
	INDIAN SCHOOL AL WADI AL KABIR	
Class: XII	Department: SCIENCE 2026– 27 SUBJECT: ENGINEERING GRAPHICS	Date: 06/05/2026
Worksheet No: 2 WITH ANSWERS	UNIT 2: MACHINE DRAWING	Note: A4 FILE FORMAT
NAME OF THE STUDENT	CLASS & SEC: XII B	ROLL NO.

MULTIPLE CHOICE QUESTIONS

1. Which type of thread profile is used in the feed mechanism of machine tools?
 - a) BSW
 - b) Metric
 - c) Square
 - d) Knuckle

2. The designation M20 x 2 square bolt means (CBSE BOARD PAPER – 2019)
 - a) The major diameter is 20mm, and the pitch is 2mm
 - b) two bolts of major diameter 20mm
 - c) two bolts of pitch 20mm
 - d) the metric screw thread of diameter 40mm

3. What will be the threaded length of the nut end, if the nominal diameter of a collar stud is 10 mm? (CBSE SAMPLE PAPER 2024)
 - a) 26 mm

- b) 10 mm
- c) 20 mm
- d) 15 mm

4. Which among the following is not a type of fastening?

- a) Sectioning
- b) Welding
- c) Riveting
- d) Screw pair

5. In the top view of a vertical flat head rivet of diameter d , the diameter of the outer circle is:(CBSE BOARD PAPER 2023)

- a) d
- b) $2d$
- c) $1.6d$
- d) $0.7d$

6. The distance moved by a nut or bolt in the axial direction in one complete rotation is called ---.

- a) Pitch
- b)Lead
- c) crest
- d) None of the above

7. The machine parts that can be separated only by breaking the fastening are called -----.

- a) Temporary fastener
- b) Permanent fastener
- c) Screw thread
- d) Screw pair

8. A helical groove cut along the outer circumference of a cylinder is called a -----

- a) Fastener
- b) Nut
- c) Bolt
- d) Screw thread

9. The nut and bolt together are called a -----.(CBSE BOARD PAPER 2018)

- a) Screw pair
- b) Fastener
- c)Nut
- d) Bolt

10. The surface connecting crest and root is called as -----

- a)Flank
- b)Root
- c)Lead
- d)Pitch

11. Which type of thread is used in the neck of glass bottles -----(CBSE SAMPLE PAPER 2020)

- a)BSW thread
- b)Metric thread
- c) Knuckle thread
- d) Square thread

12. In the BSW thread, the major diameter D is calculated using the formula?

- a) $D = 0.96P$
- b) $D = 0.86P$
- c) $D = 0.64P$

d) $D = 0.61P$

13.----- is also called the unified thread.

a. Knuckle thread

b. Metric thread

c. Taper thread

d. Square thread

14. Which one is a permanent fastener-----.

a) Nut

b) Bolt

c) Rivets

d) Washer

15. A circular plate that provides a smooth bearing surface is called a -----.

a) Nut

b) Bolt

c) Washer

d) Screw

16. Nuts will have which type of threads-----

a) Internal threads

b) External threads

c) V threads

d) None of the above

17. The thickness of a flat head rivet for a diameter ' d ' is : (CBSE BOARD PAPER 2026)

a) $0.2d$

b) $0.25d$

c) $0.3d$

d) $0.35d$

18. M in M8, M12 on bolts stands for (CBSE BOARD PAPER 2026)

a) Metric thread

b) Mean diameter

c) Major diameter

d) Minor diameter

Q19 to 23: Read the following paragraph and answer the questions given below

Varun's mother bought a new cookware set online, and when it was delivered, the cookware handles were secured with a special type of machine part. Being an engineering graphics student, Varun sent the following image of that machine part to their Engineering Graphics teacher. Then the teacher explained everything about that part, which is called Rivet. Analyze the figure and answer the following questions.



