



RAAK

COLLEGE OF ENGINEERING AND TECHNOLOGY

(Approved by AICTE, New Delhi & Affiliated to Pondicherry University)

**VALUE ADDED COURSES
2019-2020
Department of Mechanical Engineering
19ME01- Cryogenic Engineering
MARK SHEET**

Sl. No	Register Number	Student Name	MARKS
1	17TB3101	AKASH.P	88
2	17TB3102	DENNIS REGANNATHAN.J	96
3	17TB3103	GOVINDHAN.D	92
4	17TB3104	KARTHIKEYAN.M	88
5	17TB3105	KARUNAMOORTHY.S	84
6	17TB3106	KUMARAGURU.C	92
7	17TB3107	KUMARAVEL.K	96
8	17TB3108	MANIKANDAN.M	88
9	17TB3109	MICHEAL JASS.R	84
10	17TB3110	MOHAMAD ALLAUDDIN.A	88
11	17TB3111	MUTHUKUMARAN.S	84
12	17TB3112	NIHAL AHAMED.N	96
13	17TB3114	PATTAPPAN.S	84
14	17TB3115	PRAVEENKUMAR.N	84
15	17TB3116	SIVABALAN.P	84



Dr. S. SEENUVASAMURTHI, M.E., Ph.D.
PRINCIPAL

RAAK College of Engineering & Technology
No.1, Muthupillai Palayam Road,
Sulthanpet Post,
Puducherry - 605 110

PRINCIPAL



RAAK

COLLEGE OF ENGINEERING AND TECHNOLOGY

(Approved by AICTE, New Delhi & Affiliated to Pondicherry University)

VALUE ADDED COURSES

2019-2020

Department of Mechanical Engineering

19ME01- Cryogenic Engineering

NAME:

CLASS:

DATE:

1. Cryogenics deals with which type of product?

- a) High temperature
- b) Low temperature
- c) High pressurize
- d) Low pressurize

Answer: b

2. Which operation mentioned below is associated with Claude cycle?

- a) External refrigeration
- b) Three- stage cascade cycle
- c) High-speed expander
- d) Low speed expander

Answer: c

3. What is the use of ammonia in Linde cycle?

- a) Precooling
- b) Liquefaction
- c) Refrigeration
- d) Compression of feed stream


Answer: a

4. Which cycle is used in the production of low purity tonnage oxygen?

- a) Linde cycle
- b) Claude cycle
- c) Kellogg process
- d) Linde-Frankl cycle

Answer: d




Dr. S. SEENUVASAMURTHI, M.E., Ph.D.
PRINCIPAL
RAAK College of Engineering & Technology
No.1, Muthupillai Palayam Road,
Sulthanpet Post,
Puducherry - 605 110



RAAK

COLLEGE OF ENGINEERING AND TECHNOLOGY

(Approved by AICTE, New Delhi & Affiliated to Pondicherry University)

5. What is the amount of CO₂ present in the raw materials for production of low purity tonnage oxygen?
- a) 0.01-0.03
 - b) 0.02-0.07
 - c) 0.94
 - d) 20.97

Answer: b

6. What is the major difference between Kellogg and Linde-Frankl process?
- a) Recuperative heat exchanger
 - b) Catalytic oxidation chamber
 - c) Scrubbing tower
 - d) Refrigeration

Answer: a.

7. Which process does not use air expansion for refrigeration?
- a) Claude operated process
 - b) Elliott process
 - c) Turbo-reciprocating process
 - d) Liquefaction process

Answer: b


8. What is the composition of air entering the cold exchanger in Linde-Frankl cycle?
- a) O₂ and N₂
 - b) Only N₂
 - c) H₂O and CO₂
 - d) Only H₂O

Answer: c

9. In nitrogen production which cycle is used Joule-Thomson cooling principle?
- a) Claude cycle
 - b) Cascade cycle
 - c) Elliott cycle
 - d) Linde cycle

Answer: d




Dr. S. SEENUVASAMURTHI, M.E., Ph.C.,
PRINCIPAL
RAAK College of Engineering & Technology
No.1, Muthupillai Palayam Road,
Sulthanpet Post,
Puducherry - 605 110

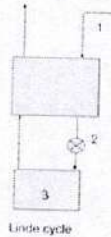


RAAK

COLLEGE OF ENGINEERING AND TECHNOLOGY

(Approved by AICTE, New Delhi & Affiliated to Pondicherry University)

10. What is 1, 2, 3 represent in the following flow chart?



- a) 1-heat exchanger, 2-liquid reservoir, 3-throttle valve
- b) 1-liquid reservoir, 2-heat exchanger, 3-throttle valve
- c) 1-heat exchanger, 2-throttle valve, 3- liquid reservoir
- d) 1-liquid reservoir, 2- throttle valve, 3-heat exchanger

Answer: c

11. Cryogenics deal with temperatures around _____

- a) -50°C
- b) -90°C
- c) -180°C
- d) -250°C

Answer: c

12. What is the boiling point of nitrogen?

- a) 20.27
- b) 27.09
- c) 77.36
- d) 111.7

Answer: c.

