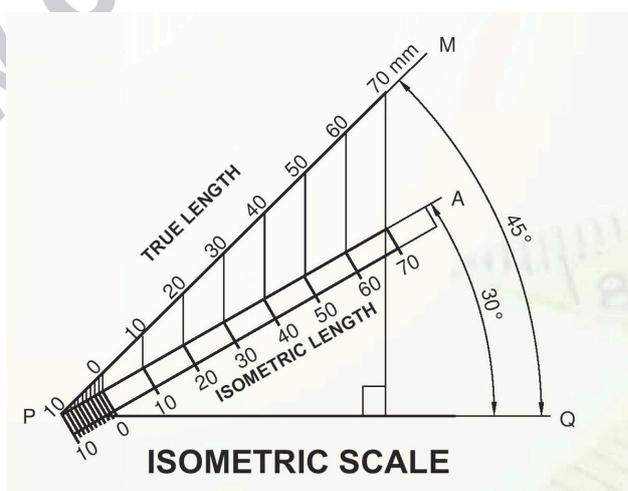


MARKING SCHEME
SAMPLE QUESTION PAPER 2016-17
ENGINEERING GRAPHICS

ALL QUESTIONS ARE TO BE ANSWERED CORRECTLY AND ACCURATELY

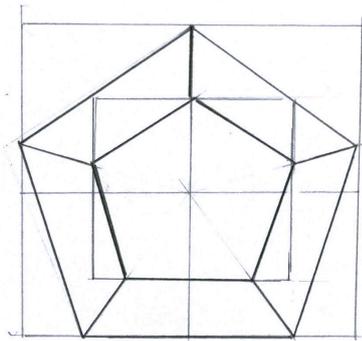
VALUE POINTS

S.NO.		Distribution of Marks
Q 1: Multiple Choice Questions		5
(i)	b or 15°	1
(ii)	c or knuckle thread	1
(iii)	c or $D/4$	1
(iv)	a or flanged pipe joint	1
(v)	d or web	1
Q 2: (i) ISOMETRIC SCALE		4
(i)	Marking of divisions of 10mm, including division of first part of 1mm 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° and 45°	1

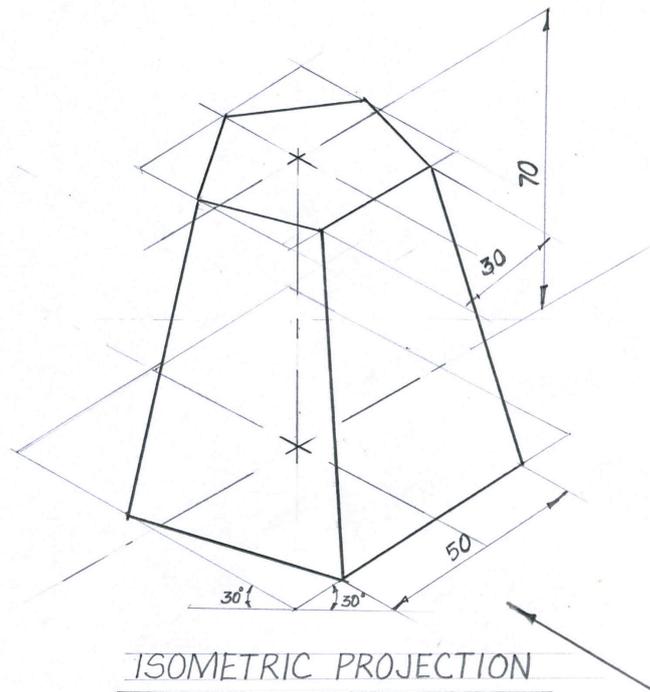


Q 2(ii): ISOMETRIC PROJECTION OF FRUSTUM
7

- | | | |
|-------|--|---|
| (i) | Drawing helping figure | 1 |
| (ii) | Drawing isometric pentagon on top and base | 2 |
| (iii) | Drawing the slant edges | 2 |
| (iv) | Marking the axis and direction of view | 1 |
| (v) | Two dimensions | 1 |



