L-1/T-1/ARCH Date : 21/10/2019

BANGLADESH UNIVERSITY OF ENGINEERING AND TECHNOLOGY, DHAKA

L-1/T-1 B. Arch Examinations 2018-2019

Sub : **ARCH 131** (Architecture of Ancient Civilization)

Full Marks: 140 Time : 3 Hours

USE SEPARATE SCRIPTS FOR EACH SECTION

The figures in the margin indicate full marks.

SECTION – A

There are **FOUR** questions in this section. Answer Q. No. **1** and any **TWO** from the rest.

1. Write short notes on any two of the following. **(10×2=20)**

   (a) Khirokitia

   (b) Stairway Mastaba

   (c) Gobekli Tepe.

2. (a) Using 'Mortuary Complex of Zoser' as an example to show the different parts of a pyramid complex with necessary illustrations. **(15)**

   (b) Draw a section of the Great Pyramid at Giza and label significant parts of it. **(10)**

3. (a) Using Dholavira as an example, discuss the key considerations for establishing a city in the Indus-Ghaggar Hakra region. **(15)**

   (b) Discuss the characteristics of the houses of Mohenjo Daro in relationship with the streets. **(10)**

4. (a) Compare the rationales for the stone circles in Nabta Playa, Egypt during the prehistoric period and in Europe during 3500 BCE. **(15)**

   (b) Describe the development of temples in Eridu and Uruk during 3500 BCE with necessary sketches. **(10)**

SECTION - B

There are **FOUR** questions in this section. Answer Q. No. **5** and any **TWO** from the rest.

5. Write short notes on any two (2) of the following **(10×2=20)**

   (a) Minoan Palace

   (b) Persepolis

   (c) Ashokan Pillar

Contd P/2

ARCH 131

6. (a) What are the similarities and differences between the Mortuary Temple of Queen Hatshepshut and temple of Abu Simbil in terms of style and character. **(15)**

(b) Briefly describe the different parts of an Egyptian cult temple using appropriate example. **(10)**

7. (a) Elaborate on the ritual complex at Jcengchu, Shaanxi province, China with necessary sketches. **(15)**

(b) Describe the characteristics of palaces in China during the Shang Dynasty. **(10)**

8. (a) 'Iron Age affected global economy'- discuss elaborately. **(10)**

(b) How the religious atmosphere in ancient india influenced the development of 'ghats' during the Vedic period. **(15)**

L-1/T-1/ARCH **Date : 27/10/2019**

BANGLADESH UNIVERSITY OF ENGINEERING AND TECHNOLOGY, DHAKA

L-1/T-1 B. Arch Examinations 2018-2019

Sub : **ARCH 133** (Design Theory)

Full Marks: 140 Time : 3 Hours

USE SEPARATE SCRIPTS FOR EACH SECTION

The figures in the margin indicate full marks.

SECTION – A

There are **FOUR** questions in this section. Answer Q. No. **1** and any **TWO** from the rest.

1. Write short notes on any two of the following. **(15×2=30)**
   (a) 'Hierarchy' as a principle of design.
   (b) Contrasting Color Schemes.
   (c) 'Symmetry' as a principle of design.

2. Describe the effects of hue, value and intensity with reference to art and architecture. **(20)**

3. Discuss in detail the role of 'Line' and 'Texture', in the process of design. **(20)**

4. (a) What are the elements of visual art? **(5)**
   (b) 'Families of form'- describe with necessary diagrams. **(15)**

SECTION - B

There are **FOUR** questions in this section. Answer Q. No. **8** and any **TWO** from the rest.

5. Discuss 'DOT' and 'Line' as primary elements in architecture with examples and sketches. **(20)**

6. How 'Elevated Base Plane' and 'Depressed Base Plane' as horizontal space defining elements define spaces? Explain them with sketches. **(20)**

7. Explain how spaces are organized centrally and linearly. **(20)**

8. Write short notes on the following. **(15×2=30)**
   (a) Scale
   (b) Anthropometric proportion

Date : 20/01/2020

BANGLADESH UNIVERSITY OF ENGINEERING AND TECHNOLOGY, DHAKA

B. Arch. Examinations

Sub : **ARCH 165** (Building and Finish Materials)

Full Marks : 210 Time : 3 Hours

The figures in the margin indicate full marks.

USE SEPARATE SCRIPTS FOR EACH SECTION

SECTION – A

There are **FOUR** questions in this section. Answer Q. No. 01 and any **TWO** from the rest.

