## MALLA REDDY COLLEGE OF ENGINEERING AND TECHNOLOGY

### DEPARTMENT OF AERONAUTICAL ENGINEERING

**II B.TECH I SEMESTER** 

# R17 SUPPLEMENTARY PREVIOUS QUESTION PAPERS

## LIST OF SUBJECTS

CODE	NAME OF THE SUBJECT
R17A0206	Electrical and Electronics Engineering
R17A2101	Introduction to Aerospace Engineering
R17A0362	Mechanics of Fluids
R17A0363	Mechanics of Solids
R17A0364	Thermodynamics

Code No: R17A0206

#### **MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY**

#### (Autonomous Institution – UGC, Govt. of India)

#### II B.Tech I Semester Supplementary Examinations, June 2022

**Electrical and Electronics Engineering** 

(ME&AE)

Roll No					

Time: 3 hours

Max. Marks: 70

Answer Any Five Questions

All Questions carries equal marks.

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**1** Find the equivalent resistance between terminals x-y in the resistance network **[14M]** shown in Figure below by using Y-  $\Delta$  transformation.



- 2Explain Kirchoff's laws with suitable examples[14M]3Explain the principle and operation of DC Generator?[14M]
- 4 Illustrate the speed control of DC shunt motor? [14M]

5	Determine the equivalent circuit parameters of a Transformer using OC and SC test?	[14M]
6	Determine the regulation of Alternator using Synchronous Impedance Method?	[14M]
7	Explain the operation of Full wave rectifier with its characteristics?	[14M]
8	Explain the electrostatic and magnetic deflection in CRT?	[14M]

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Code No: R17A0362

# R17

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#### II B.Tech I Semester Supplementary Examinations, June 2022

**Mechanics of Fluids** 

(AE)

Roll No					

Time: 3 hours

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Answer Any Five Questions

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a) Write briefly about different types of Pressure measuring devices	[7M]
b) A fan delivers 4 m <sup>3</sup> of air per second at $20^{0}$ C and 1.25 bar. Assuming molecular weight of air as 28.97, calculate the mass of air delivered .Also determine the density, specific volume and specific weight of the air beingdelivered.	[7M]
Explain the phenomenon of capillarity. Obtain the expression for capillary rise and fallof a liquid.	[14M]
a) Prove that stream lines and equi-potential lines are perpendicular to each other.	[7M]
b) Define path line, streak line and the stream line. For what type of flow these Lines are identical.	[7M]
What are the different types of fluid flow? Explain with examples.	[14M]

a) E a b) E F	Explain the working of pitot tube. Write the application of pitot tube in aerospace Industry. Explain what do you understand by the terms major and minor energy losses in pipe?	[7M] [7M]
a) I	Differentiate between Venturi meter and Orifice meter	[7M]
b) ' (6 11 (6	Water is discharged from one tank to another with 30 m difference of water levels through a pipe 1200 m long. The diameter for the first 600 m length of thepipe is 400 mm and 250 mm for the remaining 600 m long. Find the discharge in lit/s through the pipe. Assume the coefficient of friction as 0.008 for both the pipes.	[7M]
<b>a)</b> b) V 1	Define drag and lift. Explain how Boundary layer separation takes place. What are the different methods of preventing separation of boundary layers? Explain in detail.	[7M] [7M]
What ar method	re the methods of dimensional analysis? Describe the Rayleigh's and Buckingham's $\pi$ -theorem.	[14M]

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