THE TEXTILE ASSOCIATION (INDIA)  
G.M.T.A. (REVISED) EXAMINATION – 2015  
SECTION-A - PAPER-A.4  

GENERAL ENGINEERING  

Date: 27.12.2015  
Marks: 100  
Time: 10am to 1pm  

Instructions:  
1. Attempt SIX questions out of which Q1 is compulsory  
2. Answer each next question on 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 permissible  
6. Mobile and any other communication devices are not allowed in exam hall.  
7. Assume suitable data wherever necessary  

Q1 Answer any four  
   a. Explain in brief the velocity triangle and analysis of force in Francis Turbine  
   b. Write in brief the principle of centrifugal compressor.  
   c. What do you understand by draft in the boiler? Explain in brief.  
   d. What are the different modes of fuel and ash handling equipments? Explain in short.  
   e. How many types of prime movers are used for generators? Explain in brief.  

Q2 a. Explain the working principle of steam turbine giving sketches  
   b. Explain in brief the Fourier Law of heat conduction for isotropic materials  

Q3 How many types of fuels are used in thermal power plant? Explain  
What is difference between parallel and counter flow of heat exchanger? Explain giving example  

Q4 Write the difference between DC Generator and AC Generator Which in more economical and why?  
What are the precautions to be taken while operating the diesel power plants. Explain  

Q5 Write short notes on  
   i. Thyristor. ii. Diodes iii. Amplifier iv. Tachogenerator  
   b. What is difference between accessories and mounting in steam turbine. Give example  

Q6 a. Write the principle of Induction motor and explain how to works.  
   b. Write the Newton's law of cooling and its significance with respect to heat transfer coefficient.  

Q7 How do you classify the pumps? What is difference between centrifugal pumps and reciprocating pumps. Explain in details.  

Q8 a. What do you understand by black body? Write in detail with respect to heat radiation  

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b. Explain the critical thickness of insulation. Write in brief the governing factors for the same.