19. Analyze the figure and identify which type of rivet head is shown in the figure?

a) Snap head rivet

b) Pan head rivet

c) 60-degree CSK rivet

4. Flat head rivet

20. Rivet heads are what type of fasteners?

- a) Temporary fastener
- b) Permanent fastener
- c) Threaded fastener
- d) Unified fastener

21. In this type of rivet head, the radius of the head portion is calculated with a value of?

- a) $R = 0.7d$
- b) $R = 0.6d$
- c) $R = 1.5d$
- d) $R = 0.8d$

22. If $d = 20$ mm, find the value of the height of the head portion of the rivet head.

- a) 14
- b) 16
- c) 18
- d) 32

23. A ----- is a simple, round rod having a head at one end.

- a) Stud
- b) Rivet
- c) Screw
- d) Nut

DESCRIPTIVE QUESTIONS

1. Draw to 1:1 the front elevation and side view of a hexagonal head bolt of M30 size, keeping the axis horizontal. Give standard dimensions. (CBSE BOARD PAPER 2024)
2. Draw to scale 1:1 the standard profile of a BSW thread, taking enlarged pitch = 30 mm. Give standard dimensions. (CBSE BOARD PAPER 2022)
3. Draw to scale 1:1 the standard profile of a metric thread (internal), taking an enlarged pitch = 60 mm. Give standard dimensions. (CBSE SAMPLE PAPER 2025)

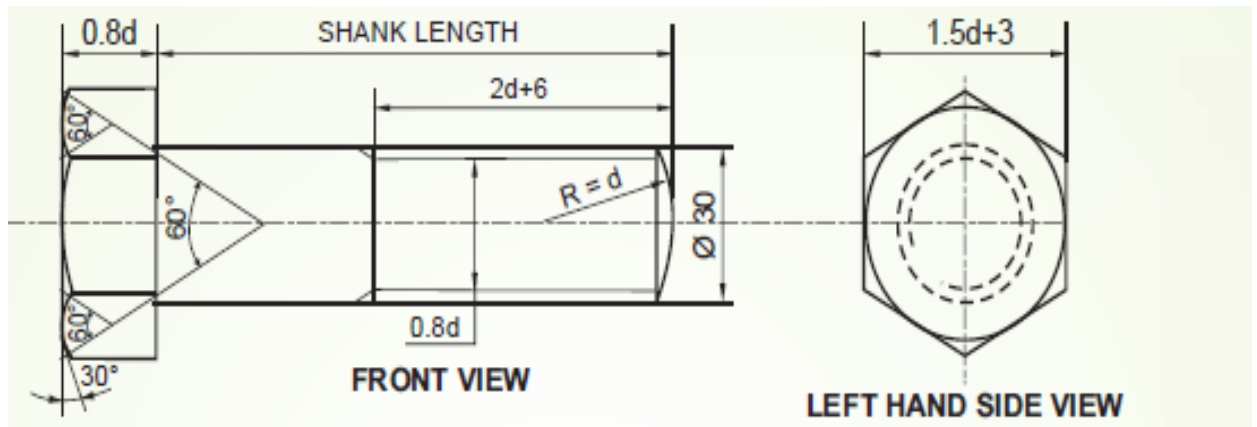
4. Draw to scale 1:1 the front view and top view of a square head bolt of diameter 26 mm, keeping its axis vertical.
5. Sketch freehand, front view, and side view of a stud with a collar, keeping the axis vertical. Give standard dimensions.
6. Sketch freehand the front view and top view of a flat head rivet of diameter 20 mm, keeping its axis vertical. Give standard dimensions. (CBSE BOARD PAPER 2018)
7. Sketch freehand the front view and top view of a cheese head screw of size M20, keeping its axis vertical. Give standard dimensions. (CBSE BOARD PAPER 2019)
8. Sketch freehand the conventional representation of RH External V thread (Take $p = 5\text{mm}$)

ANSWER KEY – MULTIPLE CHOICE QUESTIONS	
1.	c) Square
2.	a) The major diameter is 20mm, and the pitch is 2mm
3.	a) 26 mm
4.	a) Sectioning
5.	d) $2d$
6.	b) Lead
7.	b) Permanent fastener
8.	d) Screw thread
9.	a) Screw pair
10.	a) Flank
11.	c) Knuckle
12.	a) $D = 0.96P$
13.	b) Metric thread
14.	c) Rivets

