

All India Aakash Test Series (Junior) - 2019 (Class X)

TEST - 5

Test Date : 03-02-2019

ANSWERS

SECTION-I (Code-D)

1. (3)	21. (4)	41. (2)	61. (1)	81. (4)
2. (2)	22. (2)	42. (2)	62. (2)	82. (3)
3. (3)	23. (1)	43. (3)	63. (2)	83. (2)
4. (2)	24. (4)	44. (2)	64. (2)	84. (1)
5. (1)	25. (3)	45. (4)	65. (2)	85. (2)
6. (3)	26. (4)	46. (2)	66. (3)	86. (4)
7. (1)	27. (1)	47. (4)	67. (3)	87. (3)
8. (2)	28. (2)	48. (1)	68. (3)	88. (3)
9. (4)	29. (4)	49. (3)	69. (3)	89. (4)
10. (2)	30. (3)	50. (3)	70. (2)	90. (3)
11. (2)	31. (3)	51. (2)	71. (2)	91. (2)
12. (4)	32. (4)	52. (4)	72. (4)	92. (4)
13. (4)	33. (3)	53. (2)	73. (2)	93. (3)
14. (1)	34. (3)	54. (3)	74. (4)	94. (3)
15. (4)	35. (4)	55. (3)	75. (3)	95. (2)
16. (1)	36. (2)	56. (1)	76. (3)	96. (3)
17. (1)	37. (1)	57. (1)	77. (4)	97. (2)
18. (1)	38. (1)	58. (4)	78. (3)	98. (4)
19. (3)	39. (3)	59. (4)	79. (4)	99. (1)
20. (2)	40. (4)	60. (3)	80. (3)	100. (3)

SECTION-II (Code-E)

1. (3)	7. (4)	13. (4)	19. (1)	25. (3)
2. (2)	8. (2)	14. (1)	20. (1)	26. (2)
3. (2)	9. (3)	15. (3)	21. (3)	27. (2)
4. (2)	10. (1)	16. (2)	22. (3)	28. (3)
5. (1)	11. (4)	17. (3)	23. (4)	29. (3)
6. (2)	12. (2)	18. (4)	24. (3)	30. (4)

SECTION-III (Code-F)

1. (2)	4. (2)	7. (4)	10. (2)	13. (4)
2. (2)	5. (4)	8. (2)	11. (4)	14. (2)
3. (4)	6. (2)	9. (3)	12. (2)	15. (4)



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TEST - 5**Hints to Selected Questions****SECTION-I (Code-D)**

1. Answer (3)
2. Answer (2)
3. Answer (3)
4. Answer (2)
5. Answer (1)

$$\therefore v = \frac{c}{n}$$

$$\frac{v_1}{v_2} = \frac{n_2}{n_1} = \frac{\sqrt{3}}{\sqrt{2}}$$

again $v = \lambda v$

$$\frac{\lambda_1}{\lambda_2} = \frac{v_1}{v_2} = \frac{\sqrt{3}}{\sqrt{2}}$$

6. Answer (3)

Since same current 'I' is flow in series combination.

$$\frac{V_1}{V_2} = \frac{IR_1}{IR_2} = \frac{R_1}{R_2}$$

$$\frac{V_1}{V_2} = \frac{I_1}{I_2} \times \frac{(d_2)^2}{(d_1)^2}$$

$$\frac{V_1}{V_2} = \frac{1}{2} \times \left(\frac{3}{2}\right)^2 = \frac{9}{8}$$

7. Answer (1)
8. Answer (2)

$$\therefore R = \frac{V}{I}$$

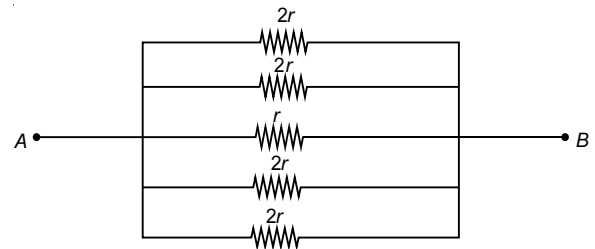
At given value of v

$$I_1 > I_2 > I_3$$

$$\text{so } R_3 > R_2 > R_1$$

$$\text{and } T_3 > T_2 > T_1$$

9. Answer (4)
10. Answer (2)



$$\frac{1}{R_{eq}} = \frac{1}{2r} + \frac{1}{2r} + \frac{1}{2r} + \frac{1}{2r} + \frac{1}{r}$$

$$R_{eq} = \frac{r}{3}$$

11. Answer (2)

$$i = 0^\circ$$

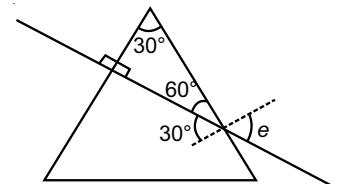
$$\sin 30^\circ \times \sqrt{2} = \sin e$$