13. Liquid oxygen is produced by _____ method.

- a) Batch distillation
- b) Steam distillation
- c) Extractive distillation
- d) Fractional distillation

Answer: d



Dr. S. SEENUVASAMURTHI, M.E., Ph.C.
PRINCIPAL
RAAK College of Engineering & Technology
No.1, Muthupillai Palayam Road,
Sulthanpet Post,
Puducherry - 605 110



RAAK

COLLEGE OF ENGINEERING AND TECHNOLOGY

(Approved by AICTE, New Delhi & Affiliated to Pondicherry University)

14. What is the appearance of liquid nitrogen?

- a) Yellow
- b) Colorless
- c) Bluish-gray
- d) Black

Answer: b

15. How can cryogenic temperatures lower than 30,000K be measured?

- a) Silicon diode
- b) Calorimeter
- c) Superconducting granules
- d) Roton detector

Answer: a

16. Cold working is generally carried out _____

- a) below melting point
- b) above recrystallization temperature
- c) At room temperature
- d) Cryogenic temperature

Answer: c

17. How does hot working affect grain structure?

- a) Refines it
- b) Distorts it
- c) Warps it
- d) Has no effect

Answer: a

18. Which of the following is an application of hot working?

- a) Shapes the metal
- b) Finishing
- c) Thinning of material
- d) Dimensional accuracy

Answer: a



Dr. S. SUDHIVASAMURTHI, M.E., Ph.D.
PRINCIPAL

RAAK College of Engineering & Technology
No.1, Muthupillai Palayam Road,
Sulthanpet Post,
Puducherry - 605 110



RAAK

COLLEGE OF ENGINEERING AND TECHNOLOGY

(Approved by AICTE, New Delhi & Affiliated to Pondicherry University)

19. Which of the following is a drawback of cold working?

- a) Oxide formation
- b) Surface scaling
- c) Decarburization
- d) Low ductility

Answer: d

20. Which of the following is a hot working process?

- a) Stamping
- b) Squeezing
- c) Forging
- d) Bending

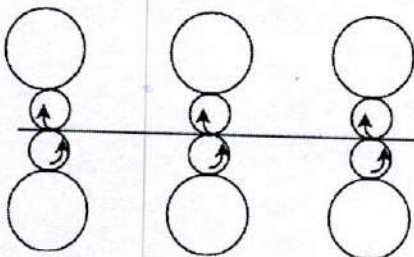
Answer: c

21. What is the hot rolling temperature of mild steel?

- a) 200°C
- b) 450°C
- c) 1000°C
- d) 1200°C

Answer: c

22. Which rolling mill does the following figure illustrate?



- a) Three-high
- b) Four-high
- c) Cluster
- d) Tandem

Answer: d




Dr. S. SEDNUVASAMURTHI, M.E., Ph.D.
PRINCIPAL
RAAK College of Engineering & Technology
No.1, Muthupillai Palayam Road,
Sulthanpet Post,
Puducherry - 605 110.



RAAK

COLLEGE OF ENGINEERING AND TECHNOLOGY

(Approved by AICTE, New Delhi & Affiliated to Pondicherry University)

23. Cold forging is done for _____
- a) improving strength and hardness
 - b) Adding forging scale
 - c) Eliminating carburization
 - d) Rough surface finish

Answer: a

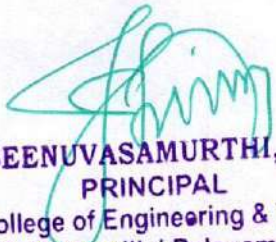
24. Which of the following is a characteristic of hot rolling?
- a) Refines grain structure
 - b) Economic
 - c) Slow speed
 - d) Uniform size

Answer: c

25. _____ involves hammering of heated bars inside closed impression dies.
- a) Press forging
 - b) Drop forging
 - c) Hammer forging
 - d) Upset forging

Answer: b




Dr. S. SEENUVASAMURTHI, M.E., Ph.C.
PRINCIPAL
RAAK College of Engineering & Technology
No.1, Muthupillai Palayam Road,
Sulthanpet Post,
Puducherry - 605 110



