak shifting 4M

**OR**

10. What is meant by strategic conservation? Explain its importance 14M

\*\*\*

Hall Ticket Number :										
----------------------	--	--	--	--	--	--	--	--	--	--

**R-15**

**Code: 5GA82**

IV B.Tech. II Semester Regular Examinations March 2019

**Human Resource Management**

( Common to All Branches )

Max. Marks: 70

Time: 3 Hours

Answer *all five* units by choosing one question from each unit ( 5 x 14 = 70 Marks )

\*\*\*\*\*

**UNIT-I**

1. What is meant by HRM? Discuss the functions of human Resource Management with relevant examples?

**OR**

2. Define Human Resource Management and discuss the difference between Personnel Management and HRM.

**UNIT-II**

3. How does the HR planning process facilitate the achievement of an organization's strategic objectives

**OR**

4. What is Job Analysis? Explain the job design methods in detail?

**UNIT-III**

5. What are various sources of applicants that organizations use when recruiting?

**OR**

6. What is selection? Explain different types of selection tests and process of selection

**UNIT-IV**

7. Discuss the different methods of training used by an organization for enhancing employee performance

**OR**

8. Explain the objectives, importance and factors influencing executive development

**UNIT-V**

9. Should effective Grievance Handling Procedure retains a potential employee in an organization – explain.

**OR**

10. Suppose you are a supervisor. Evaluate the different performance appraisal methods used in your organization?

\*\*\*