PhysicsByAaryan

CSIR NET . GATE . JEST . BARC - Physics

Carnot Cycle - CSIR NET Physics PYQs

Thermodynamics . All PYQs (2015-2025) with answer key

3 questions . Answer key included

www.physicsbyaaryan.com . www.csirnetphysics.com
Contact: 9501976811

Q1. [Dec 2015] . 3.5 marks

Thermodynamics > Carnot Cycle

CSIR NET	2015 Dec	3.5 M

The heat capacity of (the interior of a refrigerator is $4.2kJ/K$. The minimum' work that must be done to lower the internal temperature from $18^{\circ}C$ to $17^{\circ}C$ when the outside temperature is $27^{\circ}C$ will be

1. 2.20 kJ
2. 0.80 kJ
3. 0.30 kJ
4. 0.14 kJ

Q2. [Dec 2019] . 3.5 marks

Thermodynamics > Carnot Cycle

CSIR NET	2019 Dec	3.5M

An ideal Carnot engine extracts $100\ J$ from a heat source and dumps $40\ J$ to a heat sink at 300 K . The temperature of the heat source is

1. 600 K
2. 700 K
3. 750 K
4. 650 K

Q3. [June 2025] . 3.5 marks

Thermodynamics > Carnot Cycle

CSIR NET	2025 June	3.5M	Thermal

A refrigerator can be thought to be a reversible engine operating between $T_2 = 20^\circ\text{C}$ and $T_1 = -10^\circ\text{C}$. The work needed to run this is supplied by another engine, that takes in energy at the rate of 500 W and runs with 50% efficiency. If the refrigerator freezes 5kg of water at 0^0C (latent heat $Q_L = 334\ \text{kJ/kg}$ for ice) in n hours, then n is closest to

1. 0.4
2. 0.3
3. 0.1
4. 0.2

Answer Key

3 questions . Subject and topic for quick revision

Q. No	Subject	Topic	Answer
Q1	Thermodynamics	Carnot Cycle	**4**
Q2	Thermodynamics	Carnot Cycle	**3**
Q3	Thermodynamics	Carnot Cycle	**4**

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Contact
9501976811