THE TEXTILE ASSOCIATION (INDIA)
GMTA EXAMINATION 2020
Section – A Paper – A.4
GENERAL ENGINEERING
Marks – 100

Date: 27.12.2020
Time: 10.00 am to 1.00 pm

Instructions:
1. Answer any six questions out of which Question No 1 is compulsory.
2. Answer each next main question on a new page.
3. Figure to the right indicate full marks.
4. Illustrate your answers with sketches and flow chart wherever necessary.
5. Use of non-programmable electronic pocket calculator permitted.
6. Mobile and any other communication devices are not allowed in examination hall.
7. Assume suitable data wherever necessary.

Q1 Attempt any four of the following: 20
a. Sketch and explain the working principle of Centrifugal pump.
b. Explain the characteristics of Francis turbines with a simple sketch.
c. what is a Fin and briefly explain different types of it.
d. List and explain any one type of dust collector.
e. what is a rectifier and explain briefly any one type of it.

Q2 Explain the construction, principles of operation of 3-phase induction motor 16
with a neat sketch. Also list the advantages and applications of it.

Q3 (a) With a neat sketch, explain the construction and working of Pelton wheel. 8
(b) Explain the working principle of stepper motor and list the advantages 8
of it over servo motor.

Q4 a. Sketch and explain the working principle of Gear pump. 8
b. Explain the working principle of Tacho-generator. 8

Q5 Explain the working principle of counter flow heat exchanger and also 16
compare with parallel flow heat exchanger.

Q6 a. what do you understand by: 8
   (i) Draft tube
   (ii) LMTD
   (iii) Transducer
   (iv) Black body
b. Explain the working of MOSFET. 8

Q7 a. what is an Alternator and briefly explain the principle of working. Also list 8
the applications of it.

b. Explain different laws of radiation.

Q8  

a. Briefly explain one dimensional solution for Couette flow and Poisullie flow.

b. What is surging in pumps and explain the different methods used to reduce this effect.