



SSC JE Mains 2022



Mechanical Engineering

**Most Expected
Questions**

SET 12



MECHANICAL ENGINEERING KA MAHAPACK

By Adda247

BILINGUAL

SUBSCRIPTION FEATURES

CIVIL MAHA PACK

All Live Classes	Yes
All Test Series	Yes
All Mock Video Solutions	Yes
All Revision Batches	Yes
All Recorded Videos	Yes
All eBooks	Yes
Personality Development	Yes
Spoken English	Yes

2021

BILINGUAL



RRB JE Mechanical
Foundation Batch (CBT1+CBT2)
Complete Live Batch
9 AM to 10 PM

BILINGUAL



RRB ALP
Target Batch (CBT1+CBT2)
Trade-Mechanical
9 AM to 10 PM

BILINGUAL



BATCH CHANAKYA
For Mechanical
Complete Live Batch
Start Feb 6, 2023
10 AM to 11 PM



JKSSB JE
Mechanical
Selection Batch
9 AM to 7 PM

BILINGUAL



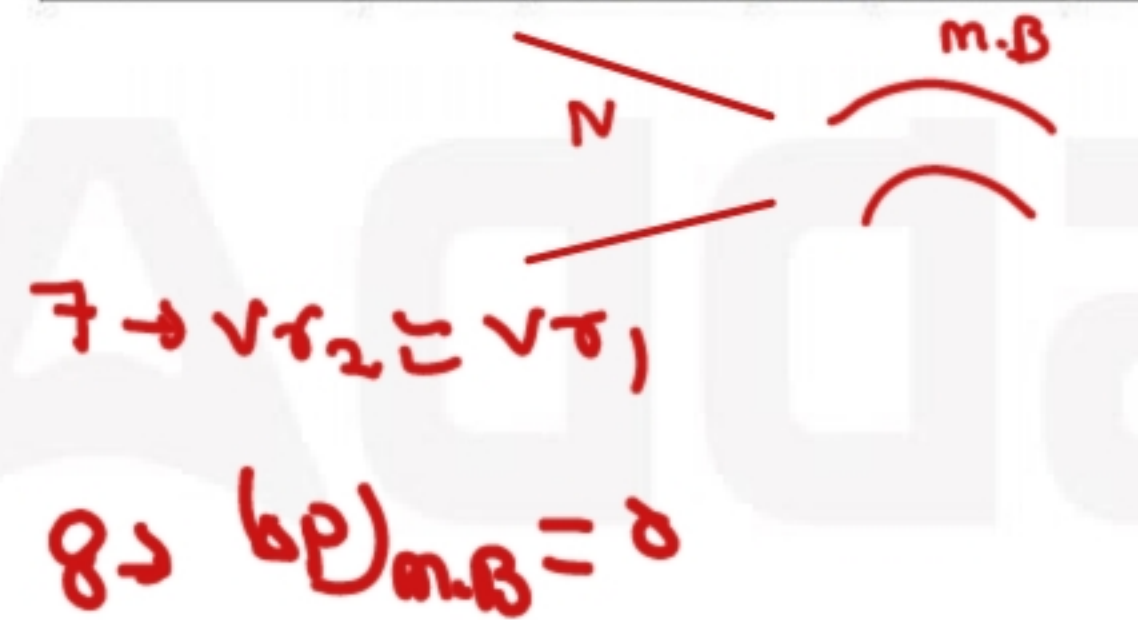
Mission SSC JE 2023
Mechanical Engineering 2.0
Foundation of your Success
Start Jan 16, 2023
9 AM to 11 PM

Q Give the differences between impulse turbine and reaction turbine.

