

# **PACE - IIT & MEDICAL**

Delhi/ Ghaziabad /Mumbai/ Pune / Goa/ Akola/ Nashik/ Kolkatta / Lucknow / Bokaro/ Dubai

Admission cum Scholarship Test for SUPER-50

Standard: 8<sup>th</sup>

## **HINTS & SOLUTIONS**

\*  
Attend "CAREER GUIDANCE SEMINAR for IIT-JEE & MEDICAL" by:  
Mr. Sandeep Singhal (B. Tech, IIT-R) & Mr. Vipin Tyagi (B. Tech, IIT-BHU)  
Along with our faculty team & Previous years PACE toppers

Introduction of **PACE - OLLAA**

**PACE - Online Learning & Adaptive Assessment**

To assist you with new JEE Main Pattern

Learning through Apps in association with Edu is Fun

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on

Sunday, 16<sup>th</sup> December 2018 | 12:30 to 02:30 pm

at

Citrus Hotel (Apple tree) Ghaziabad, C/2, Mahaluxmi Mall,

Rajnagar District Centre, Gzb

\* At walking Distance of 5 mins. from PACE RDC CENTRE

Followed by Tea & Snacks

H.O: 2- Floor, C-8 & 9, Raj Nagar Gzb, Tel.: 0120-4561662/9582633559, 9999961600 [www.iitianspace.com](http://www.iitianspace.com) | [pacerdc@gmail.com](mailto:pacerdc@gmail.com)

1. (a)  
Prime number are 2, 3, 5, 7 ..... put and check

2. (d)  

$$x^2(x+1)+1(x+1)$$

$$= (x^2+1)(x+1)$$

$$x^4-1 = (x^2+1)(x-1)(x+1)$$
 Then HCF =  $(x^2+1)(x+1)$

3. (b)  
because in second terms power of variable is not whole number.

4. (d)  

$$x^2 + \frac{1}{x^2} + 2 = 16$$

$$x^2 + \frac{1}{x^2} = 14 \Rightarrow x^4 + \frac{1}{x^4} + 2 = 196$$

$$x^4 + \frac{1}{x^4} = 194$$

5. (a)  
 Find  $\left(x - \frac{1}{x}\right)^2 = 51 - 2 = 49$   

$$\Rightarrow x - \frac{1}{x} = 7$$
  
 So,  $x^3 - \frac{1}{x^3} = \left(x - \frac{1}{x}\right)\left(x^2 + \frac{1}{x^2} + 1\right)$   
 Put here.

6. (a)  

$$\left(3P - \frac{1}{6}\right)^3$$

7. (d)  

$$a^2 - b^2 - ab$$

$$(a+b)^2 = 49 \Rightarrow a^2 + b^2 = 25$$
  
 find  $(a-b)^2 = a^2 + b^2 + 2ab$   

$$(a+b)(a-b) - ab = a^2 - b^2 - ab \quad \dots(1)$$
  
 Put in equation first.

8. (c)  
Check by prime factorisation.
9. (c)  
$$\frac{2025}{100000000}$$
Find square .
10. (c)  
Consider total soldiers in each row and column is x. Than make equation and solve.
11. (a)  
 $a^2 = 60025$   
 $a = 245$   
So, distance travelled =  $4 \times 245 = 980$  m.  
 $t = \frac{980}{5} = 196 = 3\text{min } 16 \text{ sec.}$
12. (c)  
Using log division method.
13. (c)  
 $72 \times 3 = 216 = 6^3$
14. (a)  
Put  $b = 3, c = 4, d = 5$
15. (d)  
$$\left(\sqrt[3]{a^9}\right)^{\frac{1}{3}} = \left(\left(a^9\right)^{\frac{1}{3}}\right)^{\frac{1}{3}} = a$$
16. (b)  
Let length of cube is x  
so, volume of 8 - cubes =  $8x^3$   
volume of cuboid =  $24 \times 30 \times 8$   
Now solve.

17. (c)

$$A = P \left( 1 + \frac{P_1}{100} \right) \left( 1 + \frac{q}{100} \right)$$

$$= 12500 \left( 1 + \frac{15}{100} \right) \left( 1 + \frac{16}{100} \right)$$

Now solve.

18. (c)

Use profit = CP-SP.

19. (a)

Let the list price be ₹ z

∴ (100 - x)% of z = y

$$z = \left( \frac{100y}{100 - x} \right)$$

20. (a)

$$\text{Discount \%} = \frac{\text{MP} - \text{SP}}{\text{MP}} \times 100\%$$

### SECTION - II (Science)

21. (c)

Atmospheric pressure on the surface of earth is 760 mm of mercury or 76 cm of mercury.

22. (a)

The force due to friction is generally independent of the contact area between the two surface.

23. (c)

24. (b)

Timbre (or Quality) is then a general term for the distinguishable characteristics of a tone.

25. (b)

Angle of deviation =  $180^\circ - 2 \times \text{angle of incidence} = 180^\circ - 120^\circ = 60^\circ$

26. (a)

When we enter the dark room, due to small size of pupil very little light enters our eye. But after some time, the pupil expands and we become able to see things.

27. (a)

The Ursa major constellations consists of seven bright stars which are arranged in pattern resembling somewhat a big bear.

28. (a)  
Ductility is defined as process in which metals can be drawn into wires: Ex.: Silver & Gold are most malleable & ductile metals.
29. (c)  
Metals show the property of malleability, ductility & conductivity, as metals are malleable and ductile and also good conductors of heat.  
Metals form basic oxides whereas non metals form acidic oxides.
30. (a)  
Metals have the property to be beaten into sheets which is known as malleability.  
Ex.: Aluminium can be beaten into thin sheets.
31. (d)  
Plastics act as insulator. They are bad conductors of electricity.
32. (a)  
Nylon is strong enough to be used in making parachutes.
33. (c)  
Polymerisation is the process in which smaller units of monomers combined together to form polymers. Ex.: - amino acids combine to form proteins.
34. (b)  
Sericulture or silk farming is the cultivation of silkworms to produce silk.
35. (d)  
"Pea" plant is a leguminous plant which help in nitrogen fixation.
36. (d)  
All these chemicals helps to remove weeds.
37. (a)  
"Zaid" crop are grown in the period of "March to June" Ex.: Watermelon, cucumber, muskmelon etc.
38. (c)  
Chicken pox is a viral disease which occur because of "Varicella zoster" virus.
39. (c)  
Female "Aedes" mosquito.
40. (d)  
Rust of wheat occurs in plants, citrus canker occur in plants by bacterial infection, polio occur in animals by viral infection, so only option "D" is correct.

**SECTION - III (Mental Ability)**

41. (d)

42. (c)

43. (a)

$$A = 1 \quad N = 1 + 4 = 5$$

$$J = 1 + 0 = 1 \quad A = 1$$

$$A = 1 \quad M = 1 + 3 = 4$$

$$Y = 2 + 5 = 7 \quad A = 1$$

44. (c)

45. (b)

$$(17 - 12)^2 = 25$$

$$(11 - 13)^2 = 4$$

$$(19 - 16)^2 = 9$$

46. (b)

47. (a)

48. (a)

49. (a)

50. (a)