HELPING VIEW



ISOMETRIC PROJECTION

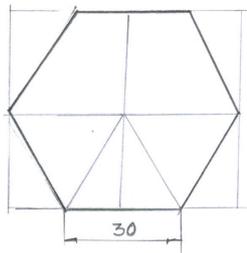
Q 2(iii): ISOMETRIC PROJECTION OF COMBINATION OF SOLIDS 13

SQUARE SLAB

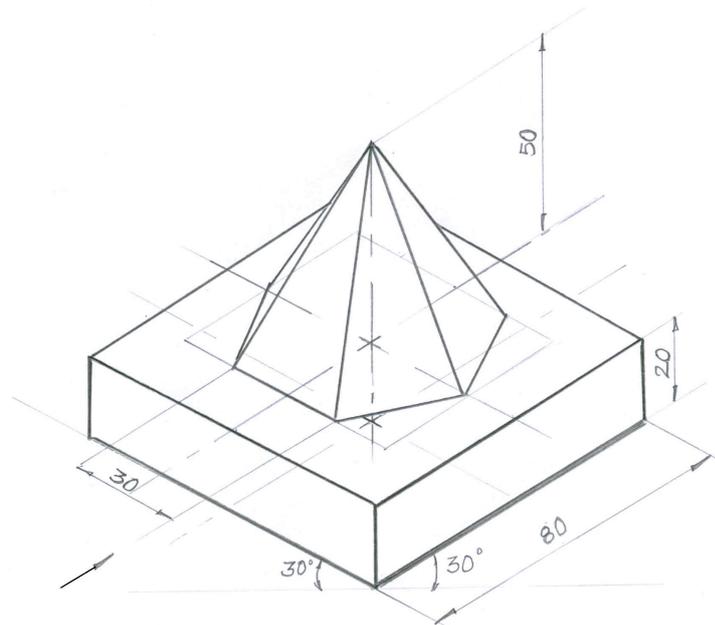
- | | |
|-------------------------------|---|
| (i) Drawing isometric squares | 6 |
| (ii) Drawing edges | 3 |
| (iii) Dimensions | 2 |
| | 1 |

HEXAGONAL PYRAMID

- | | |
|--|---|
| (i) Drawing helping figure | 7 |
| (ii) Drawing isometric hexagon | 1 |
| (iii) Drawing slant edges | 2 |
| (iv) Dimensions | 1 |
| (v) Marking common axis (1) and direction of viewing (1) | 1 |
| | 2 |



HELPING VIEW.



ISOMETRIC PROJECTION

COMBINATION

W

Q 3(i): HEXAGONAL NUT

8

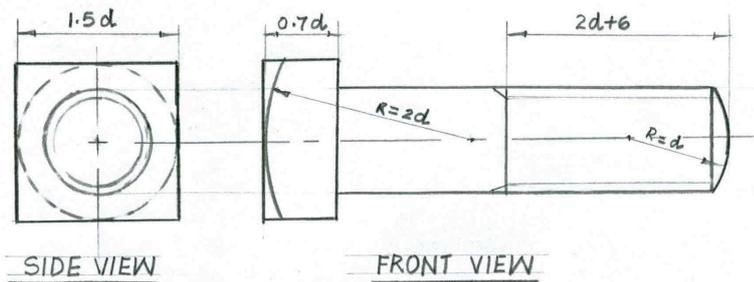
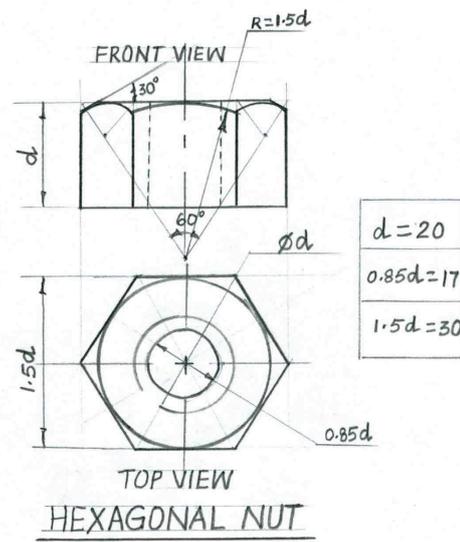
- a) Front View 3
- b) Side View 3
- c) Standard Dimensions 2

