MODEL PAPER – FORMATIVE ASSESSMENT-1
C-23-EE-406
BOARD DIPLOMA EXAMINATION, (C-23)
DEEE – FOURTH SEMESTER EXAMINATION
EE-406 : ELECTRICAL ENGINEERING DRAWING

Time:90 Minutes   Total Marks: 40 Marks

PART-A   **2 x 10 = 20**

Instructions:

i.   **Answer all questions and each question carries ten marks.**

1. Draw half sectional end view and elevation of a Protected type shaft coupling with shaft
    diameter as 50 mm.   (CO1)
2. Draw the half sectional end view of armature core with diameter of the shaft as 130 mm
    and diameter of the core as 900 mm. Assume the missing dimensions.   (CO2)

PART-B   **1 X 20 = 20**

Instructions:

i.   **Answer the following question which carries twenty marks.**

3. (a) Draw the half sectional end view and elevation of a 50 kW D.C. Generator with the main
   dimensions as given below: (CO2)

External diameter of armature stamping	: 380 mm
Internal diameter of armature stamping	: 200 mm
No. of slots	: 32
Size of slot	: 35×15 mm
Total height of main pole including pole shoe	: 140 mm
No. of main poles	: 4
Main pole size	: 70 x 30 mm
Length of main pole	: 190 mm
No. of inter poles	: 4
Inter pole size	: 100×40 mm
Air gap	: 4 mm
Length of the armature core	: 240 mm
Thickness of yoke	: 50 mm
Diameter of commuter up to contact surface	: 220 mm
Diameter of commuter up to riser	: 240 mm
Shaft diameter at coupling end	: 60 mm
Total length of the shaft	: 600 mm

Take a suitable scale and assume any missing data.

(OR)

Draw the half-sectional end view and elevation of 5 HP, 440 V, 50 Hz, 1440 RPM, 3-phase squirrel cage induction motor with following main dimensions. (CO3)

Outside diameter of the stator stampings : 230
Inside diameter of the stator stampings : 164
Thickness of the stator frame : 25
Slots:
    Types   : open type
    Number   : 36
    Size   : 15 × 8
Air gap : 2
Outer diameter of the rotor stamping : 160
Inside diameter of the rotor stamping : 35
Shaft diameter:
    At centre   : 35
    At bearing   : 30

The rotor has totally closed type slots and contains bare conductors which are short circuited at both sides. Assume suitable scale. All dimensions are in mm and assume other missing data if any.

MODEL PAPER – FORMATIVE ASSESSMENT-2
C-23-EE-406
BOARD DIPLOMA EXAMINATION, (C-23)
DEEE – FOURTH SEMESTER EXAMINATION
EE-406 : ELECTRICAL ENGINEERING DRAWING

Time:90 Minutes   Total Marks: 40 Marks

PART-A   **2 x 10 = 20**

  Instructions:

i.   **Answer all questions and each question carries ten marks.**

1. Draw the plan and elevations of four stepped core section with diameter of core as 50 mm. (CO4)

2. Draw the sectional plan of one limb of a single-phase, single-stepped, core-type transformer with the following dimensions: (CO4)
  Core circle diameter   : 65 mm
   LT winding inner diameter   : 70 mm

LT winding outer diameter   : 120 mm

HT winding inner diameter : 125 mm

HT winding outer diameter   : 170 mm

PART-B   **1 X 20 = 20**

Instructions:

i.   **Answer the following question which carries twenty marks.**

3. (a) Draw the half-sectional end view and elevation of 5 HP, 400 V, 50 Hz, 1440 RPM, 3-phase slip
    ring induction motor with the following main dimensions.   (CO3)

Outside diameter of the stator stampings   = 320

Inside diameter of the stator stampings   = 195

Thickness of the stator frame   = 25

Stator Slots :

        Types   = open type

        Number   = 36

        Size   = 18 × 10

Rotor Slots:

        Types   = open type

        Number   = 36

        Size   = 15 × 8

Air gap = 2

Outer diameter of the rotor stamping   = 200

Inside diameter of the rotor stamping   = 35

Shaft diameter :

        At centre   = 35

        At bearing   = 30

All dimensions are in mm. Assume suitable scale. Assume other missing data if any.

(OR)

(b) Develop a Three-phase single-layer Lap winding for a 4-pole AC machine having 24 slots.

                                                                                                (CO5)

Time: 3 hours   Total marks: 60

PART-A   **4 x 5 = 20**

Instructions:

i.   **Answer all questions.**

ii.   **Each question carries five marks.**

1. Draw the following Symbols
    (a) Lamp   (b)Moving Coil Instrument   (c).Buzzer   (d). Lightning Arrestor (e) Fan (CO1)

2. Draw the guarding systems for telephone lines under power lines.   (CO1)

3. Draw the half sectional end view of the armature core with diameter of the shaft : 130 mm, diameter of the core : 900 mm, diameter of the hub : 770 mm. Assume missing data. (CO2)

4. Draw the plan and elevation of four stepped core section with diameter of core as 50 mm.   (CO4)

PART-B   **2 x 20 = 40**

Instructions:

i.   **Answer any two questions.**

ii.   **Each question carries twenty marks.**

5. Draw the half sectional end view and elevation of a 50 kW D.C. Generator with the main dimensions as given below: (CO2)

External diameter of armature stamping	: 380 mm
Internal diameter of armature stamping	: 200 mm
No. of slots	: 32
Size of slot	: 35×15 mm
Total height of main pole including pole shoe	: 140 mm
No. of main poles	: 4
Main pole size	: 70 x 30 mm
Length of main pole	: 190 mm
No. of inter poles	: 4
Inter pole size	: 100×40 mm
Air gap	: 4 mm

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Length of the armature core   : 240 mm

Thickness of yoke   : 50 mm

Diameter of commuter up to contact surface   : 220 mm

Diameter of commuter up to riser   : 240 mm

Shaft diameter at coupling end   : 60 mm

Total length of the shaft   : 600 mm

Assume any missing data.

6. Draw the sectional Plan and Elevation of single-phase, single-stepped, core-type transformer with the following dimensions:
   (CO4)

   Core circle diameter   : 65 mm
   Spacing between core centres   : 185 mm
   LT winding inner diameter   : 70 mm
   LT winding outer diameter   : 120 mm
   HT winding inner diameter   : 125 mm
   HT winding outer diameter   : 170 mm
   Height of core   : 360 mm
   Height of Yoke   : 60 mm
   Height of Bakelite ring   : 20 mm
   Assume any missing data in proportionate with above dimensions.

7 Draw the winding diagram and ring diagram for lap winding which has the following data. Also place brushes and equalizer rings.   (CO5)

   i.   No. of poles   = 4
   ii. No. of slots   = 20
   iii. No. of conductors/slots   = 2
   iv. No. of conductors   = 40
   v.   No. of commutator segments   = 20