KERALA GOVERNMENT CERTIFICATE EXAMINATION IN ELECTRICAL ENGINEERING—JUNE, 2006

ENGINEERING DRAWING
(Sketch to accompany)

[Time—3 hours
(Maximum marks : 100)

(Note :—1. Answer all questions on the drawing sheet.
2. Credit will be given for neat lettering.
3. All construction lines should be neatly and clearly shown.
4. All dimensions are shown in mm.
5. Question No. VI is compulsory.]

PART—A
(Answer any three questions)

I Write free hand in single vertical capital letters of 10 mm height the following sentence :
‘Technical drawing is the language of Engineering’.

II Construct a regular octagon having sides equal to 20 mm.

III Draw the inside tangential circles in a pentagon of side 30 mm.

IV Draw the following views of the block shown pictorially in fig. 1
   (a) Front view   (c) Side view from left.
   (b) Top view

V Draw the isometric view of the pentagonal pyramid, the projection of which are given in fig. 2.  

\[3 \times 10 = 30\]

PART—B
(Question No. VI is Compulsory)

VI Draw to suitable scale the half sectional end view of the induction motor with the main dimensions given below :

- Outside diameter of stator stamping — 288
- Inside diameter of stator stamping — 216
- Thickness of stator frame — 31
- Slots (stator) Type — open
  Number — 36
  Size — \(18 \times 2\)
- Airgap — 2
- Outside diameter of rotor stamping — 212
- Inside diameter of rotor stamping — 36
- Slots (rotor) Type — open
  Number — 36
  Size — \(12 \times 6\)
- Shaft diameter — 36

All dimensions are in mm. Other missing datas may be assumed.
PART - G

(Answer any three questions)  

VII Sketch the sectional plan showing the winding and core of a single phase transformer. The core is 48 mm in diameter and has 2 steps. The internal and external diameters of low tension windings are 50 mm and 58 mm respectively and high tension winding is 5 mm thick and outer diameter is 80 mm. Show the arrangements and mark the given dimensions on it.

VIII Draw the lay out of a 66 kV double circuit Transmission Tower.

IX Draw the circuit diagram of a rotor resistance starter for a slip ring induction motor.

X Draw the developed winding diagram of a 4 pole 36 slot 3 phase mesh connected armature of an induction motor.

XI Draw a single line lay out of a typical 66 kV sub-station.  

\[3 \times 10 = 30\]

\[\begin{align*}
\text{(a) [Answer]} & \quad (b) [Answer] \\
& \quad (c) Side view from left.
\end{align*}\]

\[\begin{align*}
\text{V} & \text{ Draw 2-\text{o} mesh projection \text{ and} pentagonal pyramid-\text{k} isometric view } \text{ and } \text{k}.
\end{align*}\]

\[\begin{align*}
\text{(a) [Answer]} & \quad (b) [Answer] \\
& \quad (c) Side view from left.
\end{align*}\]

VI Draw the sectional end view showing a typical induction motor-\text{a}.

\begin{tabular}{ | c | c |}
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Part & Dimension \\
\hline
Stator stamping-\text{a} outside diameter & 288 \\
Stator stamping-\text{a} inside diameter & 216 \\
Stator frame-\text{a} & 31 \\
Slots (stator) & Type \quad \text{open} \\
& Number \quad 36 \\
& Size \quad 18 \times 2 \\
Rotor stamping-\text{a} outside diameter & 2 \\
Rotor stamping-\text{a} inside diameter & 36 \\
Slots (rotor) & Type \quad \text{open} \\
& Number \quad 36 \\
& Size \quad 12 \times 6 \\
Shaft-\text{a} diameter & 36 \\
\hline
\end{tabular}

Other missing data may be assumed.