Q. 1) Classify different kind of stones in terms of their Composition, used for Construction in building industry. — 20

Q. 2) i) How do the harmful Constituents of Brick clay affect and degrade the quality of Brick? — 15

ii) Describe the characteristics of good brick. — 5

(iii) Explain the process of brick Moulding and drying. — 5

(3) i) Describe the Compositian of Concrete and how it affects the quality of good Cement. — 10

ii) What are the factor's that affect the Properties of Concrete? — 15

(4) Write short notes on any 'five' from the followings : — 5X5

i) Burning Process of Brick

ii) Granite

iii) Sandstone

iv) Types of Cement

v) Functions of Brick clay

vi) Crushing and Tansile strength of Concrete

Arch-165

SECTION – B

There are **FOUR** questions in this Section. Answer Q. 5 and any **TWO** from the rest.

Q.5 a. Name different types of 'Floor Finish' commonly used in Bangladesh. 5

b. Discuss the application process of Artificial patent stone and Terrazzo floor finish. 10+10 = 15

Q.6 a. Discuss the constituents of Paints. 10

b. Explain how Hiding power, Particle's shape and size, and other characteristics of paint enhance the quality of paint. 15

Q.7 a. Explain with sketches the Fourcault process and Float process of Glass manufacturing. 20

b. Discuss the architecturally important properties of glass. 5

Q.8 Write short notes on (Any Five) 5X5 = 25

i) Clay tiles

ii) Vehicle of Paint

iii) Commercial forms of glass

iv) Constituents of glass.

v) Degree of Vitrification.

vi) Glass fibre.

5

L-1/T-1/ARCH **Date : 11/11/2019**

BANGLADESH UNIVERSITY OF ENGINEERING AND TECHNOLOGY, DHAKA

L-1/T-1 B. Arch. Examinations 2018-2019

Sub : **ARCH 603** (Design in the Tropics)

Full Marks : 140 Time : 3 Hours

USE SEPARATE SCRIPTS FOR EACH SECTION

The figures in the margin indicate full marks.

SECTION – A

There are **FOUR** questions in this section. Answer Q. No. 1 and any **TWO** from the rest.

1. Write short notes on the followings (Any TWO): **(2×10=20)**
   (a) Comfort zone
   (b) Global wind pattern
   (c) Air flow around buildings

2. (a) What are the heat exchange processes of a building? **(20)**
   (b) How to interpret the thermal gradient through a wall? **(5)**

3. How the following factors create impact on indoor air flow? **(25)**
   (a) Orientation
   (b) Position of openings
   (c) Controls of openings

4 What are the basic types of shading devices? Discuss the applications of different types of shading devices considering different orientations. **(25)**

SECTION – B

There are **FOUR** questions in this Section. Answer Q. No. 5 and any **TWO** from the rest.

5. Write short notes on the following (any two): **(2×10=20)**
   (a) Control of heat gain through 'Building Envelope'.
   (b) Radiative Cooling
   (c) Impact of 'Roof spray' and 'Roof pond'.

6. Discuss the levels of Passive Solar Urban Design in terms of: **(25)**
   (a) Urban Morphology
   (b) Building Design

7. Discuss the strategies for 'Ground Cooling' and 'Evaporative Cooling' for buildings. **(12.5×2=25)**

8. Critically analyse the following features of the shelter for warm-humid climate: **(8 ⅓ ×3=25)**
   (a) Form and Planning
   (b) Roofs and Walls
   (c) External spaces

L-1/T-1/ARCH **Date : 11/11/2019**

BANGLADESH UNIVERSITY OF ENGINEERING AND TECHNOLOGY, DHAKA

L-1/T-1 B. Arch. Examinations 2018-2019

Sub : **ARCH 703** (Art Appreciation)

Full Marks : 140 Time : 3 Hours

USE SEPARATE SCRIPTS FOR EACH SECTION

The figures in the margin indicate full marks.

SECTION – A

There are **FIVE** questions in this section. Answer Q. No. 1 and any **THREE** from the rest.

1. Mention the classification of Visual Art with examples. **(25)**

2. Define sculpture and discuss the traditional means of making sculpture. **(15)**

3. What are the functions and the types of drawing? Discuss with examples. **(15)**

4. What is design? Describe briefly industrial Design, Textile Design, and Clothing Design. **(15)**

5. "All art begins with craft. If a work is not well made, there is little chance that it will be experienced as art". What are the traditional materials use in Craft Media? Discuss. **(15)**

SECTION – B

There are **FIVE** questions in this Section. Answer any **FOUR**.

