

**FACULTY OF ENGINEERING****B.E. (Civil) III – Semester (CBCS) Examination, December 2017****Subject: Electrical Technology (Part – A)****Time: 1½ Hour****Max.Marks: 38****Note: Answer all questions from Part A and any three questions from Part – B.****PART – A (14 Marks)**

- 1 List out the properties of series and parallel circuits. 2
- 2 Draw the vector diagram for three phase star connected voltages. 2
- 3 Explain the working principle of transformer. 3
- 4 Explain the basic working principle of DC generator. 2
- 5 Draw the torque slip characteristics of three-phase induction motor. 3
- 6 List out the applications of single-phase induction motor. 2

**PART – B (24 Marks)**

- 7 a) A sinusoidal alternating voltage has r.m.s value of 100 V. Find:
  - i) The instantaneous value 0.0125s after passing through maximum positive value
  - ii) The time measured from a positive maximum value when the instantaneous voltage is 70.7 V. 4
- b) State the Kirchhoff's voltage law and current law with suitable examples. 4
- 8 a) A balanced 230 volt (rms) three phase source is furnishing 6 kVA at 0.83 of lagging to two  $\Delta$ -connected parallel loads. One load is a purely resistive load drawing 2 kW. Determine the phase impedance of the second load. 4
- b) Explain the working principle of single phase energy meter. 4
- 9 a) Discuss in detail about star delta method of starting of three phase induction motor. 4
- b) Derive emf equation of a single phase transformer. 4
- 10 a) Explain in detail about single phase capacitor start induction motor. 4
- b) Explain how the rotating magnetic field generated in three phase induction motor. 4

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**FACULTY OF ENGINEERING**

**B.E. (CBCS) (Civil) III - Semester (Main) Examination, December 2017**

**Subject: Mechanical Technology (Part-B)**

**Time: 1½ Hour**

**Max. Marks: 37**

**Note:** Answer all questions from Part – A and any three questions from Part – B.

**PART- A (13 Marks)**

1. What is cable excavator 3
2. Differentiate cable and clamshell excavator 3
3. What is Aerial ropeway 2
4. Where Guyed and Stiffy derricks are used? 3
5. What are the applications of Hammer crusher? 2

**PART- B (24 Marks)**

6. a) What precautions to be taken while operating any Earth moving equipment? 5  
b) Briefly list out the functions of a Tractor.
7. a) Which is faster and more secure: Belt conveyor or Screw conveyor and why? 3  
b) Explain the applications of Fork lift truck, its need and how the name is deribed 5
8. a) Explain salient features of Swing and Non – swing mobile crane and its specific applications. 4
9. a) Explain suitability of screens of various types – and purpose 4  
b) Explain the machining of concrete mixers 4
- 10 a) Explain the working mechanizing of Jack hammers and its application 4  
b) Explain the usage of i) Bull dozer ii) Earth compactor

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**FACULTY OF ENGINEERING****B.E. III – Semester (CBCS) (EE/Inst./M/P/CSE.) (Main) Examination,****December / January 2017 & 2018****Subject: Environmental Sciences****Time: 3 Hours****Max. Marks: 70****Note:** Answer all questions from Part – A and any five questions from Part – B.**PART-A (20 Marks)**

1. Give any two points on problems of constructing dams. 2
2. Mention the reasons for growing energy needs. 2
3. Write short notes on importance of natural resources. 2
4. What is photolysis? 2
5. Name endemic plant species found in eastern Himalayas. 2
6. Give reason why habitat alteration is the major threat to biodiversity? 2
7. List the various unit operations required to control air pollution? 2
8. Distinguish between garbage and rubbish. 2
9. What are the ill effects of ozone depletion? 2
10. Write the steps taken in India for disaster mitigation. 2

**PART-B (50 Marks)**

11. a) Enumerate and explain alternative energy resources. 5  
b) Write down any five control measures of desertification. 5
12. a) Describe the functional components of ecosystem. 5  
b) Explain the types of water erosion and wind erosion. 5
13. a) Describe the various values of biodiversity. 5  
b) What are the steps to be taken for the conservation of biodiversity. 5
14. a) Discuss the ill effects of thermal pollution on aquatic organisms. 5  
b) Enumerate and write elaborately about the disposal methods of solid waste. 5
15. a) Explain the steps involved in watershed management. 5  
b) Write a note on disaster management cycle. 5
16. a) Describe double energy model flow with neat diagram. 5  
b) Mention the few reasons for loss of biodiversity. 5
17. Write a short note on following.  
a) Effect of air pollution on human health and plants 5  
b) Population growth rate 5

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