

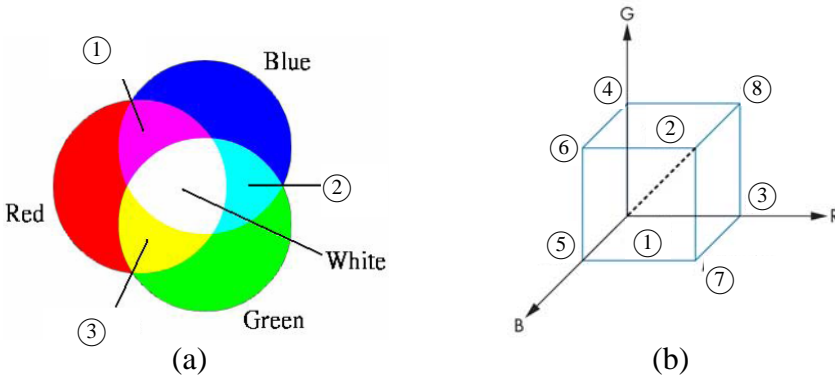
電腦圖學期末考（數位二，總分 100 分）

系級：_____ 學號：_____ 姓名：_____

一、解釋名詞（10 分，請以中文說明該名詞之定義）

1. Resolution (of the frame buffer)
2. Color depth (or precision)
3. True-color (or Full-color)
4. Aspect ratio
5. Aliasing

二、(10 分) 圖 (a) 為 additive color model，請填入①②③之色彩名稱；圖 (b) 為 RGB color model，請填入①②③④⑤⑥⑦⑧之色彩名稱，並說明虛線的意義。

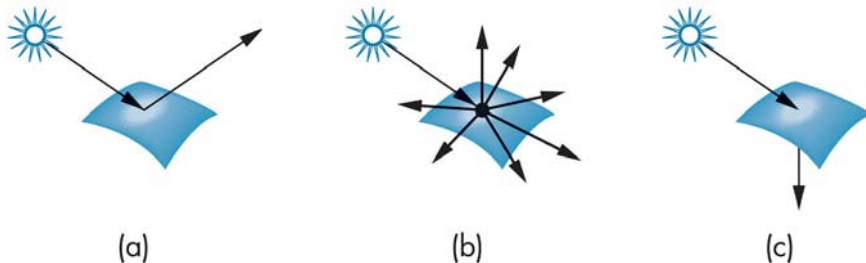


三、(10 分) OpenGL 提供六種 coordinates：① Clip coordinates ② Eye (or Camera) coordinates ③ Normalized device coordinates ④ Object or model coordinates ⑤ Windows (or Screen) coordinates ⑥ World coordinates，請排列出正確的順序。

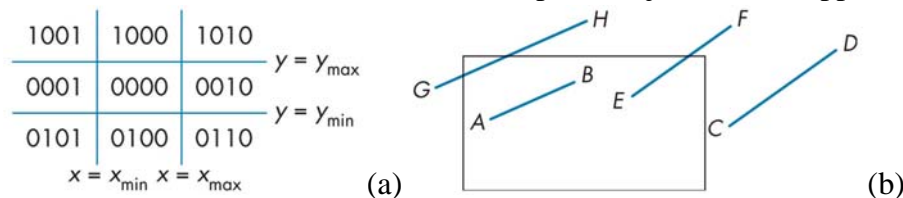
四、(10 分) Affine transformation 包括哪四種 transformation？

五、(10 分) 三角形具備 (1) simple (2) convex (3) flat 等三種特性，因此可以得到正確的 rendering。請說明這三種特性，並各舉一個正例與反例。

六、(10 分) 一般而言，光源與物體表面的互動 (light-material interactions) 可分成三種，請寫出其名稱。



七、(10 分) 圖 (a) 為 Cohen-Sutherland 所提出之 outcodes。請以圖 (b) 為例，說明線段 AB, CD, EF, GH 如何以 outcode 判別為 accepted、rejected 或 clipped？



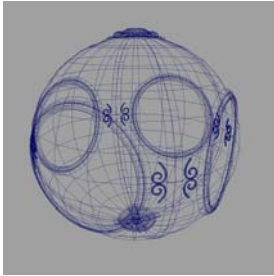
八、(30分) 請在下列各圖中，寫出一項對應之專有名詞或函數。註：可參考下列各項，但勿重複。

Subtractive color model
View-reference point (VRP)
Rasterization
Isometric view
Analysis camera model
Frame Buffer
Additive color model
Diametric view