OR

SQUARE HEADED BOLT

8

- a) Front View 3
- b) Side View 3
- c) Standard Dimensions 2



SQUARE HEAD BOLT

d	$2d$	$0.7d$	$1.5d$	$2d+6$
20	40	14	30	46

Q 3(ii): GRUB SCREW

5

(i) Front view

2½

(ii) Top view

1½

(iii) Standard Dimensions

1

OR

PLAIN STUD

5

(i) Front view

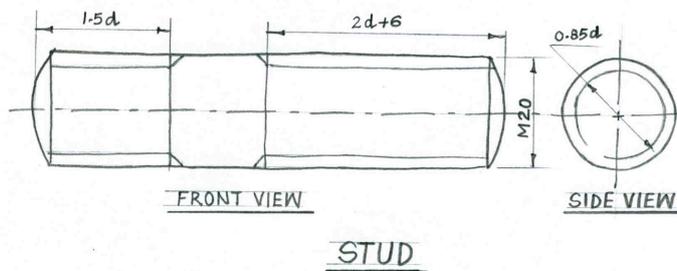
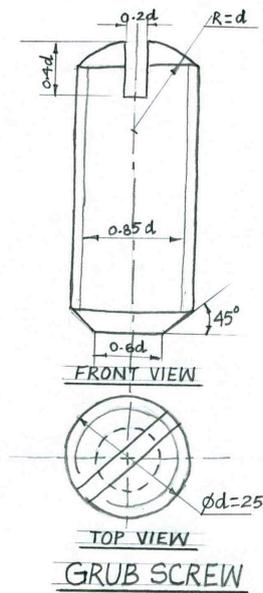
2½

(ii) Side view

1½

(iii) Standard Dimensions

1



Q 4: FLANGE PIPE JOINT (ASSEMBLY)

28

i) FRONT VIEW, TOP HALF IN SECTION

14

- (a) Drawing both flanges and pipes in top half portion, including fillets of R3 and hatching in the broken end of pipe. 4
- (b) Drawing both flanges and pipes in bottom half (without hatching) including fillets of R3 and hatching in the broken end of pipe. 3
- (c) Drawing a hole of dia 12 on a p.c.d. of dia 106 and hatching of flanges 2
- (d) Drawing bolts and nuts of M10. 4
- (e) Indicating gasket in the top half with shading or cross hatching and in bottom half. 1

