



17607

16172

3 Hours / 100 Marks

Seat No.

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- Instructions :**
- (1) *All questions are compulsory.*
 - (2) *Answer each next main question on a new page.*
 - (3) *Illustrate your answers with neat sketches wherever necessary.*
 - (4) *Figures to the right indicate full marks.*
 - (5) *Assume suitable data, if necessary.*

Marks

1. A) Attempt **any three** of the following : **12**
 - a) State the purpose of codes in plumbing.
 - b) Explain in brief 'flushometer valve' with neat sketch.
 - c) List any four water conserving fixtures with their maximum flow rate.
 - d) Explain necessity of venting to traps.

- B) Attempt **any one** of the following : **8**
 - a) State classification of traps with sketches.
 - b) Explain different types of plumbing systems with sketches.

2. Attempt **any four** of the following : **16**
 - a) Differentiate between gray and reclaimed water with four points.
 - b) Explain hot and cold water distribution systems.
 - c) List any eight types of pipe materials.
 - d) List any four plumbing appurtenances and explain any one with sketch.
 - e) State any four minimum standards for plumbing.
 - f) Explain colour codes and marking in plumbing.

3. Attempt **any four** of the following : **16**
 - a) Explain with sketch shielded coupling method of plumbing joint.
 - b) Explain prohibited traps in plumbing.
 - c) List types of urinals and explain any one with sketch.
 - d) Explain with sketch necessity of AAV.
 - e) What do you mean by 'gray-water approval'? State specifications of gray-water.
 - f) List any eight types of hangers and supports with sketch.

P.T.O.



4. Attempt **any four** of the following :

- a) State the factors necessary for use of alternative materials in plumbing.
- b) State the important points to be considered while planning plumbing on Terrace.
- c) Explain with sketch bell and spigot joint.
- d) List various types of water closet and explain any one in detail.
- e) Explain working of drinking fountains.
- f) Explain working of interceptor with sketch.

5. Attempt **any four** of the following :

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- a) Explain with sketch necessity of unions in plumbing.
- b) State the methods of cross-connection control in plumbing.
- c) Explain importance of pipe grading in plumbing.
- d) Explain the various tests necessary for plumbing drainage system.
- e) Explain with sketch working of sterile equipment.
- f) Define vent, branch vent, stack vent and continuous vent.

6. Attempt **any four** of the following :

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- a) Explain the phenomena of water curtain hydraulic jump.
 - b) State the necessity of trap seal protection.
 - c) Define with sketch back pressure and backsiphonage.
 - d) Explain with sketch working of gate valve.
 - e) State the importance of strainers in plumbing.
 - f) State the necessity of back flow protecting fixtures in plumbing.
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