RAAK

COLLEGE OF ENGINEERING AND TECHNOLOGY

(Approved by AICTE, New Delhi & Affiliated to Pondicherry University)

VALUE ADDED COURSES

2019-2020

Department of Mechanical Engineering

19ME01- Cryogenic Engineering

NAME: GOVINDHAN J

CLASS: III / MECH

DATE: 20/08/2019

1. Cryogenics deals with which type of product?

- a) High temperature
- b) Low temperature
- c) High pressurize
- d) Low pressurize

2. Which operation mentioned below is associated with Claude cycle?

- a) External refrigeration
- b) Three- stage cascade cycle
- c) High-speed expander
- d) Low speed expander

3. What is the use of ammonia in Linde cycle?

- a) Precooling
- b) Liquefaction
- c) Refrigeration
- d) Compression of feed stream

4. Which cycle is used in the production of low purity tonnage oxygen?

- a) Linde cycle
- b) Claude cycle
- c) Kellogg process
- d) Linde-Frankl cycle

5. What is the amount of CO₂ present in the raw materials for production of low purity tonnage oxygen?

- a) 0.01-0.03
- b) 0.02-0.07
- c) 0.94
- d) 20.97



Dr. S. SEENUVASAMURTHI, M.E., Ph.D.
PRINCIPAL
RAAK College of Engineering & Technology
No.1, Muthupillai Palayam Road,
Sulthanpet Post,
Puducherry - 605 110



RAAK

COLLEGE OF ENGINEERING AND TECHNOLOGY

(Approved by AICTE, New Delhi & Affiliated to Pondicherry University)

6. What is the major difference between Kellogg and Linde-Frankl process?

- a) Recuperative heat exchanger
- b) Catalytic oxidation chamber
- c) Scrubbing tower
- d) Refrigeration

7. Which process does not use air expansion for refrigeration?

- a) Claude operated process
- b) Elliott process
- c) Turbo-reciprocating process
- d) Liquefaction process

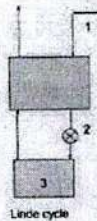
8. What is the composition of air entering the cold exchanger in Linde-Frankl cycle?

- a) O₂ and N₂
- b) Only N₂
- c) H₂O and CO₂
- d) Only H₂O

9. In nitrogen production which cycle is used Joule-Thomson cooling principle?

- a) Claude cycle
- b) Cascade cycle
- c) Elliott cycle
- d) Linde cycle

10. What do 1, 2, 3 represent in the following flow chart?



- a) 1-heat exchanger, 2-liquid reservoir, 3-throttle valve
- b) 1-liquid reservoir, 2-heat exchanger, 3-throttle valve
- c) 1-heat exchanger, 2-throttle valve, 3-liquid reservoir
- d) 1-liquid reservoir, 2-throttle valve, 3-heat exchanger




Dr. S. SEENUVASAMURTHI, M.E., Ph.D.
PRINCIPAL
RAAK College of Engineering & Technology
No.1, Muthupillai Palayam Road,
Sulthanpet Post,
Puducherry - 605 110



RAAK

COLLEGE OF ENGINEERING AND TECHNOLOGY

(Approved by AICTE, New Delhi & Affiliated to Pondicherry University)

11. Cryogenics deal with temperatures around _____

- a) -50°C
- b) -90°C
- c) -180°C
- d) -250°C

12. What is the boiling point of nitrogen?

- a) 20.27
- b) 27.09
- c) 77.36
- d) 111.7

13. Liquid oxygen is produced by _____ method.

- a) Batch distillation
- b) Steam distillation
- c) Extractive distillation
- d) Fractional distillation

14. What is the appearance of liquid nitrogen?

- a) Yellow
- b) Colorless
- c) Bluish-gray
- d) Black

15. How can cryogenic temperatures lower than $30,000\text{K}$ be measured?

- a) Silicon diode
- b) Calorimeter
- c) Superconducting granules
- d) Roton detector

16. Cold working is generally carried out _____

- a) below melting point
- b) above recrystallization temperature
- c) At room temperature
- d) Cryogenic temperature

17. How does hot working affect grain structure?

- a) Refines it
- b) Distorts it
- c) Warps it
- d) Has no effect



Dr. S. SEENUVASAMURTHI, M.E., Ph.D.
PRINCIPAL

RAAK College of Engineering & Technology
No.1, Muthupillai Palayam Road,
Sulthandet Post.

