

GANPAT UNIVERSITY
B. TECH SEM- VI (ELECTRICAL)
REGULAR EXAMINATION APRIL-JUNE 2017
2EE608 : ELECTRICAL POWER UTILIZATION AND TRACTION
TOTAL MARKS: 60

TIME: 3 HRS

Instructions: (1) This Question paper has two sections. Attempt each section in separate answer book.
 (2) Figures on right indicate marks.
 (3) Be precise and to the point in answering the descriptive questions.

SECTION- I

- Que.-1** (A) Discuss the factor affecting to schedule speed. [03]
 (B) Explain AC traction system. [03]
 (C) List the methods of electric braking and explain any two of them. [04]

OR

- Que.-1** (A) A train run with an average speed of 50 kmph. Distance between stations is 2.9 km [03]
 values of acceleration and retardation are 1.2 kmphs and 2.8 kmphs respectively.
 Find the max. Speed of train assuming trapezoidal speed time curve. Also, draw the curve and mention all parameter's value in it.

- (B) Draw the sketch of DC traction system and explain each components of it. [03]
 (C) Derive expression for overall starting efficiency of Series-Parallel starting with 2 [04]
 motors and also with 4 motors.

- Que.-2** (A) Explain law of electrolysis. [03]
 (B) Give the principle of galvanizing and explain the process. [03]
 (C) What is the requirement of anodizing? [02]
 (D) List the advantages of electric traction. [02]

OR

- Que.-2** (A) Calculate the ampere hour require to deposit coating of silver 0.05mm thick on a [03]
 shape of 10cm radius. Assume electromechanical equivalent of silver = 0.001118
 and density of silver to be 10.5.
 (B) What are the types of electrolytic bath used for electro plating on non-conductive [03]
 material? Explain any three
 (C) Which are the factors affecting to electro deposition? [02]
 (D) Define: (i) β and (ii) t_1 . [02]

- Que.-3** Attempt following question: [05]
 (A) Explain different types of lighting schemes. [05]
 (B) Explain the working of fluorescent tube with the help of circuit diagram.

SECTION-II

- Que.-4** (A) Explain the principle of dielectric heating. [02]
 (B) With simple sketches describe the working of a coreless-type induction furnace. [04]
 (C) Dielectric heating is to be employed to heat a slab of insulating material 20 mm [04]
 thick and 1530 mm² in area. Power required is 200 watts and a frequency of 3 MHz
 is to be used. The material has a permittivity of 5 and a power factor of 0.05.
 Determine the voltage necessary and the current which will flow through the
 material.

OR

- Que.-4 (A) A room of 12X12X4 meter is to have direct lighting giving illumination of 80 lux on a working plane 70 cm above the floor. Coefficient of utilization factor 0.5 and maintenance factor 0.8. If efficiency of lamps available is 14.75 lumens/watt, find the number of lamps and their rating. [03]
- (B) Draw electric circuit diagram of a refrigerator and explain the function of the function of each component. How can the temperature inside the refrigerator to be adjusted? [05]
- (C) Discuss the infrared heating. [02]

- Que.-5 (A) With the necessary sketch, explain the process of carbon arc welding and metallic arc welding. [05]
- (B) Give the difference between A.C welding and D.C welding. [03]
- (C) What are the advantages of coated welding electrodes? [02]

OR

- Que.-5 (A) Describe briefly the following types of welding. (i) TIG welding (ii) MIG welding [04]
- (B) With a neat diagram, Explain butt welding and mention its uses. [03]
- (C) Write the short note on street lighting. [03]

- Que.-6 Attempt following question:
- (A) Classify the different types of Electric heating and explain direct arc and indirect arc furnace with necessary figure. [05]
- (B) Define the following terms w.r.t illumination [05]
- (i) Luminous flux (ii) illumination (iii) Mean horizontal candle power (iv) Plane angle (v) Space height ratio

END OF PAPER