

B.TECH SEM – V (2007 COURSE) (PRODUCTION ENGG.) :
SUMMER - 2018
SUBJECT: METAL FORMING

Day: **Wednesday**
Date: **23/05/2018**

S-2018-2686

Time: **10.00 AM TO 01.00 PM**
Max. Marks: 80

N.B.:

- 1) **Q. No. 1 and Q. No. 5 are COMPULSORY.** Out of remaining attempt **ANY TWO** questions form Section – I and Section – II.
- 2) Figures to the right indicate **FULL** marks.
- 3) Answers to both the sections should be written in **SEPARATE** answer books.
- 4) Draw neat and labeled diagram **WHEREVER** necessary.
- 5) Assume suitable data, if **necessary**.

SECTION - I

- Q.1** a) Explain fullering and drawing operations in forging. (05)
b) Discuss various products used in any car manufactured by rolling process.. (05)
c) Explain the planetary mill with neat sketch. (04)
- Q.2** a) Explain formality diagram for rigid, plastic, rigid-elastic, elastic-plastic material and suggest the manufacturing process for the particular type of material. (07)
b) Discuss different types of wire drawing machines. (06)
- Q.3** a) Discuss the limitations of forging process. (07)
b) List various types of defects in forging and suggest remedies for the defects. (06)
- Q.4** a) What is automatic gauge control? List the methods use in automatic gauge control and discuss any one. (07)
b) The roll diameter of 450mm is used to roll piece of steel 400 mm wide and 20 mm gauge is reduced by 5%.calculate rolling load, when yield stress of steel is 420N/MM². (06)

SECTION - II

- Q.5** Design and draw progressive die for washer of size outer diameter 40 mm and inner hole of size 24mm from steel of thickness 2mm and shear strength 360Mpa. (14)
- Q.6** a) Explain various sheet metal operations with suitable sketches. (06)
b) The hole of 40mm diameter is to be produced in a steel plate 2mm thick. The ultimate shear strength of the plate material is 330 MPa. If the punching force is to be reduce to half of the force using a punch without shear, estimate the amount of shear on the punch. Take percentage penetration 25%. (07)
- Q.7** a) With a neat sketch explain the construction and working of plunger type injection moulding machine. (07)
b) What is role of pigments, fillers and additives in the plastic processing? Explain with suitable example. (06)
- Q.8** a) Explain with neat sketch explosive unconfined process. (07)
b) Explain “Magneto pulse forming” with neat sketch advantages, disadvantages and its applications. (06)

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