Pin - 605 119



RAAK

COLLEGE OF ENGINEERING AND TECHNOLOGY

(Approved by AICTE, New Delhi & Affiliated to Pondicherry University)

18. Which of the following is an application of hot working?

- a) Shapes the metal
- b) Finishing
- c) Thinning of material
- d) Dimensional accuracy

19. Which of the following is a drawback of cold working?

- a) Oxide formation
- b) Surface scaling
- c) Decarburization
- d) Low ductility

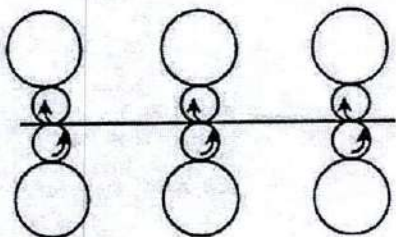
20. Which of the following is a hot working process?

- a) Stamping
- b) Squeezing
- c) Forging
- d) Bending

21. What is the hot rolling temperature of mild steel?

- a) 200°C
- b) 450°C
- c) 1000°C
- d) 1200°C

22. Which rolling mill does the following figure illustrate?



- a) Three-high
- b) Four-high
- c) Cluster
- d) Tandem

23. Cold forging is done for _____

- a) improving strength and hardness
- b) Adding forging scale
- c) Eliminating carburization
- d) Rough surface finish



Dr. S. SEENUVASAMURTHI, M.E., Ph.C.
PRINCIPAL

RAAK College of Engineering & Technology
No.1, Muthupillai Palayam Road,
Sulthanpet Post,
Puducherry - 605 110



RAAK

COLLEGE OF ENGINEERING AND TECHNOLOGY

(Approved by AICTE, New Delhi & Affiliated to Pondicherry University)

24. Which of the following is a characteristic of hot rolling?

- a) Refines grain structure
- b) Economic
- c) Slow speed
- d) Uniform size

25. _____ involves hammering of heated bars inside closed impression dies.

- a) Press forging
- b) Drop forging
- c) Hammer forging
- d) Upset forging



A handwritten signature in blue ink, appearing to read 'S. Seenuvasamurthi'.

Dr. S. SEENUVASAMURTHI, M.E., Ph.C.
PRINCIPAL
RAAK College of Engineering & Technology
No.1, Muthupillai Palayam Road,
Sulthanpet Post,
Puducherry - 605 110



RAAK

COLLEGE OF ENGINEERING & TECHNOLOGY

(Approved by AICTE, New Delhi, Affiliated to Pondicherry University)
NO.1, MUTHUPILLAI PALAYAM ROAD, G.N. PALAYAM, VILLIYANUR, PUDUCHERRY - 605 110

Certificate of Completion

2019-2020

This is to certify that Mr/Ms SINABALAN.P

Year. III Department. MECH has successfully Completed the Value added course.


SCORE: 84

COURSE


TITLE: CRYOGENIC ENGINEERING

COURSE

DURATION: 9-8-19 to 13-8-19


HOD




Jr. S. SEENUVASAMURTHI, M.E., Ph.D.
PRINCIPAL

RAAK College of Engineering & Technology
No.1, Muthupillai Palayam Road, PRINCIPAL
Sulthanpet Post,
Pudicherry - 605 110



RAAK

COLLEGE OF ENGINEERING AND TECHNOLOGY

[Approved by AICTE, New Delhi & Affiliated to Pondicherry University]

VALUE ADDED COURSES

2019-2020

Department of Mechanical Engineering

19ME02-Vehicle dynamics

MARK SHEET

Sl. No	Register Number	Student Name	MARKS
1	18TB1201	AJAY.D	96
2	18TB1202	AMEENUL ISLAM.N	92
3	18TB1204	DHAYANITHI.A	88
4	18TB1206	EZHILARASAN.S	84
5	18TB1207	GANESH.M	92
6	18TB1208	GNANASEKAR.S	96
7	18TB1209	KARTHIKEYAN.S	88
8	18TB1210	KIRAN.K	84
9	18TB1211	KOWS.R	88
10	18TB1212	MOHAMED IRSHATH.R	84
11	18TB1213	SARANVEL.M	96
12	18TB1214	SELVAGANAPATHY.T	84
13	18TB1215	SIVA.A	84
14	18TB1216	SIVARAJ.K	84
15	18TB1217	SIVASANKARAN.K	88
16	18TB1218	VUBALANKA SAI VENKATA SRIRAM	92



