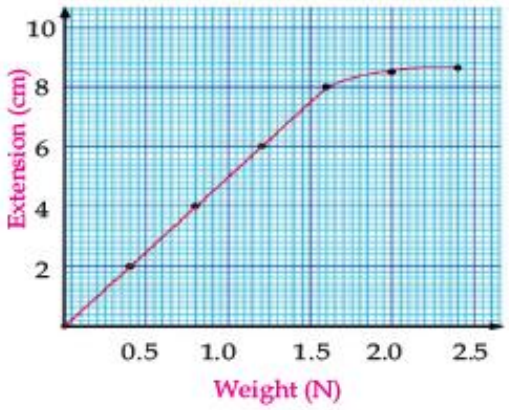
UNIT-5

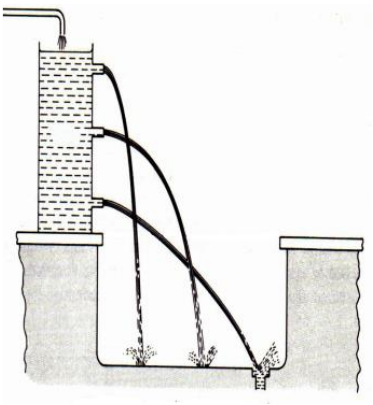
MULTIPLE CHOICE QUESTIONS

BOOK- MCQs

1. The springs in brakes and clutches are used
   a) To restore original position b) To measure forces
   c) To absorb shocks d) To absorb strain energy
2. If the material recovers the original dimensions, when an external force is removed, this deformation is known as _____ deformation.
   a) Inelastic b) Permanent **c) Elastic** d) Irreversible
3. Which of the following material is more elastic?
   a) Rubber b) Glass **c) Steel** d) Wood
4. If a spring stretches easily then its spring constant has _____.
   a) Large value **b) Small value**
   c) Constant Value d) Both (a) and (b)
5. What is the unit for the spring constant?
   a) Nm b) Nm^{-2} **c) Nm^{-1}** d) Nm^{2}
6. The spring obeys Hooke's law for the earlier extensions and when the spring becomes damaged it does not appear to do so; Fig . Estimate, from graph, after addition of which weight the spring damaged.



   a) 1.5 N
   b) 8 N
   c) 1.6 N
   d) 2.0 N
7. Which of the following is not a unit of pressure?
   a) Pascal b) Bar c) Atmosphere **d) Newton**
8. If a metal block applies a force of 20 N on an area of 5 cm^2. Find the pressure being applied by the block on the area of ____.
   a) 100 Ncm-2 b) 0.8 Ncm^{-2} c) 0.25 Ncm^{-2} **d) 4 Ncm^{-2}**
9. The Fig shows a container with three spouts. The container is filled with water. Jets of water pour out of the spouts. Why does the jet of water from the bottom spout goes farthest out from the container?



   a) Pressure decreases with depth.
   b) Pressure increases with depth.
   c) More water available to flow out from the bottom.
   d) Density of water different at different places.

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MULTIPLE CHOICE QUESTIONS
EXAM PRACTICE MCQs

11. Hooke's law states that the extension of a spring is directly proportional to the:

A. Mass of the spring
B. Force applied
C. Length of the spring
D. Temperature

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12. Hooke's law is valid only when the spring is:

A. Heated strongly
B. Beyond its elastic limit
C. Within its elastic limit
D. Broken

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13. The formula for Hooke's law is:

A. F=ma
B. F=ke
C. W=mg
D. P=F/A

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14. In the equation F=ke , what does k represent?

A. Extension
B. Force
C. Spring constant
D. Elastic limit

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15. If a spring has a large spring constant, it means the spring is:

A. Easy to stretch
B. Very stiff
C. Very long
D. Very light

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16. A force of 10 N stretches a spring by 0.5 m. What is the spring constant?

A. 5 N/m
B. 10 N/m
C. 20 N/m
D. 50 N/m

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17. A spring has a spring constant of 10 N/m. What force is needed to stretch it by 0.2 m?

A. 10 N
B. 2 N
C. 5 N
D. 10 N

18. **A 5 N force produces an extension of 0.1 m in a spring. What extension will a 15 N force produce?**

A. 0.1 m
B. 0.2 m
C. 0.3 m
D. 0.5 m

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19. **A spring of spring constant 50 N/m is stretched by a force of 25 N. What is the extension?**

A. 0.2 m
B. 2.0 m
C. 1.0 m
D. 0.5 m

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20. **A force of 100 N acts on an area of 2 m^2. What is the pressure?**

A. 25 Pa
B. 50 Pa
C. 100 Pa
D. 200 Pa

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21. **A force of 200 N produces a pressure of 50 Pa. What is the area?**

A. 2 m^2
B. 4 m^2
C. 6 m^2
D. 8 m^2

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22. **Calculate the liquid pressure at a depth of 3 m in water. Take $\rho=1000\ kg/m^3$.**

A. 3,000 Pa
B. 10,000 Pa
C. 30,000 Pa
D. 300,000 Pa

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23. **A liquid has density 800 kg/m^3 . What is the pressure at a depth of 5 m? Take $g=10\ m/s^2$.**

A. 4,000 Pa
B. 20,000 Pa
C. 30,000 Pa
D. 40,000 Pa

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24. **A pressure of 120 Pa is produced by a force of 60 N. What is the area?**

A. 0.25 m^2
B. 0.5 m^2
C. 1.0 m^2
D. 2.0 m^2

25 **At the same depth, liquid pressure acts:**

A. Only downward
B. Only upward
C. In all directions
D. Only sideways