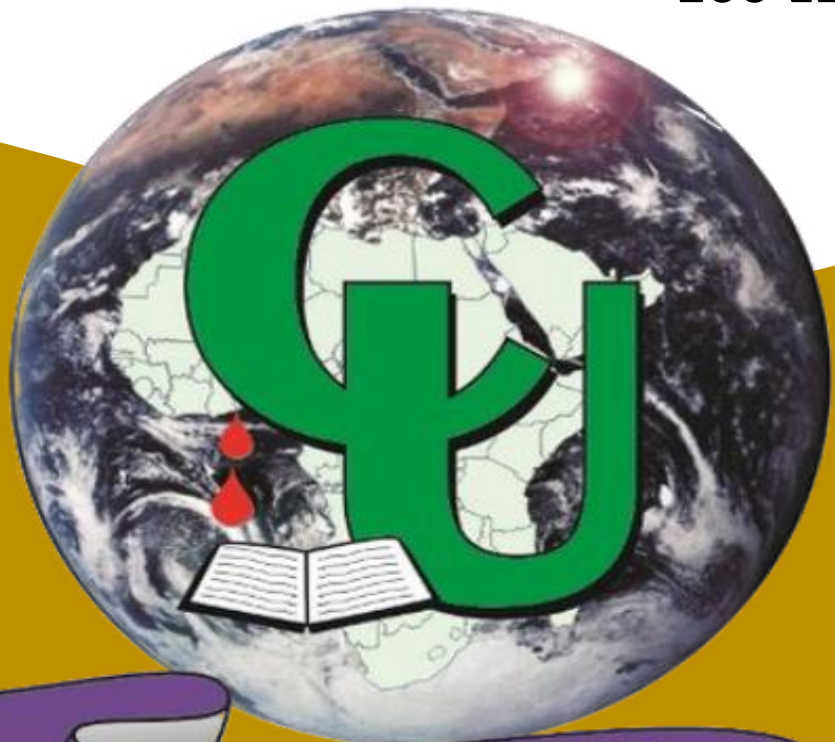


# COVENANT UNIVERSITY

ALPHA SEMESTER TUTORIAL KIT  
(VOL. 2)

PROGRAMME: ARCHITECTURE  
100 LEVEL



*Raising A New Generation Of Leaders*

## **DISCLAIMER**

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## **LIST OF COURSES**

\*ARC111: Architectural Graphics and Descriptive Geometry

\*ARC112: Visual Communication

ARC113: Introduction to Architecture

ARC114: Graphics and Descriptive Geometry for Surveyors

\*Not included



**COVENANT UNIVERSITY**

**CANAANLAND, KM 10, IDIROKO ROAD**

**P.M.B 1023, OTA, OGUN STATE, NIGERIA.**

**TITLE OF EXAMINATION: B.Sc. EXAMINATION**

**COLLEGE: SCIENCE AND TECHNOLOGY**

**SCHOOL: ENVIRONMENTAL SCIENCE**

**DEPARTMENT: ARCHITECTURE**

**SESSION: 2015/2016**

**SEMESTER: ALPHA**

**COURSE CODE: ARC113**

**CREDIT UNIT: 2**

**COURSE TITLE: INTRODUCTION TO ARCHITECTURE**

**INSTRUCTION: (Answer Question 1 and any other three); TIME: 2 HOURS**

*Instruction: Strict adherence to instruction in questions, Clarity of expressions, legibility in graphics, sketches and intelligent expression of forms shall attract excellent marks.*

**MARKING SCHEME/GUIDE**

1. (a) List at least 2 specific roles each for the following professionals in building industry:

(i) Architect (ii) Quantity Surveyor (iii) Structural Engineer (iv) Land Surveyor (v) Urban and Regional Planner

**Answer: 2marks for each of the key role well stated will attract 2marks eachx5=10marks**

(i) Architect (design of buildings, supervision of bldgs., design of ornaments, etc) (ii) Quantity Surveyor (iii) Structural Engineer (iv) Land Surveyor (v) Urban and Regional Planner

(b) State 5 comprehensively significant definitions of architecture with ARCON definition inclusive

*Answer: (i) 'Architecture' means the art and science in theory and practice of design, erection, commissioning, maintenance, and management and coordination of allied professional inputs thereto of buildings, or part thereof and the layout and master plan of such buildings forming a*

*comprehensive institution, establishment or neighborhood as well as any other organized space, enclosed or opened, required for human and other activities (ARCON-amendment 17, decree 43 of 1990-30th dec, 1990)*

