MARKING SCHEME

Senior School Certificate Examination – 2015

Subject : ENGINEERING GRAPHICS
Sub Code : 046
Paper Code : 68

ALL QUESTIONS ARE TO BE ANSWERED CORRECTLY AND ACCURATELY.

General Note:

a) Marks are to be awarded in proportion to the work done.
b) Mistakes in dimensioning up to ± 1.0 mm may be ignored.
c) In dimensioning, arrow-heads of various types, as per SP: 46-2003 codes are acceptable. However, where space is too small for an arrowhead, oblique stroke or dot may be employed.
d) In question no. 2 and in sectioned view of question no. 4, if hidden edges / lines are drawn, no marks should be deducted.
e) Other standard methods of drawing / proportions for features like nuts, heads of bolts, screws etc. employed by examinees, may also be accepted.

VALUE POINTS

		Distribution of Marks
Q 1.	**MULTIPLE CHOICE QUESTIONS**	**5**
(i)	(c) *or* Hatching/section linings.	*1*
(ii)	(b) *or* Metal end.	*1*
(iii)	(b) *or* Single riveted lap joint.	*1*
(iv)	(a) *or* Journal.	*1*
(v)	(d) *or* Ensure safety.	*1*
Q 2. (i)	**ISOMETRIC SCALE**	**4**
(i)	Marking of divisions of 10 mm, including division of first part of 1 mm on true length.	*1*
(ii)	Projections from scale 1:1 to get points on isometric scale, construction of isometric scale.	*2*
(iii)	Printing 'True Length/Scale 1:1', 'Isometric Length/Isometric Scale' and marking angles of 30^{o} & 45^{o}.	*1*

(ii) ISOMETRIC PROJECTION OF A FRUSTUM OF A HEXAGONAL PYRAMID **7**

(i) Drawing helping figure of both hexagons. $1^1/_2$

(ii) Drawing isometric hexagon, on top and at the base. *2*

(iii) Drawing four slant edges. $1^1/_2$

(iv) Marking the vertical axis, direction of viewing. *1*

(v) Dimensions. *1*

NOTE: *For incorrect position, 1 mark should be deducted*.

(iii) ISOMETRIC PROJECTION OF A CONE PLACED, CENTRALLY, ON A TRIANGULAR PRISM **13**

TRIANGULAR PRISM **7**

(i) Drawing helping figure. *1*

(ii) Drawing both isometric triangles. $2^1/_2$

(iii) Drawing horizontal edges. *2*

(iv) Marking the horizontal axis. $^1/_2$

(v) Dimensions. *1*

CONE **6**

(i) Drawing isometric ellipse along with centre lines. *2*

(ii) Drawing both generators. *2*

(iii) Marking the vertical axis ($^1/_2$) and direction of viewing ($^1/_2$). *1*

(iv) Dimensions. *1*

NOTE: *For incorrectly placed solids, deductions, as proposed in (ii) above, should be used.*

Q 3. (i) B.S.W. THREAD PROFILE **8**

(i) Horizontal distances (equal to half of pitch), vertical distances (D=0.96P, D/6) marked correctly. *2*

(ii) Drawing roots and crests of threads (minimum two) and flanks, drawn correctly. *3*

(iii) Drawing hatching lines and conventional break. *1*

(iv) Standard dimensions. *2*

[OR]

HOOK BOLT **8**

FRONT VIEW:

(i) Threaded and unthreaded portions of cylindrical shank with square neck. *3*

(ii) Head of bolt. *1*

SIDE VIEW:

(i) Rectangle with one horizontal line. *1*

(ii) Two circles as per convention. *1*

Standard dimensions. *2*

NOTE: 2 *marks should be deducted, in all, if sketched freehand, instead of drawing to scale 1:1.*

(ii) SOCKET HEAD MACHINE SCREW **5**

Front view with its axis perpendicular to H.P.

(i) Drawing the head. *2*

(ii) Drawing the shank. *2*

(iii) Standard dimensions. *1*

[OR]

WOODRUFF KEY **5**

(i) Front view. *2*

(ii) Top view. *1*

(iii) Side View. *1*

(iv) Standard dimensions. *1*

NOTE: 1 *mark should be deducted, if these components are drawn with instruments, instead of being sketched freehand.*

Q 4. SLEEVE AND COTTER JOINT (Assembly)

(i) FRONT VIEW (Upper Half in Section) : **14**

(a) Sleeve in upper half, clearances, hatching lines. *3*

(b) Rods with broken section around cotter in upper half, clearances, chamfered ends and broken ends as per convention. *5*

(c) Cotters in upper half. *3*

(d) Sleeve, rods and cotters in lower half. *3*

(ii) SIDE VIEW (Viewed from right side): **8**

(a) Four circles. *4*

(b) Cotter. $2\frac{1}{2}$

(c) Hatching as per convention. *1*

(d) Cutting plane. $\frac{1}{2}$

DETAILS : **6**

Printing title(1), scale used(1), drawing projection symbol(1) and six dimensions(3).

[OR]

FLANGE PIPE JOINT (Dis-assembly)

1) FLANGE B:

(i) FRONT VIEW (Upper Half in Section) : **8**

(a) Flange in upper half(2), hole for bolt(1), broken end as per convention(1), hatching(1). *5*

(b) Flange in lower half. *3*

(ii) SIDE VIEW (Viewed from right side) : **8**

(a) Four circles(4), one pitch circle diameter($\frac{1}{2}$). $4\frac{1}{2}$

(b) Drawing four holes for bolt. *2*

(c) Hatching as per convention. *1*

(d) Cutting plane. $\frac{1}{2}$

2) GASKET

(i) FRONT VIEW (Full in Section): **3**

(a) Boundry with two horizontal lines. *2*

(b) Shading for rubber. *1*

(ii) SIDE VIEW (Viewed from left side) : **3**

(a) Two circles. $2^1/_2$

(b) Cutting plane. $^1/_2$

DETAILS : **6**

Printing titles of both (1), scale used (1), drawing projection symbol (1) and six dimensions (3).