

Question Paper

Exam Date & Time: 18-Nov-2019 (02:00 PM - 05:00 PM)



MANIPAL ACADEMY OF HIGHER EDUCATION

**INTERNATIONAL CENTRE FOR APPLIED SCIENCES
END SEMESTER THEORY EXAMINATIONS
NOVEMBER-2019**

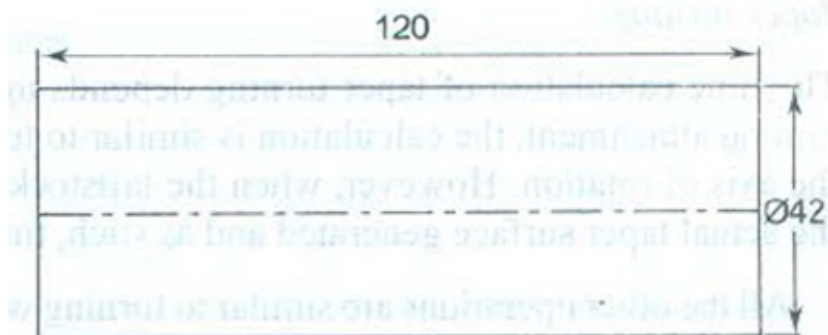
**III SEMESTER B.Sc. (Applied Sciences) in Engg.
MANUFACTURING PROCESS ENGG. [IME 232 - S2]**

Marks: 100

Duration: 180 mins.

Answer 5 out of 8 questions.

- 1) Classify the different types of foundry sand and also briefly explain. (10)
 - A)
 - B)
- 2) With a neat sketch explain the laser beam welding and its applications. (10)
 - A)
 - B)
- 3) With a neat sketch explain the centrifugal casting and its advantages, disadvantages. (10)
 - A)
 - B)
- 4) Explain the Properties, advantages and disadvantages of cold working of metals. (10)
- 5) Estimate the actual machining time required for the component (C40 steel) shown in Fig. The available spindle speeds are 70, 110, 176, 280, 440, 700, 1100, 1760 and 2800. Use a roughing speed of 30 m/min and finish speed of 60 m/min. The feed for roughing is 0.24 mm/rev while that for finishing is 0.10 mm/rev. The maximum depth of cut for roughing is 2 mm. Finish allowance may be taken as 0.75 mm. Blank to be used for machining is 50 mm in diameter. (10)
 - A)



- 6) List the different types of mandrels used in lathe and explain any 2 types of mandrels. (10)
 - B)
- 7) Classify the drilling machines and with a neat sketch explain Radial drilling machine. (10)
 - A)
- 8) Divide the periphery of the job into 69 divisions using standard index plate two of B & S type having 21,23,27,29,31,33 holes by compound indexing method. (10)

21	23	27	29	31	33	39	41	43	47	49	53	59	61	67	69
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Plate No. 1	15	16	17	18	19	20
Plate No. 2	21	23	27	29	31	33
Plate No. 3	37	39	41	43	47	49

- 5) With a neat sketch explain the Column and knee type of milling machine. (10)
- A)
- B) Designate the give grinding wheel condition W-A-46-K-5-V-BE and explain briefly. (10)
- 6) Mention the different types of bonding materials used in grinding wheels and also explain Vitrified bond. (10)
- A)
- B) Why back gear mechanism using in lathe with a neat sketch explain. (10)
- 7) With neat sketch explain the working principle and operations of a shaper machine. (10)
- A)
- B) Explain the Stretch Forming operation in sheet metal and its advantages as well as disadvantages. (10)
- 8) With a neat sketch explain the Selective Laser Sintering rapid prototyping (10)
- A)
- B) Explain the methodology of rapid prototyping and also list out the needs of rapid prototyping. (10)

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