[Total No. of Printed Pages:2] **CODE NO:- Z-353**

FACULTY OF ENGINEERING & TECHNOLOGY

S.E(CSE/IT)Year Examination June– 2015

Computer Graphics

(Revised)

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

"Please check whether you have got the right question paper."

i) Question no.1 & 6 are compulsory

ii) Solve any two questions from Q 2 to Q 5 and any two questions from Q.7 to Q.10

iii) Assume suitable data, if necessary.

SECTION A

Q.1 Answer the following .(Attempt any five) 10

a) "Graphics system is a block box" Justify.
b) What is meant by refreshing of the screen?
c) Discuss the concept of double buffering.
d) Explain the working mechanism of any two physical devices.
e) Define in brief pen plotter model.
f) Define translation and translation vector.
g) What is open GL? Discuss the basic operation of open GL.
h) List out the merits and demerits of plasma display panel.

Q.2 a) What is pipeline processor architecture? How does it increase processing speed? What are the core performance issues? 08

b) Explain three dimensional imaging systems using synthetic camera model. 07

Q.3 a) Classify the major groups of graphics function in open GL .Explain in detail with suitable example. 08

b) Write explanatory note on :- 07

i. RGB color model
ii. Indexed color model

Q.4 a) How can you implement in open GL .Explain with example. 08

b) Write a program in open GL to display a rectangle. 07

Q.5 a) Explain Why homogeneous coordinates are used for handing geometric transformation. 08

b) A triangle is defined by $\begin{bmatrix} 2 & 4 & 4 \\ 2 & 2 & 4 \end{bmatrix}$ 07

Find the transformed coordinates after the following transformation -:

i. 90°rotation about origin.
ii. Reflection about line y =-x.

SECTION-B

Q.6 Answer the following .(Attempt <u>any five</u>) 10

a) What is Quaternion's
b) Compare COP and DOP.
c) Explain object space and image space techniques.
d) What do you mean by ambient refection?
e) What are different classical perspective views?
f) Define look A+ ().Explain different parameters used in the look A+ () function.
g) What is scan conversion technique?
h) Explain the function used for parallel viewing in open GL.

Q.7 a) Explain different types of transformation with suitable example. 08
b) Explain phong lighting model .Indicate the advantages and disadvantages. 07

Q.8 a) Explain in detail the four major tasks for sending a geometric entity. 08
b) Explain the various types of parallel and perspective projection 07

Q.9 a) Explain Cohen Sutherland line clipping algorithm. 08
b) Apply following transformations on polygon A(10,10) ,B(10,40),C(30,10) D(20,50)and E(30,40). 07

i. Translation 10, 20 units along X&Y directions.
ii. Rotate 45 degrees about the origin.
iii. Scale with scaling factor $S_x = 5, S_y = 6$

Q.10 a) What are the different methods available for shading a polygon? Briefly discuss any two of them. 08
b) Describe the different types of light sources in detail. 07