

**April 2018**

Time - Three hours  
(Maximum Marks: 75)

- [N.B: (1) Q.No. 8 in PART - A and Q.No. 16 in PART - B are compulsory.  
Answer any FOUR questions from the remaining in each PART - A  
and PART - B  
(2) Answer division (a) or division (b) of each question in PART - C.  
(3) Each question carries 2 marks in PART - A, 3 marks in Part - B and  
10 marks in PART - C.]

PART - A

1. State the properties of moulding sand.
2. Name any two microstructures of steel.
3. Enumerate any two basic types of welding process.
4. Name any two welding defects.
5. Give the main advantages of hydraulic press.
6. What are the methods of manufacturing metal powders?
7. List out any two lathe tools.
8. Mention the two parts of micrometer, between which work piece is introduced for measurement.

PART - B

9. Why is it so called CO<sub>2</sub> process of core making?
10. State the limitations of gas welding.
11. What are the types of flames? Explain any one of them.
12. List the hot working operations.
13. What are the design rules for the powder metallurgy process?
14. Name the types of lathe centres. Sketch a half centre.
15. List out the important measuring instruments.
16. Write down the equation for finding out set over of tail stock in taper turning.

[Turn over.....

PART - C

17. (a) Explain the operation of cupola furnace with a simple cross-section view.

(Or)

- (b) (i) Describe briefly the hot chamber die casting.  
(ii) List out the various types of moulding.

18. (a) With a neat sketch, describe the electron beam welding process. List out the advantages of this process.

(Or)

- (b) (i) How welding of cast iron is carried out?  
(ii) What is brazing? Describe briefly any one method of brazing.

19. (a) Explain about hydraulic presses with a neat sketch.

(Or)

- (b) (i) Explain any two shearing operations.  
(ii) What is meant by infiltration?

20. (a) With a neat sketch, explain the principal parts of capstan lathe.

(Or)

- (b) (i) What are chip breakers? Briefly describe any one type.  
(ii) Describe apron mechanism of lathe.

21. (a) Draw a neat sketch of an upright drilling machine, indicate important features and explain its working.

(Or)

- (b) (i) Explain a simple mechanical comparator with a sketch.  
(ii) With the help of a simple sketch, describe the use of auto collimator.