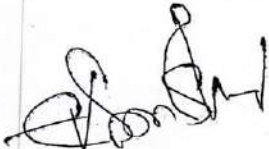


RAAK

COLLEGE OF ENGINEERING AND TECHNOLOGY

(Approved by AICTE, New Delhi & Affiliated to Pondicherry University)


17	18TBL087	GOKULAKRISHNAN.S	96
----	----------	------------------	----



HOD



PRINCIPAL



Dr. S. SEENUVASAMURTHI, M.E., Ph.D.
PRINCIPAL
RAAK College of Engineering & Technology
No.1, Muthupillai Palayam Road,
Sulthanpet Post,
Puducherry - 605 110



RAAK

COLLEGE OF ENGINEERING AND TECHNOLOGY

(Approved by AICTE, New Delhi & Affiliated to Pondicherry University)

VALUE ADDED COURSES
2019-2020

Department of Mechanical Engineering

19ME02-Vehicle dynamics

NAME:

CLASS:

DATE:

1. What is running resistance of the vehicle?
- a) Rolling resistance
 - b) Aerodynamic resistance
 - c) Sum of rolling and aerodynamic resistance
 - d) Traction force

Answer: c

2. Suppose the road gradient is $G = 10\%$. What is the corresponding angle (approximate value in radians)?
- a) 5 rad
 - b) 0.1 rad
 - c) 1 rad
 - d) 10 rad

Answer: b

3. If the vehicle mass is 800 kg, what is the gradient force (approximate value in N) caused by the road gradient 10%?
- a) 500 N
 - b) 600 N
 - c) 700 N
 - d) 800 N

Answer: d




Dr. S. SELIVVASAMURTHI, M.E., Ph.D.
PRINCIPAL
RAAK College of Engineering & Technology
No.1, Muthupillai Palayam Road,
Sulthanpet Post,
Puducherry - 605 110



RAAK

COLLEGE OF ENGINEERING AND TECHNOLOGY

(Approved by AICTE, New Delhi & Affiliated to Pondicherry University)

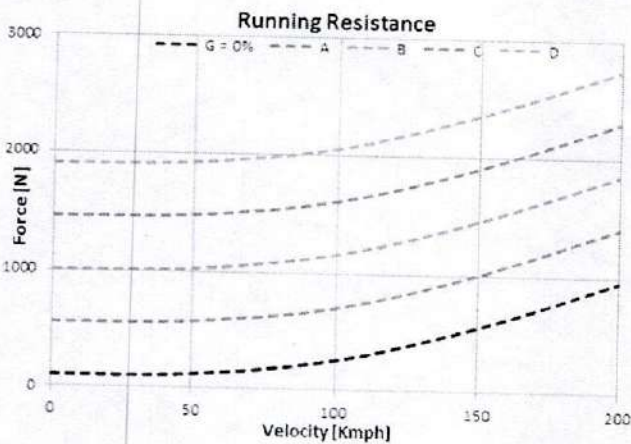
4. What will happen if the traction force is negative?
- a) The vehicle will accelerate
 - b) The vehicle will decelerate
 - c) The vehicle will first accelerate and then decelerate
 - d) The vehicle will run at a constant speed

Answer: b

5. Suppose the vehicle is running at a constant speed on the flat road with rolling resistance = 100 N and aerodynamic resistance = 100 N, what is the traction force required?
- a) 100 N
 - b) 0 N
 - c) 200 N
 - d) 50 N

Answer: c

6. Which one of the curves below represents a road gradient of 10%, if the mass of the vehicle is 1 ton?



- a) B
- b) A
- c) D
- d) C

Answer: a



Dr. S. SEENUVASAMURTHI, M.E., Ph.D.,
PRINCIPAL
RAAK College of Engineering & Technology
No.1, Muthupillai Palayam Road,
Sulthanpet Post,
Puducherry - 605 110



RAAK

COLLEGE OF ENGINEERING AND TECHNOLOGY

(Approved by AICTE, New Delhi & Affiliated to Pondicherry University)

7. What will happen if the vehicle is made 50% heavier, but all other parameters remain the same?
- a) The running resistance will decrease
 - b) The running resistance will increase
 - c) The running resistance will remain the same
 - d) The aerodynamic resistance will increase by a factor of 1.5 squared

Answer: b

8. If $F_{\text{rolling}} = 150 \text{ N}$, $F_{\text{aerodynamic}} = 400 \text{ N}$, $F_{\text{traction}} = 600 \text{ N}$, $F_{\text{gradient}} = 0 \text{ N}$, what is the net force acting on the vehicle?
- a) 100 N
 - b) 50 N
 - c) 550 N
 - d) 750 N

