

**ESE 2020**  
Prelims Paper-I



# **GENERAL STUDIES & ENGINEERING APTITUDE**

## **Practice Questions Book**

- ◆ One-stop-solution for comprehensive self-practice
- ◆ 3200+ questions with detailed solutions
- ◆ Questions structured as per UPSC standards
- ◆ Includes a good number of Assertion-Reason questions

# GENERAL STUDIES & ENGINEERING APTITUDE

## PRACTICE QUESTIONS BOOK

*UPSC Engineering Services  
Preliminary Examinations Paper-I*



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**Second Edition : 2019**

## Preface

Engineering Services Exam (ESE) is one of most coveted exams written by engineering students aspiring for reputed posts in the country. As all the senior engineering posts come under the Government of India, ESE is conducted by the Union Public Services Commission (UPSC), and therefore the standards to clear this exam too are very high. To clear the ESE, a candidate needs to clear three stages – ESE Prelims, ESE Mains and Personality Test.

This revised and updated self-practice question book is an endeavour by IES Master to help ESE aspirants clear the Paper-1 i.e. General Studies & Engineering Aptitude of the very first stage i.e. ESE Prelims. The Paper-1 carries 200 marks, and should not be taken lightly. With more than 3,200 practice questions sorted subject-wise, students will get a chance to quickly brush through all the subjects in a short span. Practising as many questions possible will help candidates in going through whatever they have learned so far, and will count as a round of revision. The detailed solution to each question will help them identify their strengths and weaknesses, and build confidence before taking the real ESE Prelims. The detailed solutions to questions will also help candidates in understanding the appropriate methods in answering a question and improve their speed and accuracy.

IES Master feels immense pride in bringing out this new edition of practice book as every care has been taken to build upon the exam preparedness of a student right up to UPSC standards. The credit for flawless preparing of this book for ESE aspirants goes to the entire team of IES Master Publications. Teachers, students, and professional engineers are welcome to share their suggestions to make this book more valuable.

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**NOIDA**

**Weekend Batch**

**29<sup>th</sup> June**

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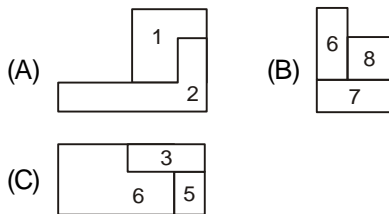
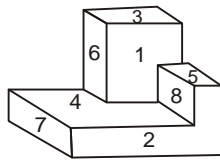
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# General Principles of Design, Drawing & Safety

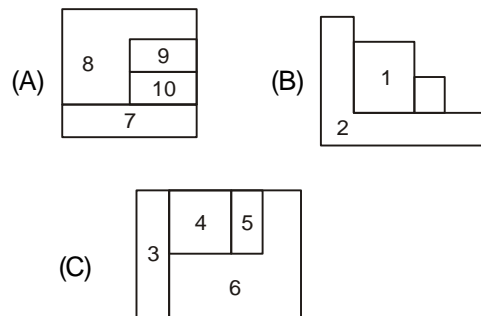
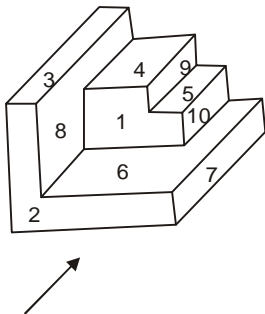
## DRAWING

1. For the given figure which statement is true



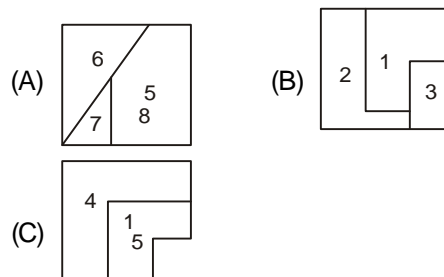
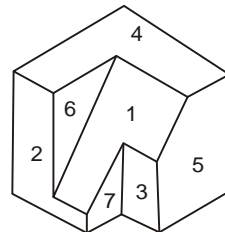
- (a) Fig A is front view, fig. (B) is side view
- (b) Figure (A) is front view, fig. (C) is side view
- (c) Figure (C) is top view and figure (B) is side view
- (d) None of the above