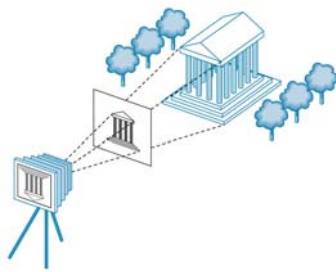
z-buffer
Raytracing
Flat shading
Synthetic camera model
Smooth shading
Radiosity
Bump mapping
glFrustum()

HSV color model
Phong shading
Perspective projection
View-plane normal (VPN)
Graphics pipeline
Gouraud shading
gluPerspective()
Hidden surface removal

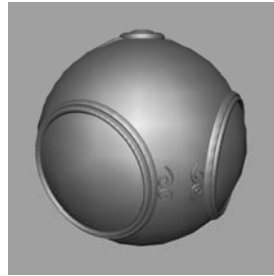
Trimetric view
Wireframe
glOrtho()
Texture mapping
Environment mapping
Orthographic projection
RGB color model
Projection normalization



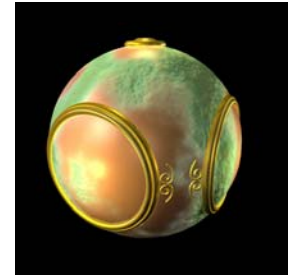
(a)



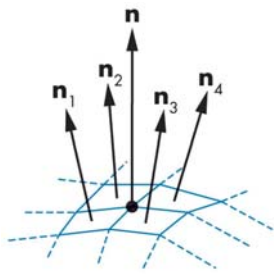
(b)



(c)



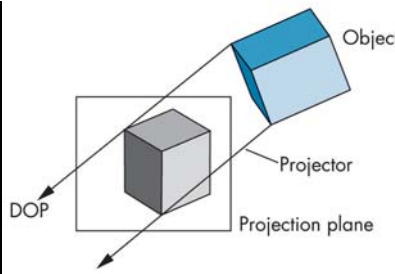
(d)



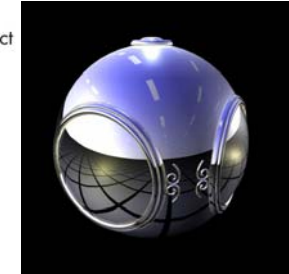
(e)



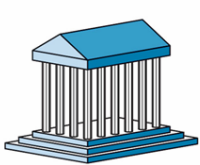
(f)



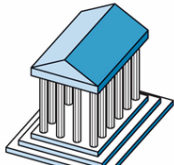
(g)



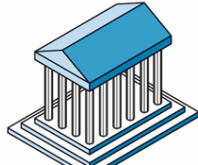
(h)



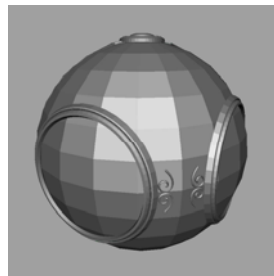
(i)



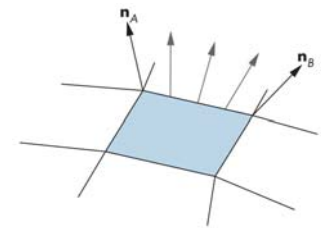
(j)



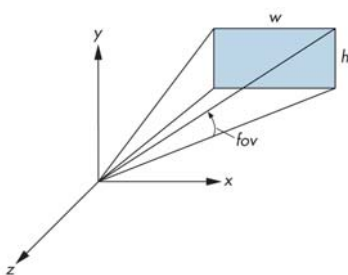
(k)



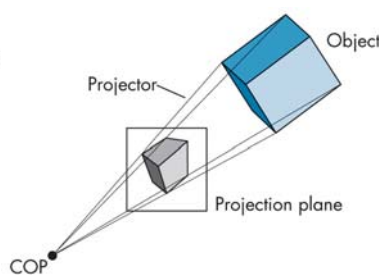
(l)



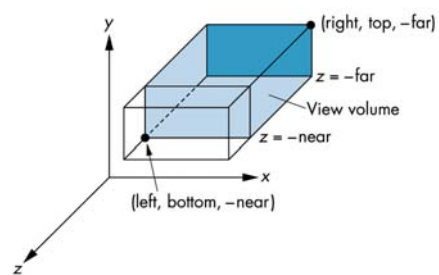
(m)



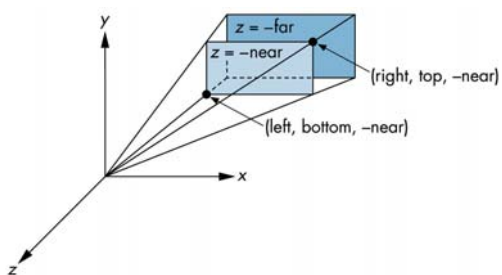
(n)



(o)



(p)



(q)