



**INDIAN SCHOOL MUSCAT
FIRST TERM EXAMINATION
ENGINEERING GRAPHICS**

CLASS: XI

Sub. Code: 046

Time Allotted: 3 Hrs

18.09.2017

Max. Marks: 70

General Instructions:

1. *Attempt all questions.*
 2. *Follow SP-46-1988 Codes. Use first angle method of projection.*
 3. *Missing and mismatching dimensions should be assumed suitably.*
 4. *All dimensions are in millimeters.*
 5. *Use both sides of the drawing sheet.*
 6. *Number your answer figures according to your questions.*
-
- 1) Construct a triangle given the altitude = 30 mm, median from vertex A = 36 mm, median from vertex B = 51 mm. (04)
 - 2) Construct an Octagon of side 35 mm using set-square. (04)
 - 3) Two pulleys of diameter 40 mm and 70 mm are connected by a flat belt in open system. Draw the line diagram of the system. The distance between the centers is equal to 80 mm and the line joining the centers is vertical. (10)
 - 4) Center lines of two meter gauge railway tracks are at a distance of 5m. It is required to connect them by a reverse curve (Ogee Curve) starting from point A on the track to a point B on the second track such that the straight line distance AB is equal to 14m. The point of tangency of the two curves is 6m from A. Draw the center line of the curve (06)
 - 5) An elastic string of 150m long has its end attached to the circumference of a circular disc of 40 mm diameter. Draw the curve traced out by the other end of the string when it is completely wound around the disc keeping the string always straight. Name the curve. (12)
 - 6) Construct a parabola using intersecting arcs method, given the distance between its focus and the directrix as 60 mm. - (08)

- 7) Draw the orthographic projection of the following points. (04)
- a) Point 'P' is 30 mm above HP and 40 mm in front of VP.
 - b) Point 'R' is 32 mm below HP and 45 mm behind VP.
 - c) Point 'T' is in HP and 30 mm behind VP.
 - d) Point 'W' is in HP and 48 mm in front of VP.
- 8) A circular plate of negligible thickness and 50 mm diameter appears as an ellipse in the front view having its major axis 50 mm long and minor axis 30 mm long. Draw its top view when the major axis of the ellipse is horizontal. (10)
- 9) Draw the projections of a pentagonal prism, base 30mm sides and axis 60mm long, resting on one of its rectangular faces on the ground, with the axis inclined at 45° to the VP. (12)

End of the Question Paper



INDIAN SCHOOL MUSCAT FIRST TERM EXAMINATION

ENGINEERING GRAPHICS

CLASS: XI

Sub. Code: 046

Time Allotted: 3 Hrs

18.09.2017

Max. Marks: 70

INSTRUCTIONS:

- Attempt all questions.
- Follow SP-46-1988 Codes. Use First angle projection method.
- Missing and mismatching dimensions should be suitably assumed.
- All dimensions are in millimeters.
- Use both the sides of the drawing sheet.
- Neatness and clarity of constructions will be duly rewarded.

Q1. Construct an isosceles triangle ABC having perimeter $EF = 100$ mm and altitude $AD = 27$ mm. (04)

Q2. Construct a square, given the sum of a diagonal and a side = 80 mm. (04)

Q3. Inscribe 5 equal semicircles in a regular pentagon of side 40 mm, each semicircle touching two sides of the pentagon. (10)

Q4. Draw an arc of radius 70 mm tangential externally to a circle of radius 20 mm and internally to another circle of radius of radius 30 mm. The centers of the two circles are 60 mm apart. Also mark the point of tangency. (06)

Q5. A circle of diameter 40 mm rolls on a horizontal line, without slipping, for half a revolution and for the remaining half revolution it rolls on a vertical line. Draw the path traced by a point P on its circumference for one revolution. Assume the initial position of the position of the point P to be on the horizontal line. (12)

Q6. Construct an ellipse with major axis 110 mm and minor axis 60 mm by intersecting lines method (08)

Q7. Draw the orthographic projection of the following point (04)

- a. Point M in VP and 40 mm above HP
- b. Point P is in HP and 30 mm behind VP.
- c. Point G is 25 mm below HP and 35 mm in front of VP.
- d. Point X is both in VP and HP.

Q8. A circular plate of 40 mm diameter has its diameter AB parallel to and 20 mm above HP. Draw the orthographic projections of the plate when the diameter AB is inclined at 30° to HP and 45° to VP. (10)

Q9. Draw the orthographic projection of a hexagonal prism, side 20 mm and height 50 mm, resting on HP on one of its side. The axis of the prism is inclined at 45° to HP. (12)

End of the Question Paper