2. In the given figure which is top view of the given figure. When the object is seen in marked direction



- (a) Figure (A)
- (b) Figure (C)
- (c) Figure (B)
- (d) None of the above

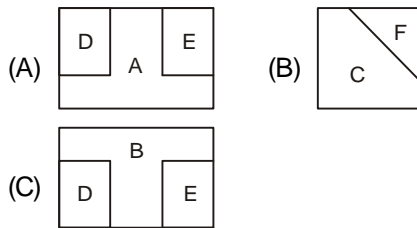
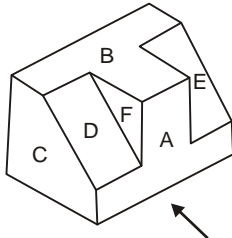
3. For the given object which statement is correct:



- (a) Figure (C) is front view of object
- (b) Figure (A) is side view of object

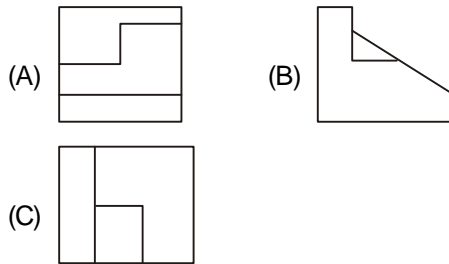
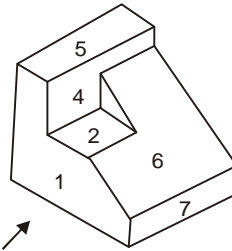
- (c) Figure (B) is front view of object
- (d) None of the above

4. For the given object Front, side and top view is given by



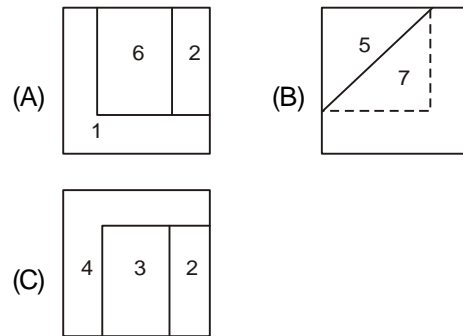
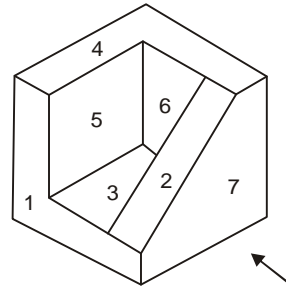
- (a) Figure (A), (B) & figure (C)
- (b) Figure (C), figure (B) & figure (A)
- (c) Figure (A), figure (C) & figure (B)
- (d) None of the above

5. In the given projected view figure (A) gives



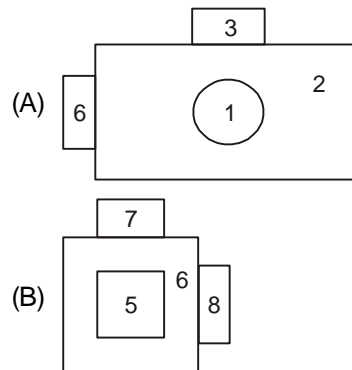
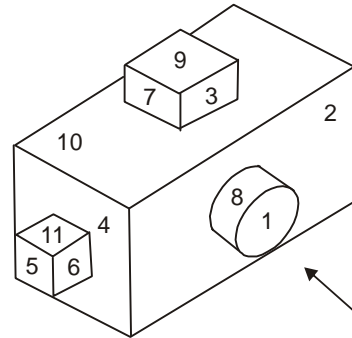
- (a) side view
- (b) top view
- (c) front view
- (d) none of the above