*(ii) It is the art and science of buildings*

*(iii) The design, construction and supervision of buildings*

*(iv) It is the masterly, correct and magnificent play of volumes brought together in light (our eyes are made to see forms in light; light reveals these forms; cubes, cones, spheres, cylinders and pyramids are the great primary forms which light reveals to advantage)*

*(v) Complete building*

5 significant definitions with at least 2/3 key words will attract 2 marks each  $5 \times 2 = 10$  marks

(c) In an intelligent manner, express clearly in your own understanding the following motives:

Design Sporting, Noetic, Wisdom, Cathartic and Demystification motives of an Architect in design

endeavor.

*2 marks each  $5 \times 2 = 10$  marks, concise and meaningful expression of keywords will attract 2 full marks.*

**Total marks (30 marks)**

2. (a) What is Architectonics?

*Answer: Good definition of architectonics as a structural systemization of forms or scientific systemization of knowledge... (2 marks),*

*Demonstration of this phenomenon in a creative sketch form = (3 marks)*

*Total = 5 marks*

(b) Describe in one sentence only, the essence of the following fundamental principles of architecture:

(i) Order (ii) Eurythmy (iii) Arrangement (iv) Propriety (v) Economy

*One sentence with keywords with precise definition attracts 1 mark each  $5 \times 1 = 5$  marks*

*i.e (i) Order-due measure to the proportion of the whole (ii) Eurythmy-beauty and fitness in the adjustment of arch.design members (iii) Arrangement-putting things in proper places (iv) Propriety-*

*approved principles or authoritatively constructed (v) Economy-proper management of materials and sites*

(c) Choose any three of the above principles and weave a craftwork as legacy of architectural vocabulary in this

context.

***The list of the 3 principle=3, creative form=2marks, Total=5mark***

(d). State or highlight five (5) parameters that qualify a person in Architectural Training as a professional

***1 mark eachx5=5marks .....Total marks = 20marks***

3 (a) Write short notes on the following (i) First experience in Architectonics Model Making (ii) Benefit of following Instructions in the architectural training (iii) intuitive thinking and Rational thinking (iv) Creative Mind of Architect(v) Meaning of PHILOSOPHY and application to architecture

***A good description attract 2 full mark eachx5=10marks.***

(b) In a precise form, by tabulation and sketching, describe the architecture of any one (1) of the following masters of architecture under the following headings (i) philosophy (ii) relationship between the architects personal character and architectural design character (iii) Architecture's influence on the society

FRANK LLYOD WRIGHT, WALTER GROPIUS, EERO SARINE, PHILIP JOHNSON, LE CORBUSIER,NORMAN FOSTER,LUDWIG MIES VAN DER ROHE, THOMAS JEFFERSON, AUGUSTE PERRET and any other one as discussed in the class group dynamics.

***Philosophy=2MARKS; relationship between the architects personal character and architectural design character=2MARKS; (iii) Architecture's influence on the society2MARKS; Sketches=4marks =10marks***

..... **Total marks=20marks**

4 (a) The current argument in the literature of architectural education has been that, the end product i.e. model, drawings, e.t.c was given undue emphasis in the past than the process that evolved it, as a young design luminary, describe briefly with clear sketches or diagrams, the systematic guidelines involved in *design process*.

Listing of 5 systematic process=5marks, sketches of the of the 5stages=5marks, description=5marks

*Total=15marks*

(b) In three sentences, as a professional in the making, state (i) two things you must do to win and commit your Client? and (ii) three things you must avoid or control when listening to get the client's brief.

*Ability to state 2 sentences on practices to win and commit a client to a project = 2marks, 3 statements or expression on what to avoid or control=3marks, Total of 5marks*

*Total=20marks*

5(a) Describe briefly your understanding on the *education of an architect*.....5marks

*Learning-by-doing and multidisciplinary*

(b) Define practice and theory of architecture.....5marks

Answer: *Practice=continuous and regular exercise of employment, manual with materials*

*Theory=demonstration, production of dexterity on the principles of proportion*

(c) According to Marcus Vitruvius Pollio, describe, the symbiotic relationship of theory and practice in architectural professionalism.....10marks

**Answer: for an architect 'let him be educated, skillful with the pencil, instructed in geometry, know much history, have followed the philosophers with attention, understand music.....'**

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**COLLEGE:** CST **DEPARTMENT:** ARCHITECTURE