6. What are the points that you need to look for, while approaching to Visual Art? Elaborate with examples. **(17½)**

7. Who is Gian Lorenzo Bernini? What are the characteristics of his works? **(5+12½)**

8. Write short notes on the painting style of Turner and Van Gogh. **(17½)**

9. Illustrate 'Environmental Art' and 'Interactive Art' with short notes and examples. **(7+7+3½)**

10. What is Conceptual Art? Discuss the background and characteristics of Conceptual Art. **(5+12½)**

L-1/T-1/ARCH Date : 11/11/2019

BANGLADESH UNIVERSITY OF ENGINEERING AND TECHNOLOGY, DHAKA

L-1/T-1 B. Arch. Examinations 2018-2019

Sub : **ARCH 707** (Music Application)

Full Marks : 140 Time : 3 Hours

USE SEPARATE SCRIPTS FOR EACH SECTION

The figures in the margin indicate full marks.

SECTION – A

There are **FOUR** questions in this section. Answer Q. No. 1 and any **TWO** from the rest.

1. Differentiate between:
   (a) Western classical and North Indian classical musical systems. **(15)**
   (b) Melody and Harmony in musical constructs. **(15)**

2. (a) According to Goethe: "Architecture is frozen music" – explain. **(10)**
   (b) Discuss the composition of an Orchestra and its various instrument groups. **(10)**

3. (a) Elaborate on the main ingredients of music. **(10)**
   (b) Explain the concept of scale in music. **(10)**

4. (a) Discuss the key features of Dhrupads and Kheyals, with their historical backgrounds. **(10)**
   (b) What are the characteristics of folk music and urban art music? Elaborate on the key differences. **(10)**

SECTION – B

There are **FOUR** questions in this Section. Answer Q. No. 5 and any **TWO** from the rest.

5. Elaborate on the humanist trend of Bengali Art-Song. What are the 3 (three) major trends of 19th century Bengoli Art-songs? **(15+15=30)**

6. "He is regarded not only as the greatest' poet of Bengali language, but also as the greatest composer of Bengali art song" – Discuss the life of Rabindranath Tagore and how his inspiration from nature contributed in his creation into Bengali classical music? **(20)**

7. What are the major influencing factors that shaped the musical aspects of Kazi Nazrul Islam? Relate to the life of Nazrul in reference to his musical achievements. **(20)**

8. Write short description on the musical journey of: (a) Dwijendralal Ray (D. L. Ray) (b) Rajanikanta Sen. **(10+10=20)**

L-1/T-1/ARCH **Date : 11/11/2019**

BANGLADESH UNIVERSITY OF ENGINEERING AND TECHNOLOGY, DHAKA

L-1/T-1 B. Arch. Examinations 2018-2019

Sub : **HUM 701** (Principles of Economics)

Full Marks : 140 Time : 3 Hours

USE SEPARATE SCRIPTS FOR EACH SECTION

The figures in the margin indicate full marks.

SECTION – A

There are **FOUR** questions in this section. Answer any **THREE**.

1. (a) Define demand function. **(5)**

   (b) What are the main determinants of demand? Explain. **(10)**

   (c) What are the exceptions to the law of demand? **(8⅓)**

2. (a) What do you understand by localization of industries? What are the main causes of localization of industries? **(13⅓)**

   (b) From the following table calculate elasticity of demand if you move from point A to C and explain what you understand from the result. **(10)**

POINT	Y	Q
A	5000	500
B	6000	600
C	7000	700

3. (a) Explain the properties of an indifference curve. **(15)**

   (b) Explain consumers equilibrium with the help of budget line and indifference curve. **(8⅓)**

4. (a) How is price determined in an economy under competition? What will happen to the price and quantity due to change in supply? **(10)**

   (b) From the following demand and supply functions, calculate equilibrium price and quantity and show the result in a graph. **(13⅓)**

$$DD: Q = 50 - 3P$$

$$SS: Q = -10 + 3P$$

   (i) What will happen to the equilibrium price and quantity if government imposes a unit tax of Tk. 2 per unit?

   (ii) Describe the change in equilibrium. Show the equilibrium coordinates on the same graph.

Contd P/2

HUM 701

SECTION – B

There are **FOUR** questions in this Section. Answer any **THREE**.

