SUBJECT CODE NO:- P-377
FACULTY OF ENGINEERING AND TECHNOLOGY
T.E.(Mech) Examination MAY/JUNE-2016
CAD/CAM/CAE
(Revised)

[Time: Three Hours]   [Max Marks:80]

"Please check whether you have got the right question paper."
N.B   i) Attempt **any three** questions from each section.
                          ii) Figures to the right indicate full marks.
                          iii) Assume suitable data wherever necessary.

Section A

Q.1   Discuss in details the role played by the CAD, CAM and CIM in product life cycle with help of neat block   13
       diagram.

Q.2   a) Explain the hardware and software requirements for implementing CAD/CAM facilities.   07
       b) Explain with neat sketches the data input devices used in CAD.   06

Q.3   a) Explain the various image generation techniques used in graphic display device.   07
       b) Explain the role played by CSG in solid modeling and the various operations to be carried over to   06
           construct the 3-D geometry.

Q.4   A triangle is defined in 2D space by its end points A (2,2) , B (6,2) , C(2,6). Express them in matrix notation   13
       and perform the following transformations and show it graphically.
           1) Scale it by a factor of 1.5
           2) Rotate it by 90^0 about origin.

Q.5   Write short notes on any three:-   14
           a) IGES
           b) B-spline curves
           c) Boolean operations
           d) LCD and plasma panels

Section B

Q.6   a) Explain the axis identification system used in NC/CNC lathe and drilling machines.   08
       b) Explain the concept of fixed zero and floating zero with reference to NC machines.   05

Q.7   Write down the manuscript of the manual part programme for the drilling operation to be performed on a   13
       square plate of 90 mm side. Six equidistant holes of 10 mm diameter are to be drilled on the PCD of 60mm.
       The center of the pitch circle is coinciding with the center of the plate, use the following information:-
           1) Use TAB sequential format.
           2) Thickness of the plate is 20 mm.
           3) Specify the dimensional / travels / increments in microns.
           4) Assume suitable starting point

Q.8　　a)　Explain the elements of numerical control machines and explain the advantages and disadvantages　08
　　　　　of CNC over NC machines.
　　　　b)　Discuss in brief the rules of APT programming.　　　　　　　　　　　　　　　　　　　05

Q.9　　A profile milling operation is to be performed to generate the outline of the part as shown in fig. 1. The　13
　　　　part thickness is 15 mm, cutter diameter is 14 mm and cutter speed is 500rpm. Write down the complete
　　　　APT programme consisting of:-
　　　　　1)　Geometry statements to define the geometry.
　　　　　2)　Motion statements to perform the profile drilling.
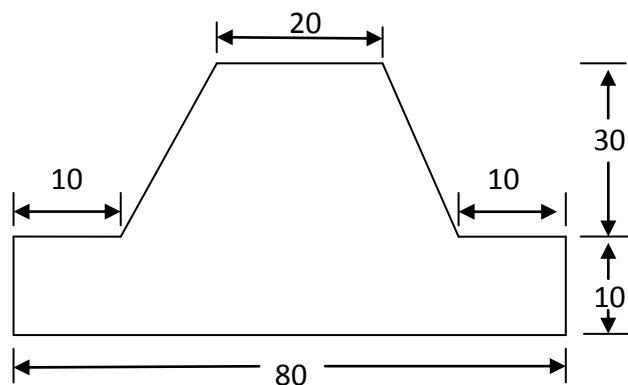　　　　　3)　Auxiliary statements
　　　　　4)　Post processor statements.

Fig. 1

Q.10　　Write short notes on any three:-　　　　　　　　　　　　　　　　　　　　　　　　　14
　　　　　1)　CAPP
　　　　　2)　Adaptive control systems
　　　　　3)　Group technology
　　　　　4)　MICLASS