**SEMESTER:** ALPHA

**COURSE CODE:** ARC 113 **COURSE TITLE:** INTRODUCTION TO ARCHITECTURE

**INSTRUCTION:** (Answer Question 1 and any other two); strict adherence to instruction in questions, Clarity of expressions, legibility in graphics, sketches and intelligent expression of ideas shall attract excellent marks

**TIME ALLOWED:** 2 HOURS

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## Question 1

(a) Describe briefly by an Organogram /Chart, the rapport or symbiosis among the following professionals in building industry: Architect, Quantity Surveyor, Structural Engineer, Land Surveyor, Fine Artist and Urban and Regional Planner (10 marks)

(b) State comprehensively, five significant definitions of architecture, with ARCON definition inclusive. (10marks)

(c) 'Practice and Theory as combinations of continuous exercise and Magnificent display of dexterity; are vital arms of architectural professionalism'. In an intelligent manner, express clearly in your own understanding, the nobility of these essential ingredients in the design endeavor (10 marks)

Total marks (30marks)

## Question 2

(a) What is Architectonics? Demonstrate this phenomenon in a creative form..... (5marks)

(b) Describe in on sentence only, the essence of the following fundamental principles of architecture in theory and Practice of architectural design: (i) Orderliness (ii) Eurythmy (iii) Arrangement (iv) Propriety (v) Economy (5marks)



(c) Choose any three of the above principles and create a craftwork as a legacy of architectural vocabulary in this context. (5marks)

(d). In the principles of design, in a short form, describe the outstanding characteristics of the following in design making (i) Composition (ii) Unity and Variety (iii) Rhythm (iv) Balance (v) Proportion and Scale .....(5marks).

..... Total marks = 20marks

**Question 3**

(a) Write short notes on the following (i) Multidisciplinary (ii) Pointillism (iii) Pragmatism (iv) intuitive thinking (v) Empiricism (vi) Rational thinking (vii) value Judgment (viii) Creative Mind of an Architect (ix) Surrealism (x) Self-Criticism (10marks)

(b) In a precise form, list by tabulation and simple sketches, 3 factors that distinguished the philosophy of Frank Lloyd Wright from Walter Gropius; and 2 commonalities between Frank Lloyd Wright and Mies Van Der Rohe in the context of their design vocabularies and Achievements 10marks

Total marks=20marks

**Question 4**

(a) Justify with examples or references, how God applied architecture principles in His 'Design Process' of Creation of Heaven and Earth (15marks)

(b) In three sentences, classify architecture as a profession as distinct from other profession. And two sentences of how to relate professionally to a client with a desperate flair for fantasy? (5marks)

Total=20marks



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COLLEGE: SCIENCE AND TECHNOLOGY

DEPARTMENT: ARCHITECTURE

SESSION: 2015/2016

SEMESTER: ALPHA

COURSE CODE: ARC114

CREDIT UNIT: 2

COURSE TITLE: GRAPIC COMMUNICATION AND DESCRIPTIVE GEOMETRY FOR  
ESTATE MANAGEMENT(I)

INSTRUCTION: ANSWER 3 QUESTIONS IN ALL, 1 FROM SECTION 1 AND 2 FROM  
SECTION 2

TIME: 2 HOURS

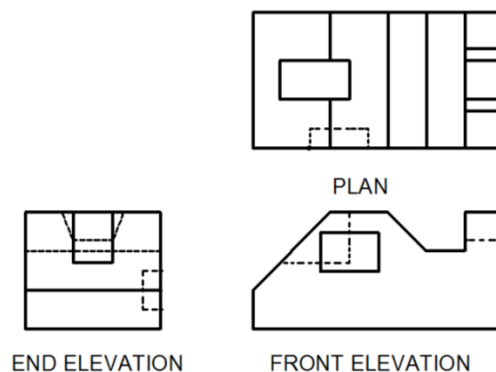
## MARKING SCHEME

### SECTION 1

1. a. Using third-angle projection, provide three orthographic views of plan, and two elevations for Figure 1, taking the front elevation from the direction of the arrow shown.