6. In the given projected view of an object, front, side and top view is respectively given by

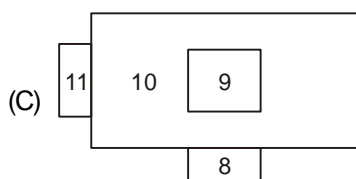


- (a) figure (A), figure (B), figure (C)
- (b) figure (B), figure (C), figure (A)
- (c) figure (B), figure (A), figure (C)
- (d) figure (A), figure (C), figure (B)

7. Which of the statement is true for view (A)







- (a) It gives side view of the object  
 (b) It gives front view of the object  
 (c) It gives top view of the object  
 (d) None of the above
8. Representative fraction is basically,
- (a)  $RF = \frac{\text{Drawing size of an object}}{\text{its actual size}}$  (in same unit)  
 (b)  $RF = \frac{\text{Actual size of an object}}{\text{Drawing size of an object}}$  (in same unit)  
 (c)  $RF = \frac{\text{Drawing size of an object}}{\text{Its actual size}}$  (in different unit)  
 (d)  $RF = \frac{\text{Actual size of an object}}{\text{Its drawing size}}$  (in different unit)
9. Which is true for first angle projection:
- (1) In first angle projection the object is placed in between observer and plane of projection  
 (2) In first angle projection plane of projection is placed in b/w observer and object  
 (3) In first angle projection observer object lie in first quadrant  
 (a) only (3) is correct  
 (b) (1) and (3) are correct  
 (c) All are correct  
 (d) Only (2) is correct
10. A cylinder of diameter 'D' and height 'H' rests on its base on horizontal plane. Which one of the statement is/are correct for this.
- (1) It's front view is rectangle

- (2) Top view is circular  
 (a) Only (1) is correct  
 (b) Only (2) is correct  
 (c) (1) and (2) both are correct  
 (d) None of the above

11. Which one of the statement is/are correct :
- (1) Square pyramid has square base and pentagonal pyramid has pentagonal base  
 (2) Axis of pyramid is a imaginary line passing through the centre of the base and the apex.  
 (3) Prism is polyhedron made of two equal ends called base parallel to each other.  
 (a) Only (1) and (2) are correct  
 (b) Only (3) is correct  
 (c) Only (2) and (3) are correct  
 (d) All of the above
12. Which statements are correct
- (1) Regular tetrahedron has four equal faces, each one being a equilateral triangle  
 (2) Regular Hexa hedron has six equal faces, and each a square  
 (3) Regular tetrahedron has four equal faces, each one being a isosceles triangle.  
 (a) All are correct  
 (b) Only (1) and (2) are correct  
 (c) Only (3) is correct  
 (d) Only (1) and (3) are correct
13. When the axis of solid is perpendicular to (H.P.) then
- (1) First we will draw top view and often then front view is drawn  
 (2) Front view is drawn first and top view is projected from it  
 (3) It depends upon the type of projection  
 (4) For first angle projection (1) is correct.  
 (a) (1), (3) and (4) are correct  
 (b) only (2) is correct  
 (c) (1), (4) and (2) are correct  
 (d) only (1) is correct