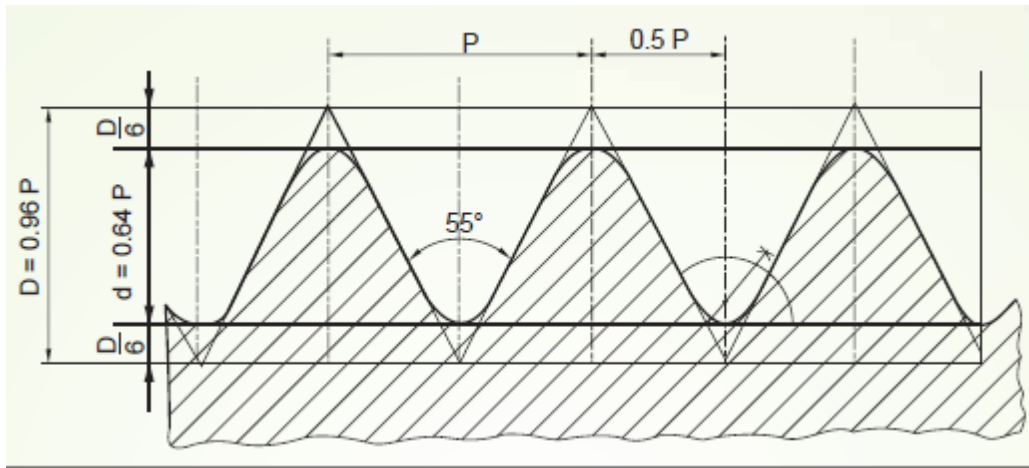
15.	c) Washer
16.	c) Washer
17.	b) $0.25d$
18.	c) Major diameter
19.	a) Snap head rivet
20.	b) Permanent fastener
21.	d) $R = 0.8d$
22.	a) 14
23.	b) Rivet

SOLUTIONS FOR DRAWINGS

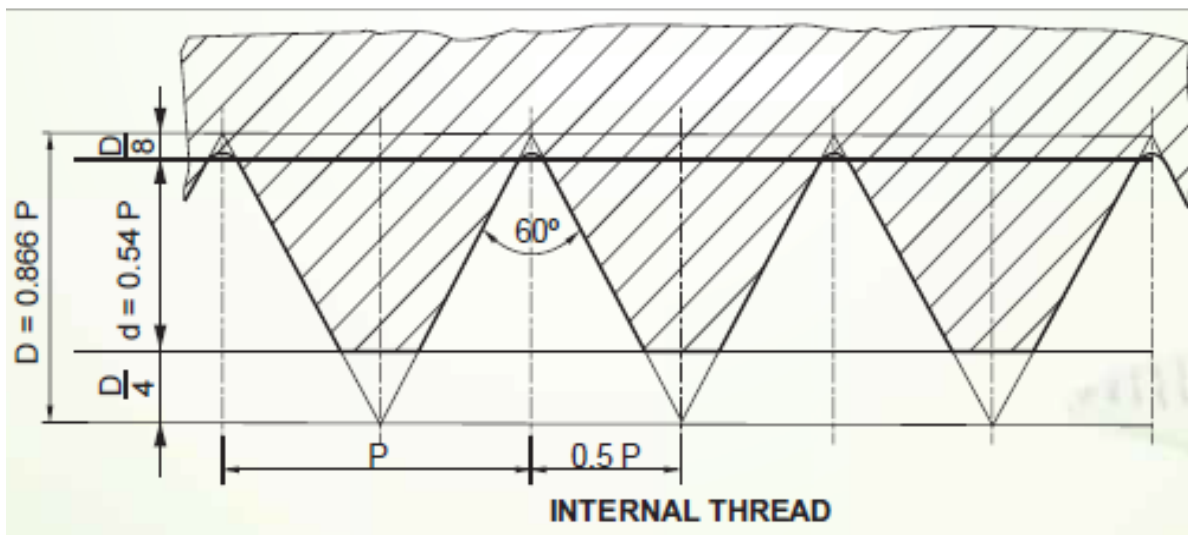
1. (Hint : standard dimensions of hexagonal headed bolt should be calculated in terms of d)



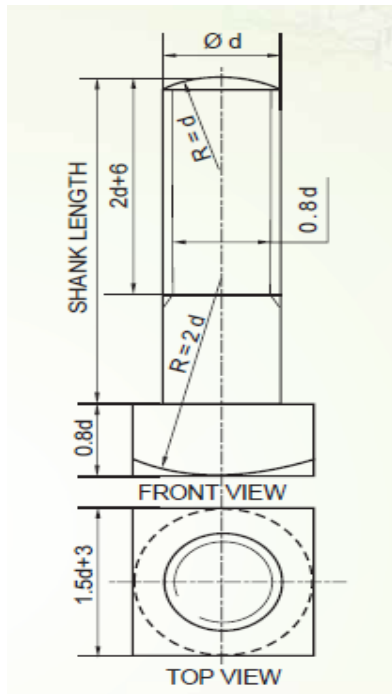
2. (Hint: Standard dimensions of BSW thread should be calculated with the pitch given = 30mm)