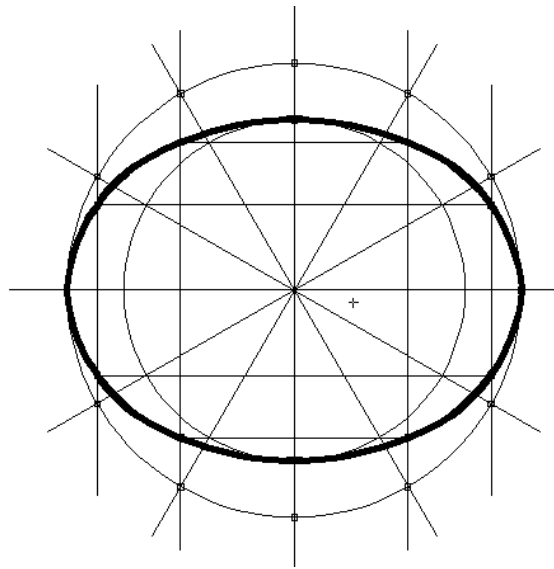
- CORRECT ARRANGEMENT - 3MKS
- CORRECT PLAN - 3 MKS
- CORRECT FRONT ELEVATION -3 MKS
- CORRECT END ELEVATION -3 MKS
- LINE WORK - 4 MKS
- PROJECTION -1 MK
- LETTERING -3 MKS
- DEDUCT ½ MARK FOR EACH MISSING LINE FROM VIEWS

20 MARKS IN ALL



b. Construct an ellipse with minor and major axis of 4cm and 6cm respectively by the auxiliary circle method

- 1 MARKS FOR GETTING THE CORRECT SIZE OF CIRCLES
  - 1 MARK FOR DIVIDING IN 12 PARTS
  - 2 MARKS FOR CORRECT POINTS
  - 3 MARKS FOR ELLIPSE
  - 3 MARKS FOR LINE WORK
- 10 MARKS IN ALL**

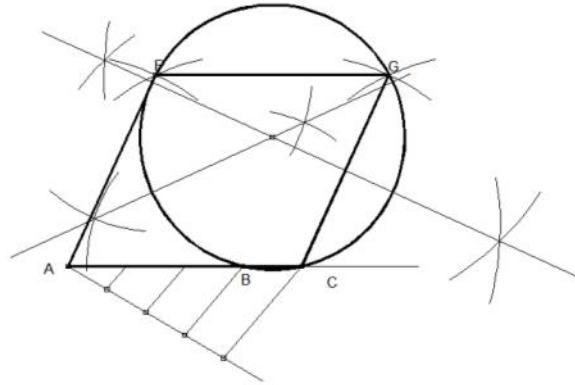


(30 marks)

2. A, B and C are three points on a straight line.
- a. Locate points A, B and C if AC is 60mm and AB:BC is in the proportion 3:1
    - FOR LOCATING POINTS A, B AND C CORRECTLY BY DIVIDING METHOD-4 MKS OR BY JUST MEASURING 1 MK
  - b. Locate by construction, any other point F, non-collinear with AC which is equidistant from A and B respectively
    - LOCATING F CORRECTLY, 2 MKS
  - c. Construct parallelogram AFGC
    - CORRECTLY CONSTRUCTING PARALLELOGRAM BY DESCRIBING MEASUREMENTS, 5 MKS
  - d. Draw a circle passing through points F, B and G
    - FOR BISECTING ANY 2 SIDES, EITHER FB, FG OR BG, 5 MKS,
    - FOR DRAWING THE CIRCLE ACCURATELY PASSING THROUGH THE THREE POINTS, 3 MKS

- FOR CORRECT DIFFERENTIATION OF CONSTRUCTION AND FINISHED LINES, 5 MKS, GOOD QUALITY LINES, 2 MKS AND GOOD LETTERING, 2MKSAND OVERALL NEATNESS 1 MKS

**30 MARKS IN ALL**



**(30 MARKS)**

### SECTION 2

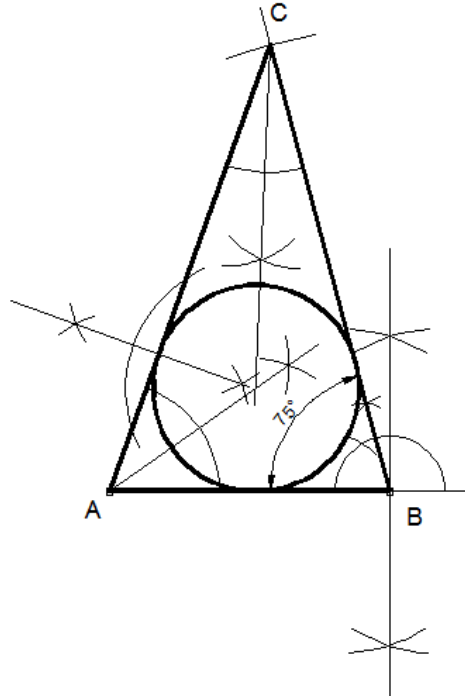
3. A figure has the following parameters: Line AB is 43cm,  $\angle ABC = 75^\circ$ , Line AC=71cm

