

R18

Code No: 154AF

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech II Year II Semester Examinations, September/October - 2023

BASIC MECHANICAL ENGINEERING FOR CIVIL ENGINEERS

(Civil Engineering)

Time: 3 Hours

Max. Marks: 75

Note: i) Question paper consists of Part A, Part B.

ii) Part A is compulsory, which carries 25 marks. In Part A, answer all questions.

iii) In Part B, Answer any one question from each unit. Each question carries 10 marks and may have a, b as sub questions.

PART – A

(25 Marks)

- 1.a) What materials are used for cams? [2]
- b) Describe the tempering and quenching process. [3]
- c) What is the criteria for the meshing of the gears? [2]
- d) Define addendum and dedendum terms of the spur gear. [3]
- e) Give examples of convection mode of heat transfer. [2]
- f) List the general layout of the internal IC engine. [3]
- g) Give the application of die casting process. [2]
- h) Give the application of TIG welding process. [3]
- i) What tools are used in lathe operations? [2]
- j) What tools are used in milling operation? [3]

PART – B

(50 Marks)

- 2.a) Classify the types of cams and its applications.
 - b) Give the characteristic features of ceramics materials. [5+5]
- OR**
- 3.a) Give the characteristic features of composite materials.
 - b) Give the strength equations of rivetted joints and its efficiency. [5+5]
- 4.a) Classify the types of belt drives and write its application.
 - b) What are the chain drives? Discuss about the material used and its applications. [5+5]
- OR**
- 5.a) What are the applications of crane?
 - b) Explain the function of industrial trucks. [5+5]
- 6.a) Describe about all the components of internal combustion engine.
 - b) Explain the principle of operation of a refrigeration system. [5+5]
- OR**
- 7.a) What are the advantages and applications of internal combustion engine?
 - b) Explain the fourier's law of heat transfer. [5+5]

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8.a) What are the various tools and accessories used in sheet metal operations?

b) Discuss the welding defects and its remedies.

[5+5]

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9.a) What are the types of casting methods and its applications?

b) Explain the brazing operation and its applications.

[5+5]

10. What are the various lathe operations to be performed on lathe machine and the methodology used in it.

[10]

OR

11. What are the various drilling operations and its characteristic feature?

[10]

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