5. (a) Explain the factors of production in Economics and clarify the concepts of short run and long run in the theory of production. **(8)**

   (b) Illustrate the law of diminishing marginal returns in production. **(5⅓)**

   (c) Describe the relationship between total physical product (TPP), average physical product (APP) and marginal physical product (MPP). Use diagrams. **(10)**

6. (a) Define an isoquant and an isocost line. Illustrate the least-cost combination of factors to produce a given level of output. **(8)**

   (b) Describe the loss minimising and the shut down points under perfect competition. **(5⅓)**

   (c) The following are respectively the Total Revenue (TR) and Total Cost (TC) functions of a firm

   $$TR = 1400Q - 7.5Q^2$$
   $$TC = Q^3 - 6Q^2 + 140Q + 750$$

   Construct the profit function and find the maximum profit earning level of output and the maximum profit. **(10)**

7. (a) Distinguish between the following terms **(8)**

   (i) Gross Domestic Product (GDP) and Gross National Product (GNP)

   (ii) Consumer Price Index (CPI) and GDP deflator

   (b) What do understand by inflation? How is it measured? Describe the causes of inflation. **(7⅓)**

   (c) Explain the fiscal and monetary policies that are adopted for controlling inflation. **(8)**

8. Write Short Notes on any THREE of the following: **(23⅓)**

   (i) The circular flow of income and expenditure in an open economy.

   (ii) Economies of scale of production

   (iii) Characteristics of perfect competitive market

   (iv) National income accounting

L-1/T-1/ARCH **Date : 11/11/2019**

BANGLADESH UNIVERSITY OF ENGINEERING AND TECHNOLOGY, DHAKA

L-1/T-1 B. Arch. Examinations 2018-2019

Sub : **HUM 709** (Human Psychology and Environment)

Full Marks : 140 Time : 3 Hours

USE SEPARATE SCRIPTS FOR EACH SECTION

The figures in the margin indicate full marks.

SECTION – A

There are **FOUR** questions in this section. Answer any **THREE**.

1. (a) What do psychologists study? **(6)**

   (b) Compare different approaches to study behavior and mental processes. **(17 ⅓)**

2. (a) Differentiate between absolute and difference thresholds with examples. **(6)**

   (b) Describe the Gestalt Laws of perceptual organization with clear pictures for each. **(17 ⅓)**

3. (a) Why do we get frustrated? **(6)**

   (b) What are the theories of human motivation? Draw Maslow's need hierarchy theory. **(17 ⅓)**

4. (a) Is emotion necessary in our life? Justify your answer. **(6)**

   (b) "We feel sad, because we cry or we cry, because we feel sad" which one is true and why? Explain. **(17 ⅓)**

SECTION – B

There are **FOUR** questions in this Section. Answer any **THREE**.

5. (a) What do you mean by Personality? **(6)**

   (b) What are the components of personality structure according to Sigmund Freud? **(17 ⅓)**

6. (a) How is someone's IQ score measured? **(6)**

   (b) Describe different types of intelligence with appropriate example for each. **(17 ⅓)**

7. (a) Why do we forget information? **(6)**

   (b) Delineate the structure of human memory. **(17 ⅓)**

8. (a) What are the differences between classical conditioning and operant conditioning? **(6)**

   (b) How do we learn from other's experiences instead of our own? **(17 ⅓)**

L-1/T-1/ARCH **Date : 04/11/2019**

BANGLADESH UNIVERSITY OF ENGINEERING AND TECHNOLOGY, DHAKA

L-1/T-1 B. Arch Examinations 2018-2019

Sub : **PHY 115** (Sound, Light and Heat)

Full Marks: 210 Time : 3 Hours

USE SEPARATE SCRIPTS FOR EACH SECTION

The figures in the margin indicate full marks.

SECTION – A

There are **FOUR** questions in this section. Answer any **THREE**.

1. (a) Define the terms thermal conductivity, temperature gradient and thermal diffusivity. **(9)**

   (b) Derive the standard (Fourier) equation for one dimensional flow of heat in the variable state through a metal bar. **(17)**

   (c) The temperature at inside and outside of a class room in the Architecture department are 30°C and 35°C, respectively. The room has a wall 12 m by 4 m made of bricks 20 cm thick lined with plaster of 1 cm thick. It has a glass window of area 4 m^2 and thickness 0.4 cm. Calculate the heat conducted per second through (i) the glass and (ii) the plaster lined brick. Given the thermal conductivities of brick, plaster and glass are 1.4×10^{-3}, 1.0×10^{-3} and 2.0×10^{-3} cal cm^{-1} s^{-1} $°C^{-1}$, respectively. **(9)**

