

GX 507  
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**OLLSCOIL NA hÉIREANN, GAILLIMH**  
**NATIONAL UNIVERSITY OF IRELAND, GALWAY**

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**SUMMER EXAMINATIONS, 2000**

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**FIRST ENGINEERING**

**BIOMEDICAL, CIVIL, ELECTRONIC,  
ELECTRONIC and COMPUTING, ENVIRONMENTAL,  
INDUSTRIAL, MECHANICAL,  
and UNDENOMINATED**

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**ENGINEERING GRAPHICS**  
**CE 101**

***Paper II***

Professor R. A. Falconer;  
Professor P. E. O'Donoghue;  
Dr. P. Ó hEachteirn.

Time allowed : *Two* hours

Answer *two* questions, including Question 1

Answer all questions on **AutoCAD**

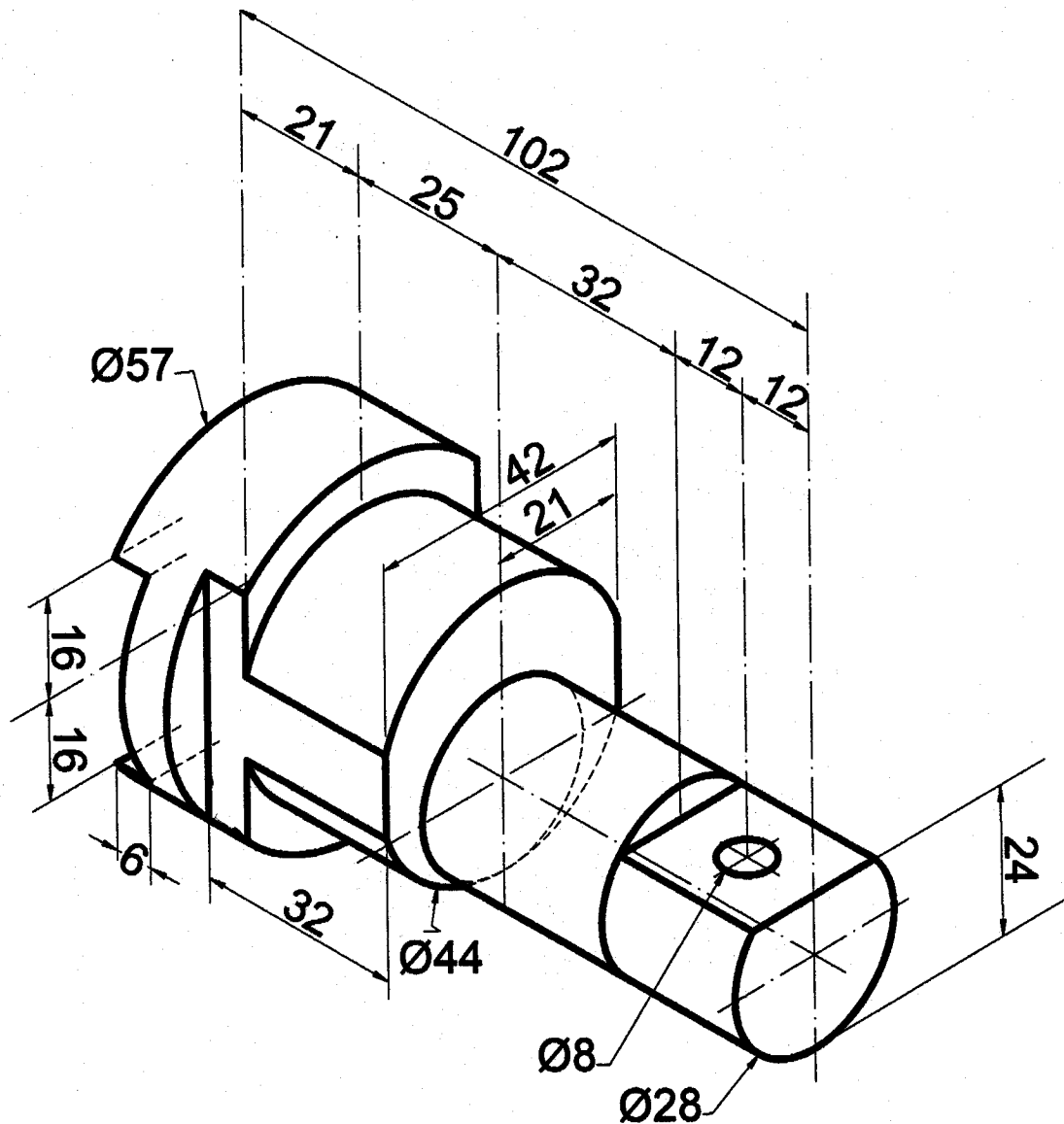
**When finished your examination,**

- Print your drawings on A4 paper,
- SaveAs on a 3.5" Diskette as filename **GRAPHICS2000-wxwz-abcd** where **wxyz-abcd** is your Student Identification Number

1. Figure Q1 shows details of a **ROLLER STUD**. Using third angle projection, draw the following:

- (a) a front view,
- (b) a top view, and
- (c) a right side view.