14. When axis of the solid is parallel to both the principal planes, then which of the statements is/are true in this respect.
- Both front and top view can give the true shape of the base
  - Neither the front view nor the top view give the true shape of the base
  - Only front view give the true shape of the base.
- only (3) is correct
  - only (2) is correct
  - (1) and (3) are correct
  - only (1) is correct.
15. A plane is inclined to both H.P & V.P. then which one is most appropriate :
- then plane is simple plane
  - square plane
  - circular plain
  - oblique plane
16. When a rectangular plane is perpendicular to both H.P. and V.P. then
- Both front and top views are straight line
  - Lengths of top and front views are equal to the true length of edges
- Only (1) is correct
  - Only (2) is correct
  - Both (1) and (2) are correct
  - Neither (1) nor (2)
17. When line is perpendicular to one of the planes then
- It is perpendicular to other plane
  - It is parallel to other plane
  - Projection of line to which it is parallel will give true length of it
- Only (3) is correct
  - Only (1) is correct
  - Only (2) is correct
  - Both (2) and (3) are correct
18. In diametric projection
- Two of the angles between the projection of the three principal axes of the object on the plane of projection forms equal angle and third angle is different
  - In this the angles between the projection of the three principal axes of the object on the plane of projection form unequal angles
  - The three angles between the projection of the three principal axes of the object form equal angles of  $120^\circ$
  - None of the above
19. The recommended method of dimensioning a sphere with diameter 80 mm is
- $80\phi_s$
  - $\phi 80s$
  - $s80\phi$
  - $s\phi 80$
20. A curve generated by a point moving continuously in one direction along a straight line while the straight line revolves about a fixed point is called a/an \_\_\_\_\_
- helicoid
  - cycloid
  - epicycloid
  - Involute
21. Which of the following statements are correct?
- Archimedes spiral inverts to hyperbolic spiral.
  - Fermat's spiral inverts to Litaus spiral
- Only I
  - Only II
  - Both
  - None
22. Consider the following statements?
- A wire unwinds itself from a drum 5 cm in radius. The locus of the free end of the wire for unwinding through one complete revolution of the drum is called an involute.
  - In the rack and pinion arrangement, the path traced by a point on the tooth-periphery is a cycloid.
- Which of the above statements are correct?
- Only I
  - Only II

**ANSWERS**

1. (a)	27. (d)	53. (a)	79. (c)	105. (c)	131. (a)
2. (b)	28. (a)	54. (a)	80. (c)	106. (a)	132. (b)
3. (c)	29. (b)	55. (a)	81. (d)	107. (c)	133. (a)
4. (a)	30. (b)	56. (c)	82. (a)	108. (c)	134. (b)
5. (a)	31. (a)	57. (b)	83. (d)	109. (c)	135. (a)
6. (c)	32. (a)	58. (a)	84. (c)	110. (c)	136. (b)
7. (b)	33. (d)	59. (b)	85. (d)	111. (c)	137. (b)
8. (a)	34. (d)	60. (c)	86. (c)	112. (d)	138. (b)
9. (b)	35. (a)	61. (a)	87. (b)	113. (b)	139. (b)
10. (c)	36. (a)	62. (b)	88. (a)	114. (b)	140. (a)
11. (d)	37. (c)	63. (a)	89. (c)	115. (a)	141. (a)
12. (b)	38. (d)	64. (d)	90. (b)	116. (c)	142. (b)
13. (a)	39. (b)	65. (b)	91. (b)	117. (b)	143. (b)
14. (c)	40. (b)	66. (a)	92. (a)	118. (b)	144. (c)
15. (d)	41. (d)	67. (b)	93. (b)	119. (a)	145. (d)
16. (c)	42. (d)	68. (b)	94. (b)	120. (a)	146. (b)
17. (d)	43. (d)	69. (b)	95. (d)	121. (b)	147. (b)
18. (a)	44. (a)	70. (a)	96. (c)	122. (b)	148. (b)
19. (d)	45. (a)	71. (c)	97. (d)	123. (b)	149. (a)
20. (d)	46. (a)	72. (d)	98. (a)	124. (b)	150. (a)
21. (c)	47. (b)	73. (c)	99. (d)	125. (c)	151. (c)
22. (c)	48. (b)	74. (c)	100. (d)	126. (d)	152. (a)
23. (b)	49. (c)	75. (d)	101. (c)	127. (d)	153. (d)
24. (a)	50. (a)	76. (b)	102. (c)	128. (b)	154. (b)
25. (a)	51. (d)	77. (c)	103. (c)	129. (d)	155. (a)
26. (c)	52. (b)	78. (b)	104. (a)	130. (d)	156. (c)
					157. (d)



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