2. (a) Define convection and explain the ventilation process of a room. **(8)**

   (b) Describe the hot water supply in a building with a suitable diagram. **(15)**

   (c) Write short notes on land and sea breezes, trade wind and ocean current. **(12)**

3. (a) Define solar constant and determine the temperature of the sun surface. **(8)**

   (b) State and prove Kirchhoff's law of radiation. **(18)**

   (c) Derive Newton's law of cooling from Stefan-Boltzmann law. **(9)**

4. (a) Distinguish between interference and diffraction of light. What are Fraunhofer and Fresnel's class of diffraction? **(8)**

   (b) Describe Fraunhofer diffraction of light due to single slit and deduce the position of maxima and minima and draw the intensity distribution for the diffraction pattern. **(20)**

   (c) A light wavelength 500 *nm* is incident normally on a single slit. The first minimum of the Fraunhofer diffraction pattern is observed at a distance of 5×10^{-3} *m* from the central maximum on a screen placed at a distance of 2*m* away from the slit. What is the width of the slit? **(7)**

Contd P/2

PHY 115

SECTION - B

There are **FOUR** questions in this section. Answer any **THREE**.

5. (a) What is interference of light? Can we produce interference with two electric bulbs placed side by side? **(7)**

(b) Draw a suitable diagram showing clearly how coherent sources are produced in Fresnel biprism experiment. Explain the formation of coherent sources in the case of biprism and how is the separation between such coherent sources measured in this experiment. **(20)**

(c) In a Fresnel biprism experiment, the fringe width observed is 0.26 cm. If the slit separation is reduced by ½ of its original value, what will be the fringe width? **(8)**

6. (a) Define polarization. Distinguish between unpolarized and polarized light. **(7)**

(b) Write short notes on: (i) Laws of illumination, (ii) Polarization by double refraction, and (iii) Malus law. **(21)**

(c) Two polarizing sheets have polarizing directions parallel so that the intensity of the transmitted light is maximum. Through what angle must either sheet be turned if the intensity is to drop by half? **(7)**

7. (a) Define the terms free oscillation and damped oscillation. Establish the differential equation for damped harmonic oscillation and solve it to find the equation for displacement of the oscillator. Discuss the situations when the oscillation becomes overdamped, underdamped and critically damped. **(24)**

(b) Find the expression of logarithmic decrement of damped oscillation. **(6)**

(c) An oscillator is undergoing an underdamped oscillation with a damping constant 0.05. The time period is 2.40 sec and the 1^{st} amplitude of the oscillator is 2.5 cm. Evaluate the amplitude of oscillation in the absence of damping. **(5)**

8. (a) Define reverberation and reverberation time. How reverberation can be controlled to ensure good acoustics of an auditorium? Discuss the theory of growth and decay of sound intensity inside a room and find the expression for Sabine's reverberation formula. **(24)**

(b) Using the Doppler's principles of sound, obtain expression for the apparent frequency when (i) the source moves towards the stationary observer and (ii) the observer moves away from the stationary source. **(6)**

(c) A man is sitting on a bench in a railway platform. A train is whistling at a frequency 510 Hz, while approaching the platform. The speed of the train is 80 km/hr and velocity of sound is 340 m/s. Find the apparent frequency of the whistle heard by the man. **(5)**

L-1/T-1/ARCH **Date : 31/10/2019**

BANGLADESH UNIVERSITY OF ENGINEERING AND TECHNOLOGY, DHAKA

L-1/T-1 B. Arch Examinations 2018-2019

Sub : **MATH 111** (Calculus and Solid Geometry)

Full Marks: 140 Time : 3 Hours

USE SEPARATE SCRIPTS FOR EACH SECTION

The figures in the margin indicate full marks.

SECTION – A

There are **FOUR** questions in this section. Answer any **THREE**.

1. (a) The graph of a function f is shown in Figure 1. **(5 1/3)**

(i) Find the value of $f(1)$ and $f(5)$.

(ii) What are the domain and range f?