15 Marks

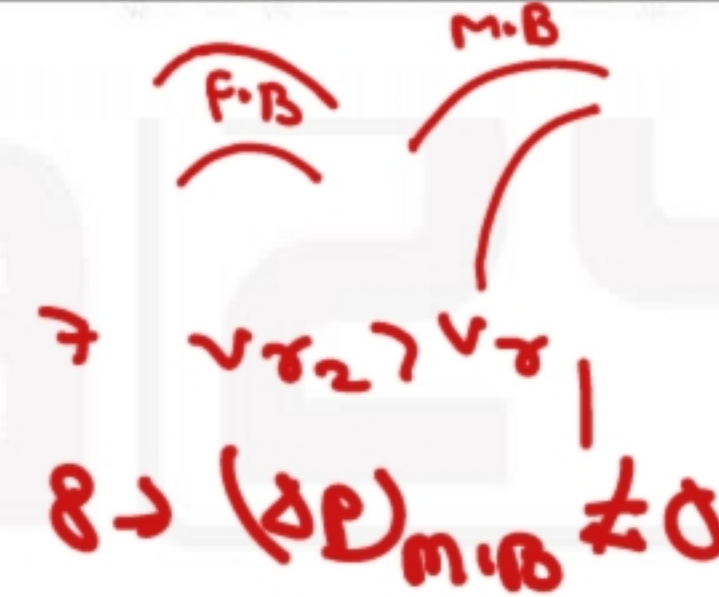
✓ 15

S.No.	Impulse Turbine	Reaction Turbine
1	It consists of nozzles and moving blades	It consists of fixed blades which act as nozzles and moving blades
2	Steam is expanded completely in the nozzle. All the pressure energy is converted into kinetic energy ✓	Steam is partially expanded in the fixed blades. Some amount of pressure energy is converted into kinetic energy
3	Pressure of steam is constant over the moving blades.	Pressure drop takes place in the moving blades.
4	Because of high pressure drop in the nozzles, blade speed and steam speed are high. ✓✓	✓ Because of small pressure drop, blade speed and steam speed are less.
5	Low Efficiency ✓	High Efficiency ✓
6	Occupies less space per unit power	Occupies more space per unit power.



