

Online Examinations (Even Sem/Part-I/Part-II Examinations 2020 - 2021)

Course Name -Heat Transfer & IC Engine

Course Code -DME404

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Answer all the questions. Each question carry one mark.

9. 1.In a carnot cycle, the working medium receives heat at a _____ temperature.

Mark only one oval.

- lower
- higher
- constant
- none of the mentioned

10. 2. In a Carnot cycle, the working medium rejects heat at a _____ temperature.

Mark only one oval.

- lower
- higher
- constant
- none of the mentioned

11. 3. In a Carnot cycle, what is the working fluid?

Mark only one oval.

- a real gas
- an ideal gas
- a natural gas
- none of the mentioned

12. 4. The isothermal process of a Carnot cycle needs very _____ motion of the piston to maintain constant temperature.

Mark only one oval.

- slow
- fast
- medium
- none of the mentioned

13. 5. The adiabatic process of a Carnot cycle needs very _____ motion to complete the adiabatic process.

Mark only one oval.

- slow
- fast
- medium
- none of the mentioned

14. 6. For a given temperature T_1 , as the difference between T_1 and T_2 increases, the COP of a Carnot heat pump _____

Mark only one oval.

- increases
- decreases
- first increases, then decreases
- none of the mentioned

15. 7. A Carnot heat pump is used to heat a house. The outside temperature is -3°C and the indoor temperature is 27°C . If the heat loss from the house is 40kW , the power required to operate the heat pump is?

Mark only one oval.

- 1kW
- 2kW
- 3kW
- 4kW

16. 8.A carnot cycle is to be designed to attain efficiency of 0.75. if temperature of high temperature reservoir is 727°C , then low temperature reservoir will have to be maintained at _____

Mark only one oval.

- 23°C
 181°C
 -23°C
 -181°C

17. 9.A cyclic heat engine does 50kJ of work per cycle. If efficiency of engine is 75%, the heat rejected per cycle will be _____

Mark only one oval.

- 60.6kJ
 16.6kJ
 66.6kJ
 200kJ

18. 10.A carnot cycle refrigerator operates between 250°K and 300°K . What is the value of COP?

Mark only one oval.

- 10
 b) 20
 25
 5

19. 11. Dual Cycle is a combination of _____

Mark only one oval.

- Otto cycle and Diesel cycle
- Otto cycle and Stirling cycle
- Brayton cycle and steam cycle
- None of the mentioned

20. 12. Dual cycle is also known as _____

Mark only one oval.

- Diesel cycle
- Joule cycle
- Mixed cycle
- None of the mentioned

21. 13. In Dual cycle, heat addition takes place _____

Mark only one oval.

- at Constant volume
- first at constant volume then at constant pressure
- constant pressure
- none of the mentioned

22. 14. In Dual cycle, heat rejection takes place _____

Mark only one oval.

- at constant volume
- first at constant volume then at constant pressure
- constant pressure
- none of the mentioned

23. 15. Most high speed compression engines operate on _____

Mark only one oval.

- Otto cycle
- Diesel Cycle
- Dual cycle
- Carnot cycle

24. 16. The thermal efficiency of a diesel engine on weak mixtures is _____

Mark only one oval.

- unaffected
- lower
- higher
- none of the mentioned

25. 17.The volumetric efficiency of a well designed engine may be _____

Mark only one oval.

- 30 to 40%
- 40 to 60%
- 60 to 70%
- 75 to 90%

26. 18.For same compression ratio and for same heat added _____

Mark only one oval.

- Otto cycle is more efficient than Diesel Cycle
- Diesel cycle is more efficient than Otto Cycle
- Efficiency depends on other factors
- None of the mentioned

27. 19. The efficiency of Carnot cycle is maximum for _____

Mark only one oval.

- gas engine
- petrol engine
- steam engine
- reversible engine

28. 20. For the same compression ratio, the efficiency of dual combustion cycle is?

Mark only one oval.

- greater than otto cycle
- less than diesel cycle
- less than otto cycle and greater than diesel cycle
- greater than both otto and diesel cycle

29. 21. Unit of thermal conductivity in M.K.S. units is

Mark only one oval.

- kcal/kg m² °C
- kcal-m/hr m² °C
- kcal/hr m² °C
- kcal-m/hr °C

30. 22. Thermal conductivity of solid metals with rise in temperature normally

Mark only one oval.

- Increases
- Decreases
- remains constant
- may increase or decrease depending on temperature

31. 23. Thermal conductivity of non-metallic amorphous solids with decrease in temperature

Mark only one oval.

- Increases
- Decreases
- remains constant
- may increase or decrease depending on temperature

32. 24. Heat transfer takes place as per -

Mark only one oval.

- zeroth law of thermodynamics
- first law of thermodynamic
- second law of the thermodynamics
- Kirchhoff's law

33. 25. When heat is transferred from one particle of hot body to another by actual motion of the heated particles, it is referred to as heat transfer by

Mark only one oval.

- conduction
- convection
- Radiation
- conduction and convection

34. 26. When heat is transferred from hot body to cold body, in a straight line, without affecting the intervening medium, it is referred to as heat transfer by

Mark only one oval.

- conduction
- convection
- radiation
- conduction and convection

35. 27. When heat is transferred by molecular collision, it is referred to as heat transfer by

Mark only one oval.

- conduction
- convection
- Radiation
- Scattering

36. 28. Heat transfer in liquid and gases takes place by

Mark only one oval.