- You are required to construct this figure. **4 MKS**
- Describe this figure indicating the full dimensions of all its sides and angles
  - **AB=43MM**
  - **BC=71MM**
  - **AC=73MM-1 MK**
  - **$\angle ABC = 75^\circ$**
  - **$\angle BCA = 35^\circ$ -1 MK**
  - **$\angle CAB = 70^\circ$ -1 MK**

**THE FIGURE IS AN ACUTE ANGLED-1MK SCALENE-1 MK TRIANGLE-1 MK**

- You are required to draw a circle within this figure such that it is tangential to all the sides of the figure.
  - **BISECTING 2 ANGLES-2MKS**
  - **CONSTRUCTING NORMAL TO A SIDE-2MKS**
  - **CORRECT TANGENTIAL CIRCLE-3 MKS**
  - **GOOD LINEWORK- 3 MKS**

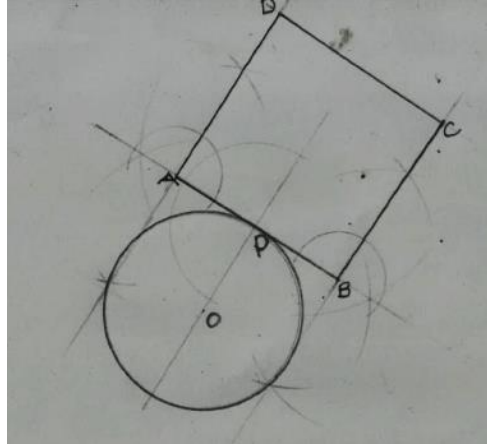
**20 MARKS IN ALL**



**(20 MARKS)**

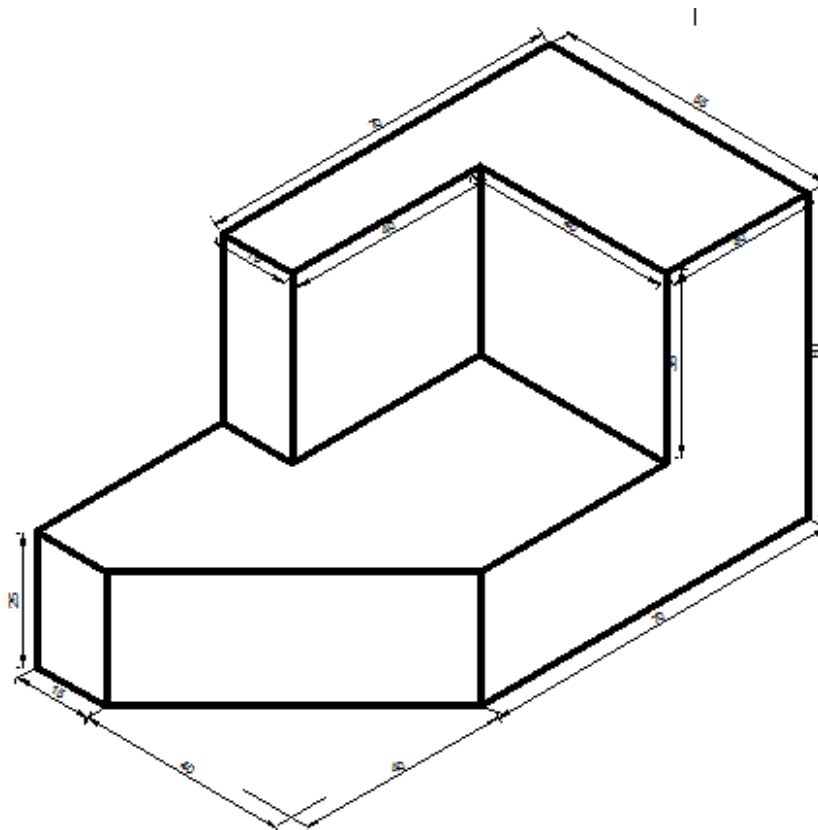
4. Line **AB** touches the circumference of a circle of diameter 8cm at only one point **P**.
- Draw this circle and the line if **AP** is equal to **PB**.
  - Construct square **ABCD** using line **AB** described above as one of its sides.
    - **DRAWING CIRCLE OF DIAMETER 8CM SHOWING O, 3MKS**
    - **DRAWING TANGENT AB=4CM BY EXTENDING RADIUS, SHOWING P AND CONSTRUCTING PERPENDICULAR TO OP FROM EXTERNAL POINT, 4MKS,**
    - **FOR AB=PB, 3MKS**
    - **FOR CORRECTLY CONSTRUCTING SQUARE ABCD, 5 MKS**
    - **GOOD QUALITY LINES, 3MKS**
    - **GOOD LETTERING, 2MKS**