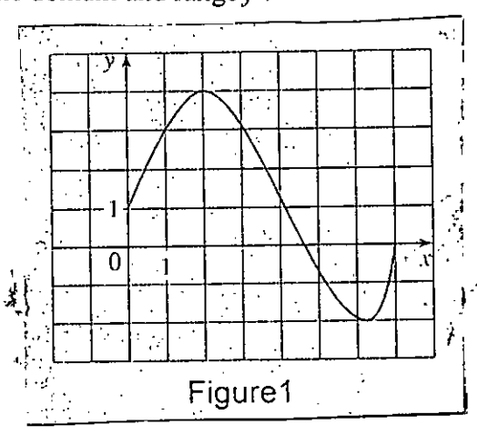

Figure1

(b) What is the relation between continuity and differentiability of a function. Find a value of the constant k, if possible, that will make the following function continuous everywhere. **(9)**

$$f(x)=\begin{cases}7x-2, & x\le 1\\ kx^2, & x>1\end{cases}$$

(c) State Leibnitz's theorem and hence show that **(9)**

$$x^2y_{n+2}+(2n+1)xy_{n+1}+(n^2+1)y_n=0$$

where $y=a\cos(\ln x)+b\sin(\ln x)$.

2. (a) Define Homogeneous Function. State Euler's Theorem on Homogeneous Functions. If $u=\cos^{-1}\dfrac{x+y}{\sqrt{x}+\sqrt{y}}$ then using Euler's theorem show that

$x\dfrac{\partial u}{\partial x}+y\dfrac{\partial u}{\partial y}+\dfrac{1}{2}\cot u=0$. **(9)**

(b) If $f(x)=3x^4+4x^3-12x^2+2$ then make a conjecture about the intervals on which f is increasing or decreasing. **(8)**

(c) Define critical and stationary points. Find all critical and stationary points of $f(x)=3x^{5/3}-15x^{2/3}$. **(6 1/3)**

Contd P/2

MATH 111

3. (a) Evaluate the following (Any two): **(16)**

(i) $\int \frac{\cos x + 2\sin x + 3}{4\cos x + 5\sin x + 6} dx$

(ii) $\int \sqrt{(x-\alpha)(\beta - x)} dx$

(iii) $\int \frac{e^x}{x}(1 + x\log x) dx$

(b) Find the entire area of the asteroid $x = a\cos^3 t$, $y = a\sin^3 t$. **(7 1/3)**

4. (a) Find the value of $\lim_{n\to\infty} \sum_{r=1}^{3n} \frac{n^2}{(3n+r)^3}$. **(7 1/3)**

(b) Evaluate the following: **(16)**

(i) $\int_0^{\pi/2} \frac{x\,dx}{\sin x + \cos x}$

(ii) $\int_0^1 \frac{\log x}{\sqrt{1-x^2}} dx$

SECTION - B

There are **FOUR** questions in this section. Answer any **THREE**.

Symbols used have their usual meaning.

5. (a) Find the direction cosines and angle between two straight lines whose direction cosines l, m, n are connected by the relations $l - 5m + 3n = 0$ and $7l^2 + 5m^2 - 3n^2 = 0$. **(11)**

(b) A line makes angles $\alpha, \beta, \gamma, \delta$ with the diagonals of a cube. Prove that **(12 1/3)**

$$\cos^2\alpha + \cos^2\beta + \cos^2\gamma + \cos^2\delta = \frac{4}{3}$$

6. (a) Find the equation of the plane which passes through the point (-1, 3, 2) and is perpendicular to each of the two planes $x + 2y + 2z = 5$, $3x + 3y + 2z = 8$. **(11)**

(b) A variable plane is at a constant distance p from the origin O and cuts the axes in A, B and C. Show that the locus of the centroid of the tetrahedron OABC is $\frac{1}{x^2} + \frac{1}{y^2} + \frac{1}{z^2} = \frac{16}{p^2}$. **(12 1/3)**

Contd P/3

MATH 111

7. (a) Find the equation of the line that intersects the lines $x+y+z=0=2x+y+4z$, $x-y-z-1=0=6x+2y-z-3$ and passes through the point (1, 1, 1). **(10)**

(b) Find the length and the equation of the shortest distance between the two lines $\frac{x+3}{-4}=\frac{y-6}{3}=\frac{z}{2}$ and $\frac{x+2}{-4}=\frac{y}{1}=\frac{z-7}{1}$. Also find the points where it intersects the lines. **(13 1/3)**

8. (a) Find the equation of the sphere passing through the circle $x^2+y^2+z^2-6x-2z+5=0$, $y=0$ and touching the plane $3y+4z+5=0$. **(13 1/3)**

(b) Find the equation of the plane through the line $7x+10y-30=0$, $5y=3z$ touching the ellipsoid $7x^2+5y^2+3z^2=60$. **(10)**