- conduction
- convection
- radiation
- conduction and convection

37. 29.Which of the following is the case of heat transfer by radiation

Mark only one oval.

- blast furnace
- heating of building
- cooling of parts in furnace
- heat received by a person from fireplace

38. 30.Metals are good conductors of heat because

Mark only one oval.

- their atoms collide frequently
- their atoms-are relatively far apart
- they contain free electrons
- they have high density

39. 31.Which of the following is a case of steady state heat transfer

Mark only one oval.

- I.C. engine
- air preheaters
- heating of building in winter
- None of these

40. 32. Thermal conductivity of water in general with rise in temperature

Mark only one oval.

- increases
- decreases
- remains constant
- may increase or decrease depending on temperature

41. 33. Thermal conductivity of water at 20°C is of the order of

Mark only one oval.

- 0.1
- 0.23
- 0.42
- 0.51

42. 34. Temperature of steam at around 540°C can be measured by

Mark only one oval.

- thermometer
- thermistor
- thermocouple
- Thermopile.

43. 35. Thermal conductivity of air at room temperature in kcal/m hr °C is of the order of

Mark only one oval.

- 0.002
- 0.02
- 0.01
- 0.1

44. 36. The time constant of a thermocouple is

Mark only one oval.

- the time taken to attain the final temperature to be measured
- the time taken to attain 50% of the value of initial temperature difference
- the time taken to attain 63.2% of the value of initial temperature difference
- determined by the time taken to reach 100°C from 0°C

45. 37. Thermal conductivity of air with rise in temperature

Mark only one oval.

- increases
- decreases
- remains constant
- may increase or decrease depending on temperature

46. 38.Heat flows from one body to other when they have

Mark only one oval.

- different heat contents
- different specific heat
- different atomic structure
- different temperatures

47. 39.The concept of overall coefficient of heat transfer is used in heat transfer problems of

Mark only one oval.

- Conduction
- Convection
- Radiation
- Conduction and convection.

48. 40.In heat transfer, conductance equals conductivity (kcal/hr/sqm/°C/cm) divided by

Mark only one oval.

- hr (time)
- sqm (area)
- °C (temperature)
- cm (thickness)

49. 41. All radiations in a black body are

Mark only one oval.

- reflected
- refracted
- transmitted
- absorbed

50. 42. Larger range of flow can be measured without pressure head being too _____ in a viscous flow meter.

Mark only one oval.

- small
- large
- deep
- none of the mentioned

51. 43. If the speed of the engine is increased, the indicated power will _____

Mark only one oval.

- increase
- decrease
- remain same
- none of the mentioned

52. 44. _____ is the basic requirement of a good combustion chamber.

Mark only one oval.

- Low volumetric efficiency
- High compression ratio
- Low compression ratio
- High power output and high thermal efficiency

53. 45. Automobile gears are generally made of _____

Mark only one oval.

- cast iron
- stainless steel
- alloy steel
- mild steel

54. 46. What are the types of absorption dynamometers?

Mark only one oval.

- prony brake
- rope brake
- hydraulic brake
- all of the mentioned

55. 47.The frictional power (F.P) is given by _____

Mark only one oval.

F.P. = B.P.-I.P.

F.P. = I.P.-B.P.

F.P. = B.P./I.P.

F.P. = I.P./B.P.

56. 48.A typical petrol engine may harness up to _____ of the energy contained in the fuel supplied.

Mark only one oval.

0.2

0.3

0.4

none of the mentioned

57. 49._____ of fuel energy is wasted as heat energy to surrounding air.

Mark only one oval.

0.070000000000000001

0.09

0.16

0.38

58. 50.The pressure of supercharger used is _____

Mark only one oval.

- 1.0 to 1.3 bar
- 1.2 to 1.4 bar
- 1.3 to 1.5 bar
- none of the mentioned

59. 51. The speed range of turbocharger is from _____

Mark only one oval.

- 10000 to 20000 r.p.m
- 20000 to 30000 r.p.m
- 30000 to 40000 r.p.m
- none of the mentioned

60. 52.In a quasi-equilibrium process, the pressure in a system

Mark only one oval.

- Remains constant
- Varies with temperature
- Is everywhere constant at an instant
- Increases if volume increases

61. 53. Which of the following is not an extensive property

Mark only one oval.

- Momentum
- Kinetic energy
- Density
- Mass

62. 54. Internal energy change of a system over one complete cycle in a cyclic process is

Mark only one oval.

- Zero
- +ve
- ve
- dependent on the path

63. 55. 1st law of thermodynamics is nothing but the law of conservation of

Mark only one oval.

- Momentum
- Mass
- Energy
- None of these

64. 56. An isolated system can exchange _____ with its surroundings.

Mark only one oval.

- Matter
- energy
- neither matter nor energy
- both matter and energy

65. 57. In case of a closed thermodynamic system, there is _____ across the boundaries.

Mark only one oval.

- no heat and mass transfer
- no mass transfer but heat transfer
- mass and energy transfer
- none of these

66. 58. Which law of thermodynamics provides the basis for measuring the thermodynamic property?

Mark only one oval.

- First law
- Zeroth law
- Second law
- Third law

67. 59.The unit of temperature in S.I. units is

Mark only one oval.

- Celsius
- Fahrenheit
- Kelvin
- Rankine

68. 60.A system said to be an open system when

Mark only one oval.

- there is exchange of energy and mass across the boundary
- there is exchange of only energy across the boundary
- there is exchange of only mass across the boundary
- there is no exchange of energy and mass across the boundary

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