$$e = 45^\circ$$

$$\delta = (i + e) - A$$

$$\delta = 0 + 45^\circ - 30^\circ$$

$$\delta = 15^\circ$$



12. Answer (4)

No current flow through bulb B_1

13. Answer (4)

Given $u = -25$ cm

$v = -50$ cm

$$\frac{1}{f} = \frac{1}{v} - \frac{1}{u}$$

$$\frac{1}{f} = \frac{1}{-50} - \frac{1}{-25}$$

$$\frac{1}{f} = \frac{1}{50}$$

$$P = \frac{100}{50} = +2D$$

14. Answer (1)

$$\therefore B = \frac{\mu_0 i}{2\pi}$$

$$B_1 = \frac{4\mu_0}{2\pi} \otimes; B_2 = \frac{3\mu_0}{2\pi} \odot$$

$$B_{\text{net}} = B_1 - B_2$$

$$B_{\text{net}} = \frac{\mu_0}{2\pi}(4 - 3)$$

$$B_{\text{net}} = 2 \times 10^{-7} \text{ T}$$

15. Answer (4)

$$\therefore f = \frac{1}{T} = \frac{v}{2\pi r}$$

$$I = ef = \frac{ev}{2\pi r}$$

16. Answer (1)

17. Answer (1)

$$\mu = \frac{\text{Real thickness}}{\text{Apparent thickness}}$$

$$\Rightarrow \frac{5}{\mu} + \frac{8}{\frac{4}{3}} = 10$$

$$\frac{5}{\mu} = 4$$

$$\mu = \frac{5}{4}$$

18. Answer (1)

19. Answer (3)

$$\therefore r = \frac{h}{\sqrt{\mu^2 - 1}}$$

$$r = \frac{\frac{1}{2}}{\sqrt{(\frac{5}{4})^2 - 1}} = \frac{1}{2} \text{ m}$$

$$A = \pi \left(\frac{1}{2}\right)^2 = \frac{\pi}{4} \text{ m}^2$$

20. Answer (2)

$$f = 10 \text{ cm}$$

$$u = -30 \text{ cm}$$

$$\therefore m = \frac{f}{f + u}$$

$$m = \frac{10}{10 + (-30)} = -\frac{1}{2}$$

$$h_i = -\frac{1}{2} \times 3 = -1.5 \text{ cm}$$

$|h_i| = 1.5 \text{ cm}$, inverted

21. Answer (4)

22. Answer (2)

23. Answer (1)

24. Answer (4)

25. Answer (3)

26. Answer (4)

27. Answer (1)

28. Answer (2)

29. Answer (4)

30. Answer (3)

31. Answer (3)



32. Answer (4)

33. Answer (3)

Hint : Oxidation number of H = +1

Oxidation number of O = -2

Let oxidation number of S = x

$$\therefore 2 \times (+1) + x + 4(-2) = 0$$

$$\Rightarrow 2 + x - 8 = 0$$

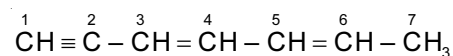
$$\Rightarrow x - 6 = 0$$

$$\therefore x = 6$$

34. Answer (3)

35. Answer (4)

36. Answer (2)



37. Answer (1)
 38. Answer (1)
 39. Answer (3)
 40. Answer (4)
 41. Answer (2)
 42. Answer (2)
 43. Answer (3)
 44. Answer (2)
 45. Answer (4)
 46. Answer (2)
 47. Answer (4)
 48. Answer (1)
 49. Answer (3)
 50. Answer (3)
 51. Answer (2)
 52. Answer (4)
 53. Answer (2)
 54. Answer (3)
 55. Answer (3)
 56. Answer (1)
 57. Answer (1)
 58. Answer (4)
 59. Answer (4)
 60. Answer (3)
 90% energy is lost during transfer from one trophic level to another.
 61. Answer (1)
 62. Answer (2)
 63. Answer (2)
 64. Answer (2)
 65. Answer (2)
 66. Answer (3)
 67. Answer (3)
 68. Answer (3)
 69. Answer (3)
 Using, $AC^2 = AB^2 + BC^2 - 2 BC \cdot BD$
 $\therefore AD = 8 \text{ cm}$
 70. Answer (2)

71. Answer (2)
 72. Answer (4)
 73. Answer (2)
 74. Answer (4)
 75. Answer (3)
 76. Answer (3)
 77. Answer (4)
 78. Answer (3)
 79. Answer (4)
 80. Answer (3)

$$N = 77616$$

$$\text{Prime factorisation of } 77616 = 2^4 \times 3^2 \times 7^2 \times 11^1$$

$$\begin{aligned} \text{Total number of divisors} &= 5 \times 3 \times 3 \times 2 \\ &= 90 \end{aligned}$$

$$\begin{aligned} \therefore \text{Product of all factors of } N &= (N)^{\frac{90}{2}} \\ &= (N)^{45} \end{aligned}$$

81. Answer (4)
 Squares of prime number starting from 71.
 82. Answer (3)
 $a \ c \ d \ s \ p \ | \ a \ c \ d \ s \ p \ | \ a \ c \ d \ s \ p \ | \ a \ c \ d \ s \ p$
 83. Answer (2)