Answer: b


9. If the traction resistance is equal to the total running resistance, then which of the following will happen?
- a) The vehicle will accelerate
 - b) The vehicle will decelerate
 - c) The vehicle will run at a constant velocity
 - d) The vehicle will come to rest

Answer: c

10. If the vehicle is running on the road having 10% gradient at a constant speed, then on flat road it will accelerate at approximately 1 m/s^2 (All the parameters remain the same).
- a) True
 - b) False

Answer: a




Dr. S. SEENUVASAM, M.E., M.C., Ph.D.
PRINCIPAL
RAAK College of Engineering & Technology
No.1, Muthupillai Palayam Road,
Sulthanpet Post,
Puducherry - 605 110



RAAK

COLLEGE OF ENGINEERING AND TECHNOLOGY

(Approved by AICTE, New Delhi & Affiliated to Pondicherry University)

11. Which of the following is found in an automobile's electrical system?

- a) Lighting systems
- b) Battery
- c) Alternators
- d) All of the mentioned

Answer: d

12. In which of the following year was Hindustan Motors Limited, Calcutta set up?

- a) 1940
- b) 1941
- c) 1942
- d) 1943

Answer: d

13. Which of the following is necessary for the description of an automobile?

- a) Model
- b) Capacity
- c) Make
- d) All of the mentioned

Answer: d

14. Which of the following type of load is supported by an automobile frame?


- a) Torque from engine and transmission
- b) Sudden impacts from collisions
- c) Weight of the body, passengers and cargo loads
- d) All of the mentioned

Answer: d

15. Which of the following parts does not include an automobile chassis?

- a) Differential
- b) Brakes
- c) Steering system




Dr. S. SEENUVASAMURTHI, M.E., Ph.D.
PRINCIPAL
RAAK College of Engineering & Technology
No.1, Muthupillai Palayam Road,
Sulthanpet Post,
Puducherry - 605 110



RAAK

COLLEGE OF ENGINEERING AND TECHNOLOGY

(Approved by AICTE, New Delhi & Affiliated to Pondicherry University)

d) Shock absorbers

Answer: a

16. Which of the following is defined as an upraised part on the hood which directs the airflow into the engine compartment?

- a) Hood scoop
- b) Spoiler
- c) Wings
- d) Hotpipe

Answer: a

17. Which of the following parameter is not necessary for the description of an automobile?

- a) Model
- b) Type
- c) Capacity
- d) Colour

Answer: d

18. Which of the following cars is categorized as a compact executive car?

- a) Mercedes-Benz E Class
- b) Mercedes-Benz S Class
- c) Audi A8
- d) Audi A4

Answer: d

19. Which of the following car is a 'Convertible'?

- a) Volkswagen Golf GTI
- b) Honda S2000
- c) Mahindra Scorpio
- d) Cadillac XTS

Answer: d




Dr. S. SEENUVASAMURTHI, M.E., Ph.D.
PRINCIPAL
RAAK College of Engineering & Technology
No.1, Muthupillai Palayam Road,
Sulthanpet Post,
Puducherry - 605 110.



RAAK

COLLEGE OF ENGINEERING AND TECHNOLOGY

(Approved by AICTE, New Delhi & Affiliated to Pondicherry University)

20. What is an IC Engine?

- a) the fuel is ignited and burned inside the engine
- b) the fuel is burned inside a combustion chamber
- c) the fuel is ignited inside a combustion chamber
- d) None of the above

Answer: a

21. Which of the following is not an arrangement of ic engine cylinders?

- a) Circular
- b) Opposed cylinder engine
- c) Radial
- d) V type engine

Answer: a.

22. Which of the following is a cylinder head type of an ic engine?

- a) U head
- b) F head
- c) C head
- d) X head


Answer: b

23. The temperature of the piston will be more at _____ in an automobile engine.

- a) The piston rings
- b) The piston walls
- c) The crown of the piston
- d) The skirt of the piston

Answer: c




Dr. S. SEENUVASAMURTHI, M.E., Ph.D.
PRINCIPAL
RAAK College of Engineering & Technology
No.1, Muthupillai Palayam Road,
Sulthanpet Post,
Puducherry - 605 110



RAAK

COLLEGE OF ENGINEERING AND TECHNOLOGY

(Approved by AICTE, New Delhi & Affiliated to Pondicherry University)

24. Which of the following terms is used to express Ignition advance?
- a) Millimeters of piston travel before TDC
 - b) Time in milliseconds
 - c) Crank angle
 - d) All of the mentioned