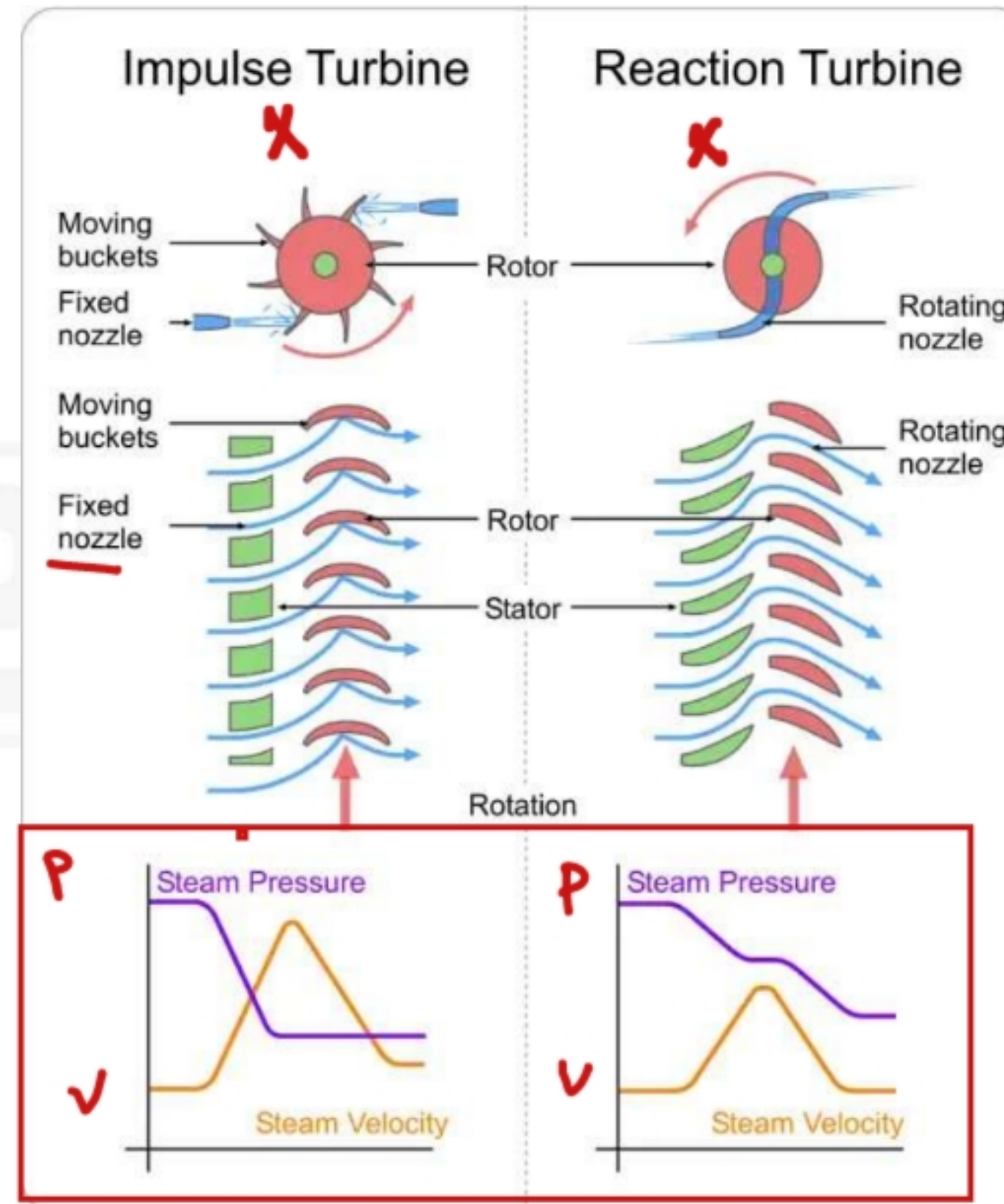
\rightarrow Symmetric Blade

$10 \rightarrow R = 0$

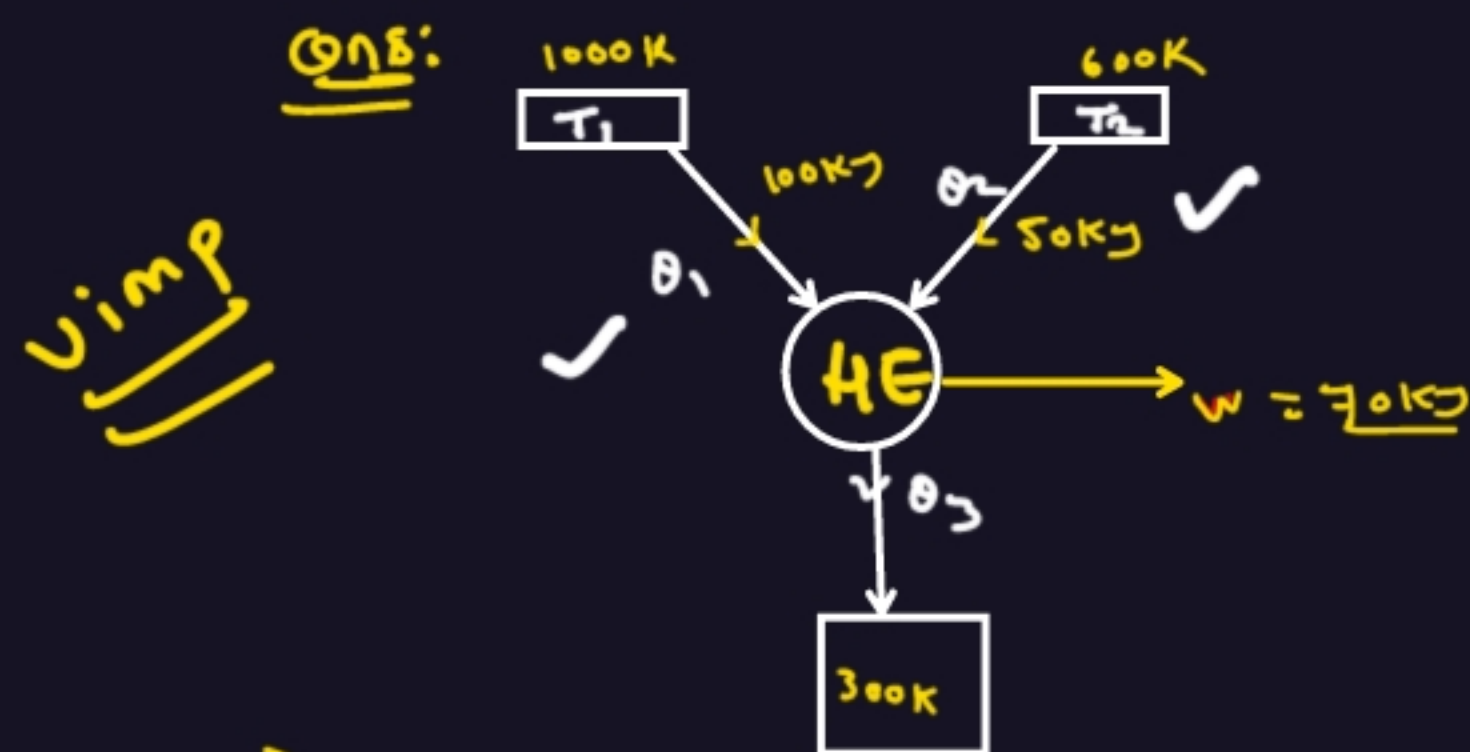


\rightarrow Aerodynamic

⑩ $0 < R < 1$



s-c mark



- (A) which kind of engine
 (B) If possible then η

Clausius inequality

$$\oint \frac{dQ}{T} = 0 \text{ Rev} \rightarrow \text{Possible}$$

$$\oint \frac{dQ}{T} < 0 \text{ Irrev} \rightarrow \text{Possible}$$

$$\oint \frac{dQ}{T} > 0 \text{ impossible}$$

$$Q_1 + Q_2 - W = Q_3$$

$$Q_3 = 800KJ$$

$$\oint \frac{dQ}{T} = \frac{Q_1}{T_1} + \frac{Q_2}{T_2} - \frac{Q_3}{T_3} = \left(\frac{100}{1000} + \frac{50}{600} - \frac{80}{300} \right)$$

$$= \left(0.1 + \frac{1}{12} - \frac{4}{15} \right)$$

$$= -0.08 \rightarrow \text{Irrev}$$

Possible

$$\text{Hence } \oint \frac{dQ}{T} < 0$$

Irreversible engine

$$\eta = \frac{W}{Q_1 + Q_2} = \frac{W_{net}}{Q_1}$$

$$\eta = \frac{70}{150}$$

VARC → explains the different process → (15) marks

Sol. समय → 4 min

Block diagram