Solutions for Q.84 to Q.88

- A - Swift - White
 B - Safari - Red
 C - Hyundai - Blue
 D - Skoda - Green
 E - Alto - Black
 84. Answer (1)
 85. Answer (2)
 86. Answer (4)
 87. Answer (3)
 88. Answer (3)
 89. Answer (4)
 $3 \times (5 + 8) = 39$ similarly $3 \times (10 + 8) = 54$
 90. Answer (3)
 91. Answer (2)
 92. Answer (4)
 93. Answer (3)

94. Answer (3)

95. Answer (2)

96. Answer (3)

97. Answer (2)

98. Answer (4)

$$1 \times 2 \times 3 \times 5 = 30 \text{ similarly } 4 \times 5 \times 6 \times 9 = 1080$$

99. Answer (1)

100. Answer (3)

SECTION-II (Code-E)

1. Answer (3)

2. Answer (2)

3. Answer (2)

4. Answer (2)

5. Answer (1)

Atrial systole lasts for 0.1 s, so for rest of cardiac cycle atria relax i.e. 0.7 s.

6. Answer (2)

7. Answer (4)

8. Answer (2)

9. Answer (3)

10. Answer (1)

11. Answer (4)

Somatostatin inhibits the secretion of insulin and glucagon.

12. Answer (2)

Amount of DDT increases with increase in trophic levels as a result of biomagnification.

13. Answer (4)

14. Answer (1)

Pyramid of number is inverted for parasitic food chain.

15. Answer (3)

16. Answer (2)

Liver is the largest gland of human body.

17. Answer (3)

Presence of beak and feathered wings are avian characteristics of *Archaeopteryx*.

18. Answer (4)

A monohybrid cross does not explain law of independent assortment.

19. Answer (1)

20. Answer (1)

21. Answer (3)

The process is guttation.

22. Answer (3)

Since, all F_1 progenies bear axial flowers, genotype of one parent should be $ttAA$ (dwarf plant bearing axial flowers). Similarly, 50% of F_1 progeny is tall and 50% is dwarf, so genotype of other parent should be $Ttaa$ (tall plant bearing terminal flowers).

23. Answer (4)

24. Answer (3)

25. Answer (3)

26. Answer (2)

27. Answer (2)

Genotypes of parents

Father : $I^B I^B / I^B i$

Mother : $I^A I^B$

If father has genotype $I^B I^B$, possible blood group of progeny are AB and B.

If father has genotype $I^B i$, possible blood group of progeny are A, B and AB.

Blood group O will not be inherited from parents in both the cases, so Shyam is the adopted child.

28. Answer (3)

29. Answer (3)

Only 1% of solar energy is utilized by plants. 10% of the energy is passed from one trophic level to another.

30. Answer (4)



SECTION-III (Code-F)

1. Answer (2)
2. Answer (2)
3. Answer (4)
4. Answer (2)
5. Answer (4)
6. Answer (2)
7. Answer (4)

$$p + q = \frac{-b}{a} \text{ and } pq = \frac{c}{a}$$

$$\therefore [x - (ap + b)][x - (aq + b)] = 0$$

$$\Rightarrow x^2 - bx + ac = 0$$

8. Answer (2)
9. Answer (3)

Let three numbers be $\frac{a}{r}, a, ar$

$$\frac{a}{r} \times a \times ar = 216$$

$$\Rightarrow a = 6$$

$$\Rightarrow \frac{a}{r} + a + ar = 19$$

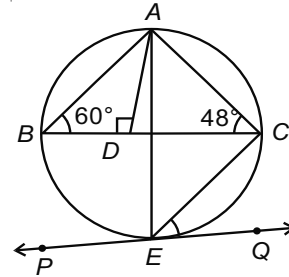
$$\Rightarrow \frac{6}{r} + 6 + 6r = 19$$

$$\Rightarrow 6r^2 - 13r + 6 = 0$$

$$\therefore r = \frac{2}{3}, \frac{3}{2}$$

Thus, number are 4, 6, 9.

10. Answer (2)
11. Answer (4)
12. Answer (2)
5137⁷⁵³
cyclicity of 7 is 4
 $\therefore 753 = 188 \times 4 + 1$
 $\therefore 7^1 = 7$
13. Answer (4)



$$\begin{aligned} \angle BAC &= 180^\circ - (60^\circ + 48^\circ) \\ &= 72^\circ \end{aligned}$$

$$\angle AEC = \angle ABC = 60^\circ \text{ (Angle in the same segment)}$$

$$\angle CEQ = 90^\circ - 60^\circ = 30^\circ$$

$$\angle ACE = 90^\circ \text{ (Angle in a semicircle)}$$

$$\therefore \angle EAC = 30^\circ$$

$$\begin{aligned} \angle DAE &= 180^\circ - (48^\circ + 30^\circ + 90^\circ) \\ &= 12^\circ \end{aligned}$$

14. Answer (2)
15. Answer (4)