**20 MARKS IN ALL**



(20 MARKS)

5. a. Draw and fully dimension figure 2 using Isometric projection
- 3 MKS FOR GETTING THE FIGURE CORRECT,
  - 3 MKS FOR GOOD LINE WORK,
  - 3 MKS FOR GOOD DIMENSIONING
- 9 MKS IN ALL



- b. Mention any five drafting tools known to you stating the uses of each.
- ½ MK EACH FOR MENTIONING AND ½ MK FOR STATING AT LEAST 1 USE OF EACH
- TEE-SQUARE

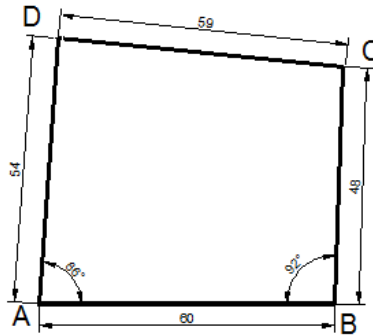
- SET SQUARE
- PENCILS
- DRAWING BOARD
- COMPASSES
- DIVIDERS
- ERASERS
- TEMPLATES

**5 MKS IN ALL**

c. a figure has the following parameters,  $AB=6\text{cm}$ ,  $BC=4.8\text{cm}$ ,  $CD=5.4\text{cm}$  with angles  $\angle ABC=92^\circ$  and  $\angle BAD=86^\circ$ . You are required to draw this figure and name its shape

- 2MKS FOR THE CORRECT FIGURE,
- 1 MK FOR GETTING ITS NAME-TRAPEZOID AND
- 3 MKS FOR GOOD LINE WORK.

**6 MKS IN ALL**



**(20 MARKS)**

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**COLLEGE:** CST

**DEPARTMENT:** ARCHITECTURE

**SEMESTER:** ALPHA

**COURSE CODE:** ARC 114

**COURSE TITLE:** GRAPHICS AND DESCRIPTIVE  
GEOMETRY FOR ESTATE MANAGEMENT

**INSTRUCTION:** Answer question 1 and any other 2 questions

**TIME ALLOWED:** 2 HOURS

**Question 1** A, B and C are three points on a straight line.

- Locate points A, B and C if AC is 60mm and AB:AC is in the proportion 3:1
- Locate by construction, any other point F not on line AC which is equidistant from A and B respectively
- Construct parallelogram AFGC
- Draw a circle passing through points F, B and G

**Question 2** Line AB touches the circumference of a circle of diameter 8cm at only one point P. Draw this circle and the line if AP is equal to PB.

- Construct square ABCD with side 4cm using line AB as one of its sides.

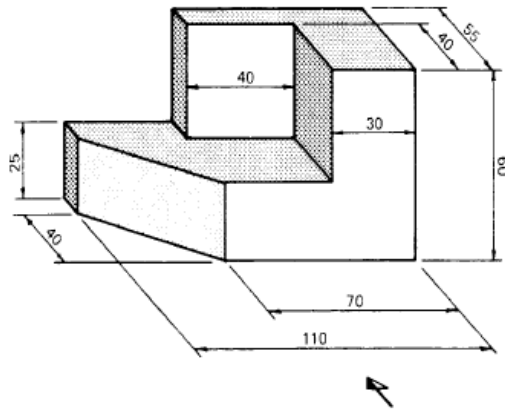
**Question 3**

- Three circles of radii 4cm, 5cm and 3 cm are externally tangential to one another. Draw the three circles
- Mention any five drafting tools known to you stating the uses of each.

**Question 4** Using third angle projection, provide three orthographic views of plan, and two elevations for Figure 1, taking the front elevation from the direction of the arrow shown.

**FIGURE 1**





**Question 5** The sector of a circle subtends  $112\frac{1}{2}^\circ$ , construct this sector using any desired radius and inscribe a circle within this sector.