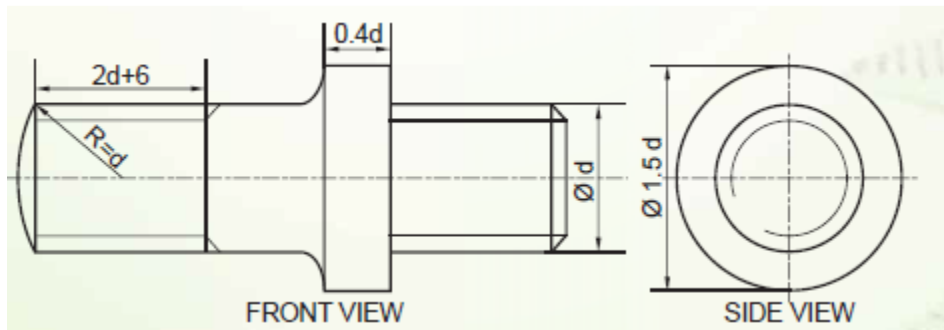
3. (Hint : Standard dimensions of Metric thread internal should be calculated with the pitch given = 60mm)



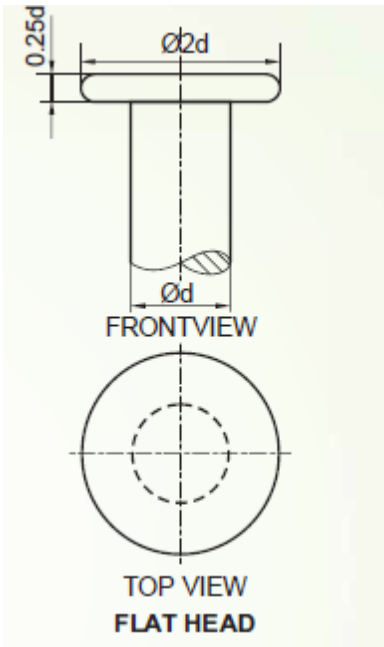
4. (Hint: Standard dimensions of square-headed bolt in terms of d , $d = 26$ mm)



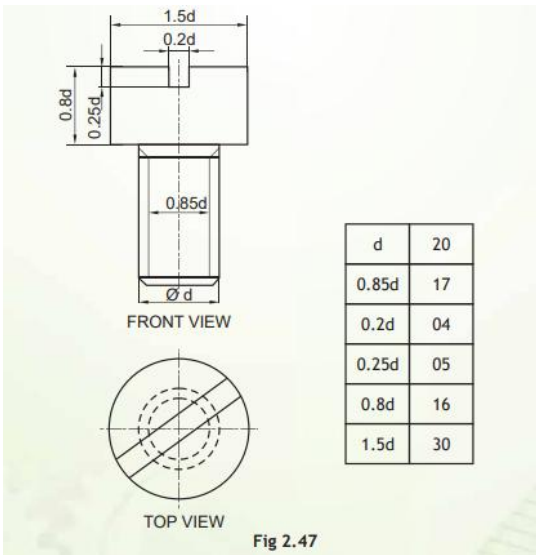
5. (Hint: Freehand sketch of stud with collar, d can be taken proportionately and calculate standard dimensions) .



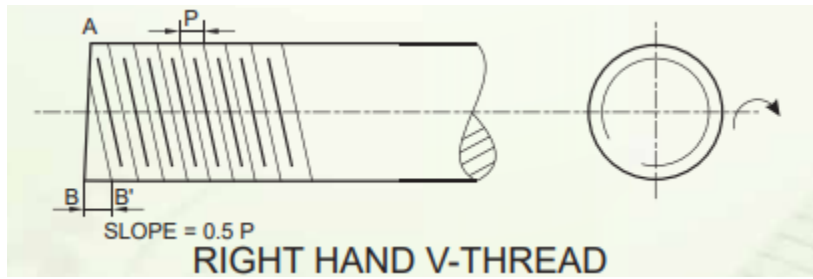
6. (Hint: Freehand sketch of flat head rivet, standard dimensions calculated with $d = 20$ mm).



7.



8.



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