



B.E DEGREE EXAMINATIONS: APRIL/ MAY 2016

(Regulation 2013)

Sixth Semester

AUTOMOBILE ENGINEERING

U13AUTE24 : Automotive Component Manufacturing

Time: Three Hours

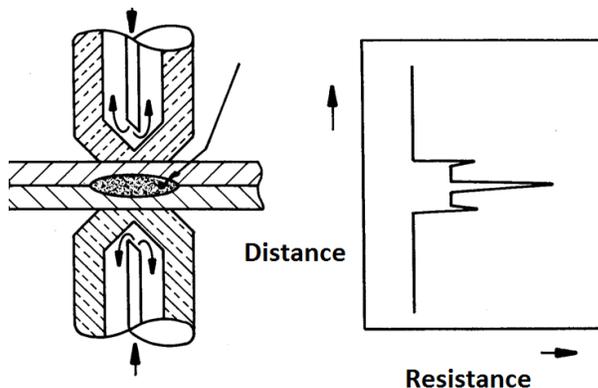
Maximum Marks: 100

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

- Aluminium Alloys are the preferred material for pistons both in gasoline and diesel engines, because of
 - Low density
 - High thermal conductivity
 - Easy machinability
 - All of the above
- _____ is a more reliable and efficient casting technique for the manufacture of engine blocks than green sand molding.
- Gear box casings are made of
 - cast iron
 - cast iron or cast aluminium
 - cast steel or cast iron
 - Steel
- Alloy wheels are manufactured by _____ process
- Acrylonitrile-Butadiene-Styrene (ABS) is a
 - Thermosetting plastic
 - Resin based plastic
 - Monopolymer plastic
 - Thermoplastics
- The _____ is the outer edge of a wheel, holding the tyre.

7.



The above figure refers to

- Submerged arc welding process
- Electro slag welding process
- Spot Resistance welding process
- Seam resistance welding process

8. Ejectors in injection moulding machines are used to_____.
9. Additives in polymers are used to
 - a) Modify processing performance.
 - b) Modify service performance.
 - c) Modify processing and service performance.
 - d) Modify mechanical properties.
10. In Lithium battery manufacturing, the anode material is a form of Carbon and the cathode is _____.

PART B (10 x 2 = 20 Marks)

(Answer not more than 40 words)

11. List any four advantages of forging crank shafts.
12. What is the need for heat treatment of connecting rods?
13. Brief out the applications of Phenol Formaldehyde.
14. List the advantages of making gears by Powder metallurgy.
15. What is the need for surface hardening of Propeller shafts?
16. Sketch the sections that can be manufactured by extrusion dies.
17. What is Seam welding?
18. What is hydroforming?
19. List the steps involved in the manufacturing of stator motor.
20. What is the purpose of an alternator in an automobile?

PART C (5 x 14 = 70 Marks)

(Answer not more than 400 words)

Q.No. 21 is Compulsory

21. Explain in detail the process of Gear manufacturing for automobiles.

22. (a) (i) Explain with suitable diagram the manufacturing of Pistons. (8)
- (ii) List the types of Piston rings and their purpose along with their manufacturing process. (6)

- (OR)**
- (b) (i) How do the Composite friction linings manufactured? (9)
- (ii) Differentiate Blanking and Fine Blanking process. (5)

23. (a) (i) Sketch and Explain the injection moulding process and list the automotive components that are made out of this process. (10)
- (ii) What is Thermoforming process and write its advantages. (4)

(OR)

- (b) (i) Detail RRIM, its tooling and tooling requirements. (7)
(ii) How are leaf springs manufactured? Elaborate with neat sketch. (7)
24. (a) (i) Elaborate the manufacturing process of propeller shafts with neat diagrams. (9)
(ii) What the steps involved in the manufacturing of brake drums. (5)
- (OR)**
- (b) (i) Detail the process of Tyre manufacturing with necessary diagrams. (7)
(ii) Explain Rear axle manufacturing. (7)
25. (a) (i) Write short notes on CVD and PVD. (10)
(ii) What is Sol-Gel process and what are its applications? (4)
- (OR)**
- (b) (i) What are the factors considered before doing spraying or Painting? (7)
(ii) Explain the Battery manufacturing process. (7)