Answer: d

25. Which of the following is a type of Gasket?
- a) Single sheet rigid
 - b) Copper asbestos
 - c) Steel asbestos
 - d) All of the mentioned

Answer: d




Dr. S. SEENUVASAMURTHI, M.E., Ph.D.
PRINCIPAL
RAAK College of Engineering & Technology
No.1, Muthupillai Palayam Road,
Sulthanpet Post,
Puducherry - 605 110



RAAK

COLLEGE OF ENGINEERING AND TECHNOLOGY

(Approved by AICTE, New Delhi & Affiliated to Pondicherry University)

VALUE ADDED COURSES

2019-2020

Department of Mechanical Engineering

19ME02-Vehicle dynamics

NAME: AJAY D

CLASS: II / MECH

DATE: 20/08/2019

1. What is running resistance of the vehicle?
- a) Rolling resistance
 - b) Aerodynamic resistance
 - c) Sum of rolling and aerodynamic resistance
 - d) Traction force

24
25

96%

2. Suppose the road gradient is $G = 10\%$. What is the corresponding angle (approximate value in radians)?
- a) 5 rad
 - b) 0.1 rad
 - c) 1 rad
 - d) 10 rad

3. If the vehicle mass is 800 kg, what is the gradient force (approximate value in N) caused by the road gradient 10%?
- a) 500 N
 - b) 600 N
 - c) 700 N
 - d) 800 N

4. What will happen if the traction force is negative?
- a) The vehicle will accelerate
 - b) The vehicle will decelerate
 - c) The vehicle will first accelerate and then decelerate
 - d) The vehicle will run at a constant speed



Dr. S. SEENUVASAMURTHI, M.E., Ph.C.
PRINCIPAL
RAAK College of Engineering & Technology
No.1, Muthupillai Palayam Road,
Sulthanpet Post,
Puducherry - 605 110



RAAK

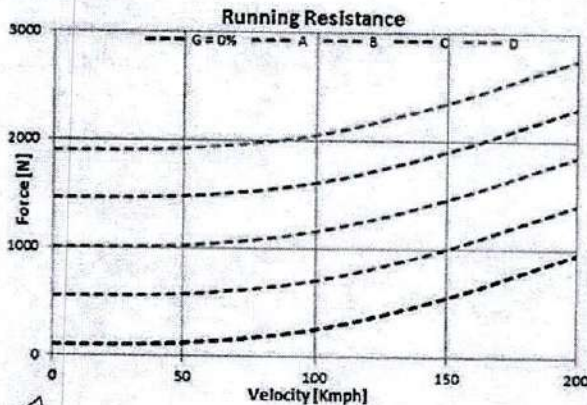
COLLEGE OF ENGINEERING AND TECHNOLOGY

(Approved by AICTE, New Delhi & Affiliated to Pondicherry University)

5. Suppose the vehicle is running at a constant speed on the flat road with rolling resistance = 100 N and aerodynamic resistance = 100 N, what is the traction force required?

- a) 100 N
- b) 0 N
- c) 200 N
- d) 50 N

6. Which one of the curves below represents a road gradient of 10%, if the mass of the vehicle is 1 ton?



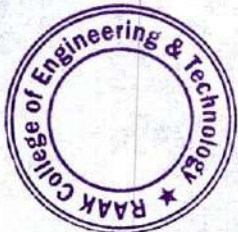
- a) B
- b) A
- c) D
- d) C


7. What will happen if the vehicle is made 50% heavier, but all other parameters remain the same?

- a) The running resistance will decrease
- b) The running resistance will increase
- c) The running resistance will remain the same
- d) The aerodynamic resistance will increase by a factor of 1.5 squared

8. If $F_{\text{rolling}} = 150 \text{ N}$, $F_{\text{aerodynamic}} = 400 \text{ N}$, $F_{\text{traction}} = 600 \text{ N}$, $F_{\text{gradient}} = 0 \text{ N}$, what is the net force acting on the vehicle?

- a) 100 N
- b) 50 N
- c) 550 N
- d) 750 N




Dr. S. SEENUVASAMURTHI, M.E., Ph.D.
PRINCIPAL
RAAK College of Engineering & Technology
No.1, Muthupillai Palayam Road,
Sulthanpet Post,
Puducherry - 605 110



RAAK

COLLEGE OF ENGINEERING AND TECHNOLOGY

(Approved by AICTE, New Delhi & Affiliated to Pondicherry University)

9. If the traction resistance is equal to the total running resistance, then which of the following will happen?

- a) The vehicle will accelerate
- b) The vehicle will decelerate
- c) The vehicle will run at a constant velocity
- d) The vehicle will come to rest

10. If the vehicle is running on the road having 10% gradient at a constant speed, then on flat road it will accelerate at approximately 1 m/s^2 (All the parameters remain the same).