Dimension fully.

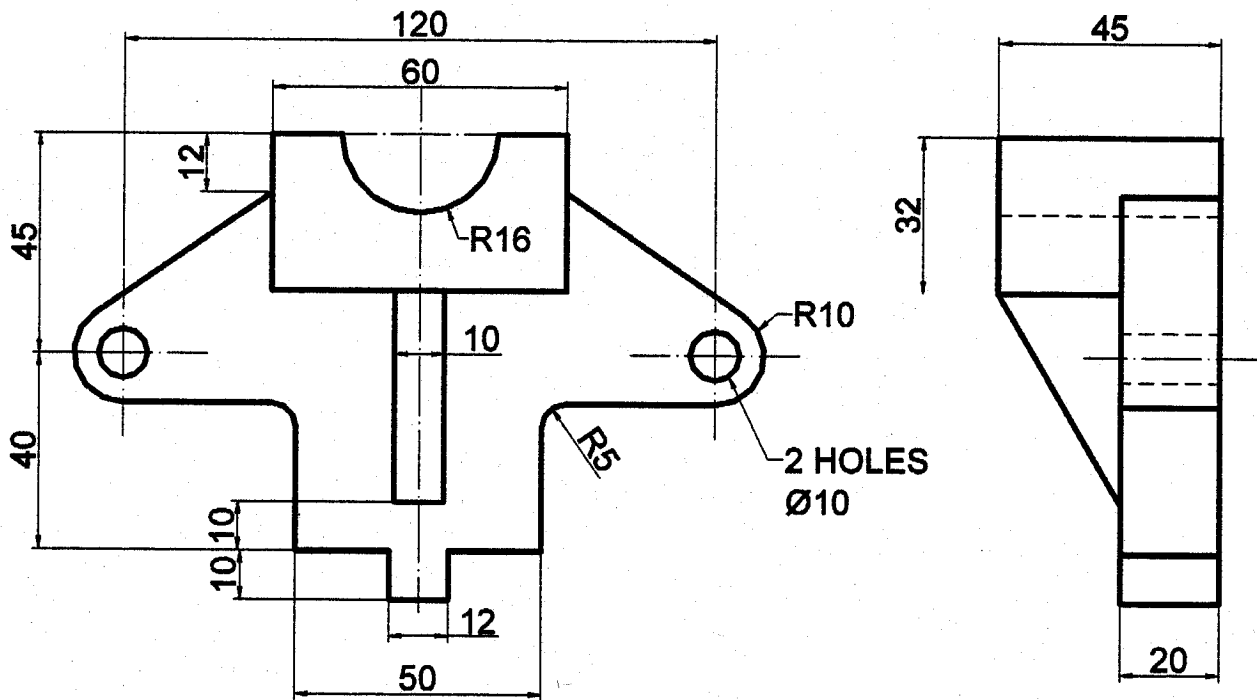


**Figure Q1 ROLLER STUD**

(25 marks)

2. Figure Q2 shows details of a **CAMSHAFT BEARING**. Make an cabinet oblique drawing of it, viewing it from above and from the right.

Dimension fully.



**Figure Q2 CAMSHAFT BEARING**

**(25 marks)**

3. Draw, full size, the profile of a radial plate cam, rotating clockwise, which will cause an overhead vertical follower to reciprocate as follows :

000°-120° : 80mm Rise with uniform simple harmonic motion,

120°-150° : Dwell,

150°-210° : 20mm Fall with near-uniform velocity,

210°-240° : Dwell,

240°-300° : 30mm Fall with uniform acceleration, and

300°-360° : 30mm Fall with uniform deceleration.

Use a minimum cam radius of 50mm. Use a follower roller diameter of 40mm. The vertical line of the follower is offset 30mm to the right of the cam centre of rotation. Use a smoothing radius of 5mm at the ends of the near-uniform velocity displacement diagram.

**(25 marks)**