

Total No. of Questions – [05]

Total No. of Printed Pages – [02]

G.R. No.

V118-1011 (BE - FF)

DEC. 2018/BACKLOG EXAM.

F. Y. B. TECH. (COMMON) (SEMESTER - II)
COURSE NAME: Basic Mechanical Engineering
COURSE CODE: ME12173
(2017 PATTERN)

Time: [2 Hours]

[Max. Marks: 50]

(*) Instructions to candidates:

- 1) Answer Q.1 OR Q.2, Q.3 OR Q.4 and Q.5
- 2) Figures to the right indicate full marks.
- 3) Use of scientific calculator is allowed
- 4) Use suitable data where ever required

- Q.1) a) Give classification of metal joining process. Explain gas welding in detail. [6]
b) Explain different Forging operations. [6]
c) Draw labelled diagram of lathe machine. [4]

OR

- Q.2) a) What is drilling? Explain different drilling operations. [6]
b) Explain any six sheet metal operations. [6]
c) Draw a neat sketch of sand casting. [4]

- Q.3) a) Explain with neat sketch Babcock and Wilcox boiler. [6]
b) Explain with neat sketch the working of four stroke S. I. Engine. [4]
c) Compare Centrifugal and Reciprocating compressor. [4]

OR

- Q.4) a) Explain with neat sketch working of window air conditioner. [6]
b) Explain working of centrifugal pump with the help of schematic diagram. [4]
c) Define one ton of refrigeration and C.O.P. [4]

Q.5) Attempt following multiple choice questions:

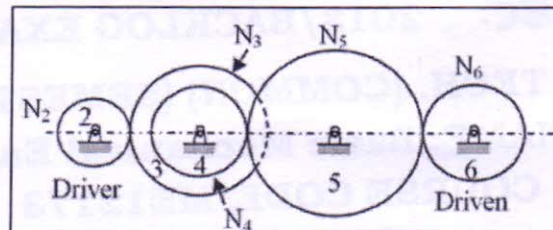
1. What will be the maximum efficiency of a heat engine operating between 230°C and 30°C ____ [2]

- a) 30% b) 40% c) 20% d) 60%

2. A Carnot engine has an efficiency of 0.8 The COP of refrigerator working with the same temperature limits is----- [2]

- a) 0.5 b) 1 c) 2 d) 1.25

3. A gear train is made up of five spur gears. Gear 2 is driver and gear 6 is driven member N_2, N_3, N_4, N_5 and N_6 represent number of teeth on gears 2,3,4,5 and 6 respectively. Gear 3 and 4 are mounted on same shaft. The gear (s) which act(s) as idler(s) is/are [2]



- a) Only 2 b) Only 4 c) Only 5 d) Both 3 and 5
4. Gear 2 rotates 1600rpm in counter clockwise direction and engages with gear 3. Gear 3 and Gear 4 are mounted on same shaft. Gear 5 engages with Gear 4. The number of teeth on Gear 2, 3, 4 and 5 are 20, 40, 15 and 30 respectively. The angular speed of gear 5 is _____ [2]
- a) 300 rpm b) 350 rpm c) 250 rpm d) 400 rpm
5. First law gives concept of----- [2]
- a) Internal energy b) Entropy c) Temperature d) Enthalpy
6. The measurement of a thermodynamics property known as temperature is based on_____ [2]
- a) Zeroth law of thermodynamics b) First law of thermodynamics
c) Second law of thermodynamics d) Third law of thermodynamics
7. The total capacity of the material to absorb energy up to elastic limit is called----- [2]
- a) Resilience b) malleability c) ductility d) toughness
8. Brass is an alloy of _____ [2]
- a) Copper and zinc b) copper and brass c) copper and lead d) copper and tin
9. Grinding wheel is made up of _____ [1]
- a) Steel b) cast iron c) ceramic d) composite
10. Key which is made of mild steel is inserted between _____ [1]
- a) Shaft and axle b) Axle and hub c) Shaft and hub d) All of above
11. Carbon content of cast iron can be _____ [1]
- a) 0.51% b) 0.85% c) 0.15% d) 1.25%
12. If COP of refrigerator is 2 then COP of pump is _____ [1]
- a) 1 b) 2 c) 3 d) 4