- a) True
- b) False

11. Which of the following is found in an automobile's electrical system?

- a) Lighting systems
- b) Battery
- c) Alternators
- d) All of the mentioned

12. In which of the following year was Hindustan Motors Limited, Calcutta set up?

- a) 1940
- b) 1941
- c) 1942
- d) 1943

13. Which of the following is necessary for the description of an automobile?

- a) Model
- b) Capacity
- c) Make
- d) All of the mentioned

14. Which of the following type of load is supported by an automobile frame?

- a) Torque from engine and transmission
- b) Sudden impacts from collisions
- c) Weight of the body, passengers and cargo loads
- d) All of the mentioned




Dr. S. SEENUVASAMURTHI, M.E., Ph.D.
PRINCIPAL

RAAK College of Engineering & Technology
No.1, Muthupillai Palayam Road,
Sulthanpet Post,
Puducherry - 605 110



RAAK

COLLEGE OF ENGINEERING AND TECHNOLOGY

(Approved by AICTE, New Delhi & Affiliated to Pondicherry University)

15. Which of the following parts does not include an automobile chassis?

- a) Differential
- b) Brakes
- c) Steering system
- d) Shock absorbers

16. Which of the following is defined as an upraised part on the hood which directs the airflow into the engine compartment?

- a) Hood scoop
- b) Spoiler
- c) Wings
- d) Hotpipe

17. Which of the following parameter is not necessary for the description of an automobile?

- a) Model
- b) Type
- c) Capacity
- d) Colour

18. Which of the following cars is categorized as a compact executive car?

- a) Mercedes-Benz E Class
- b) Mercedes-Benz S Class
- c) Audi A8
- d) Audi A4

19. Which of the following car is a 'Convertible'?

- a) Volkswagen Golf GTI
- b) Honda S2000
- c) Mahindra Scorpio
- d) Cadillac XTS

20. What is an IC Engine?

- a) the fuel is ignited and burned inside the engine
- b) the fuel is burned inside a combustion chamber
- c) the fuel is ignited inside a combustion chamber
- d) None of the above

21. Which of the following is not an arrangement of ic engine cylinders?

- a) Circular
- b) Opposed cylinder engine


Dr. S. SEENUVASAMURTHI, M.E., Ph.D.
PRINCIPAL

RAAK College of Engineering & Technology
No.1, Muthupillai Palayam Road,
Sulthanpet Post,
Puducherry - 605 110





RAAK

COLLEGE OF ENGINEERING AND TECHNOLOGY

(Approved by AICTE, New Delhi & Affiliated to Pondicherry University)

- c) Radial
- d) V type engine

22. Which of the following is a cylinder head type of an ic engine?

- a) U head
- b) I head
- c) C head
- d) X head

23. The temperature of the piston will be more at _____ in an automobile engine.

- a) The piston rings
- b) The piston walls
- c) The crown of the piston
- d) The skirt of the piston

24. Which of the following terms is used to express Ignition advance?

- a) Millimeters of piston travel before TDC
- b) Time in milliseconds
- c) Crank angle
- d) All of the mentioned

25. Which of the following is a type of Gasket?

- a) Single sheet rigid
- b) Copper asbestos
- c) Steel asbestos
- d) All of the mentioned




Dr. S. SEENUVASAMURTHI, M.E., Ph.D.
PRINCIPAL

RAAK College of Engineering & Technology
No.1, Muthupillai Palayam Road,
Sulthanpet Post,
Puducherry - 605 110



RAAK

COLLEGE OF ENGINEERING & TECHNOLOGY

(Approved by AICTE, New Delhi, Affiliated to Pondicherry University)
NO.1, MUTHUPILLAI PALAYAM ROAD, G.N. PALAYAM, VILLIYANUR, PUDUCHERRY - 605 110

Certificate of Completion

2019-2020

This is to certify that Mr/Ms AJAY D

Year II..... Department MECH..... has successfully Completed the Value added course.

COURSE

SCORE: 92

COURSE

TITLE: VEHICLE DYNAMICS

DURATION: (..... 9-9-19 to 18-8-19)

[Signature]

HOD



[Signature]
Dr. S. SEENUVASAMURTHI, M.E., Ph.D.
PRINCIPAL

RAAK College of Engineering & Technology
No.1, Muthupillai Palayam Road,
Sulthanpet Post,
Puducherry - 605 110