(ii) LEFT SIDE VIEW

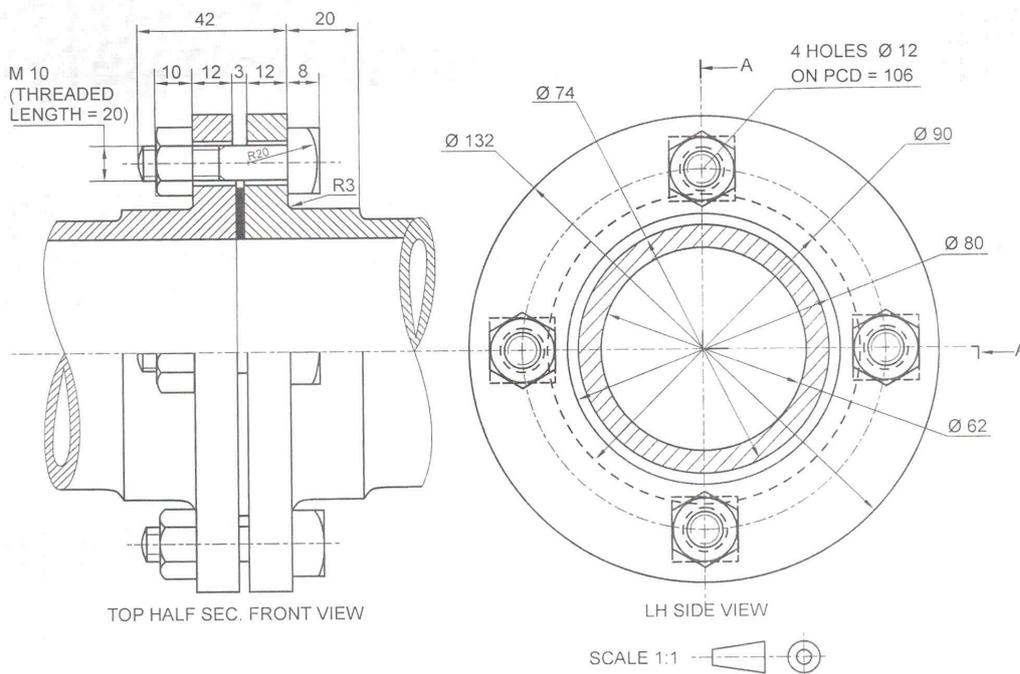
8

- (a) Drawing 5 circles and pitch circle for bolts. 4
- (b) Drawing hatching lines to indicate pipe thickness 1
- (c) Drawing nut and bolt assembly on p.c.d. at one location at least 2½
- (d) Drawing cutting plane ½

DETAILS

6

Title (1), Scale used (1), Projection symbol (1), 6 important dimensions (3)



ASSEMBLY OF A FLANGED PIPE JOINT

OR

Q 3: PROTECTED FLANGE COUPLING (DISASSEMBLY)

28

FLANGE B

- (i) FRONT VIEW, UPPER HALF IN SECTION 8
 - (a) Drawing the upper half with hatching lines 3
 - (b) Drawing the lower half portion 2
 - (c) Drawing hole of $\phi 8$ mm and 3mm extended portion of $\phi 40$ mm 2
 - (d) Drawing the key way 1
- (ii) LEFT SIDE VIEW 8
 - (a) Drawing six Circles and PCD 5½
 - (b) Drawing keyway (1) and hole of $\phi 16$ mm(1) 2
 - (c) Drawing cutting plane ½

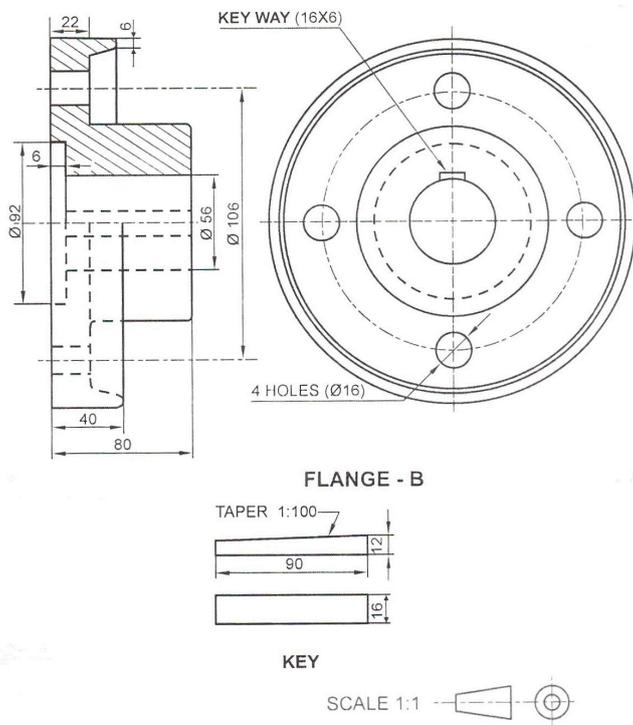
RECTANGULAR SUNK TAPER KEY

- (i) Front view drawn correctly 3
- (ii) Top view drawn correctly 3

DETAILS

6

Title (1), Scale used (1), Projection symbol (1), 6 important dimensions (3)



A PROTECTED FLANGE COUPLING