



RJ VISION PVT. LTD.

Code
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RJ – CET (Entrance cum Scholarship Test) (Sample paper)

COURSE - RESONANCE (CLASS 11TH)

(Test Syllabus - Class 10th)

TIME : 1.15 HR MM : 240

This Booklet contains _____ pages

Important Instructions :

1. The test is of **1 hour** duration and Test Booklet contains **40** questions. Each question carries **4** marks. For each correct response, the candidate will get **4** marks. For each incorrect response, **one mark** will be deducted from the total scores. The maximum marks are **240**.
2. Use **Blue/Black Ball point pen only** for writing particulars on this page/markings responses.
3. Rough work is to be done on the space provided for this purpose in the Test Booklet only.
4. **On completion of the test, the candidate must handover the Answer Sheet to the invigilator in the Room/Hall.**
5. Use of white fluid for correction is **NOT** permissible on the Answer Sheet.
6. Each candidate, must show on demand his/her Admission Card to the Invigilator.
7. No candidate, without special permission of the Superintendent or Invigilator, would leave his/her seat.
8. Use of Electronic/Manual Calculator is prohibited.
9. No part of the Booklet and Answer Sheet shall be detached under any circumstances.
10. The candidates will write the Correct Test Booklet Code as given in the Test Booklet/Answer Sheet Attendance Sheet.

Do not open this Test Booklet until you are asked to do so.

Name of the Candidate (in Capitals) : _____

Roll Number : _____

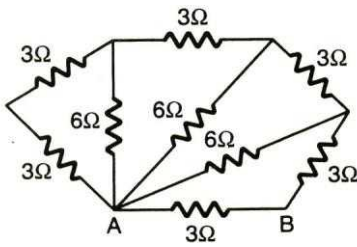
School : _____

Centre of Examination (in Capitals) (Vasna / Karelibaug / Others) _____

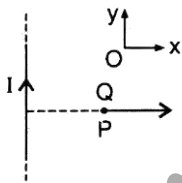
Candidate's Signature : _____ Invigilator Signature : _____

- When hydrogen sulphide gas is passed through a blue solution of copper sulphate, a black precipitate of copper sulphide is obtained and the sulphuric acid so formed remains in the solution. The reaction is an example of –
 - a combination reaction
 - a displacement reaction
 - a decomposition reaction
 - a double decomposition reaction
- The equation $\text{Cu} + x\text{HNO}_3 \rightarrow \text{Cu}(\text{NO}_3)_2 + y\text{NO}_2 + 2\text{H}_2\text{O}$
The value of x and y are –
 - 3 and 5
 - 8 and 6
 - 4 and 2
 - 7 and 1
- Forth floatation method is used for the concentration of-
 - oxide ores
 - sulphide ores
 - sulphate ores
 - halide ores
- Heating of concentrated ore in absence of air for conversion into oxide ore is known as –
 - roasting
 - calcination
 - reduction
 - none of these
- The number of 4^o carbon atoms in 2,2,4,4-tetramethyl pentane is-
 - 1
 - 2
 - 3
 - 4
- When ethane is burnt in excess of air, the products of combustion are –
 - C and H₂O
 - CO and H₂O
 - CO₂ and H₂
 - CO₂ and H₂O
- The incorrect IUPAC name is –
 - $$\text{CH}_3 - \underset{\text{O}}{\underset{\parallel}{\text{C}}} - \underset{\text{CH}_3}{\underset{|}{\text{CH}}} - \text{CH}_3$$
 2 -Methyl-3-butanone
 - $$\text{CH}_3 - \underset{\text{CH}_3}{\underset{|}{\text{CH}}} - \underset{\text{CH}_2\text{CH}_3}{\underset{|}{\text{CH}}} - \text{CH}_3$$
- $$\text{CH}_3 - \text{C} \equiv \text{CCH}(\text{CH}_3)_2$$
 2, 3 -Dimethylpentane
- $$\text{CH}_3 - \underset{\text{Cl}}{\underset{|}{\text{CH}}} - \underset{\text{Br}}{\underset{|}{\text{CH}}} - \text{CH}_3$$
 4- Methyl-2-pentyne
2 -Bromo-3-chlorobutane
- Hormone from thyroid gland is
 - thyroxine
 - thyrodine
 - parathyroxin
 - thyroprotein
- Nerve impulse is a
 - physical process
 - chemical process
 - effected process
 - electron-chemical process
- Like animals, plants produce
 - many more sperm than eggs.
 - a few more sperm than eggs.
 - equal numbers of sperm and eggs.
 - fewer sperm than eggs.
- Menstrual cycle is generally of
 - 21 days
 - 28 days
 - 38 days
 - 40 days
- In mammals the testes lies in scrotal sacs due to
 - presence of urinary bladder
 - presence of rectum
 - long vas –deferens
 - requirement of low temperature for spermatogenesis
- From heredity point of view which marriage is not suitable
 - Man Rh (–) and Woman Rh (+)
 - Both Rh (+)
 - Both Rh (–)
 - Man Rh (+) and Woman Rh (–)
- Which of the following is dominant character according to Mendel
 - Dwarf plant and yellow fruit
 - Terminal fruit and wrinkled seed
 - White testa and yellow pericarp
 - Green coloured pod and rounded seed

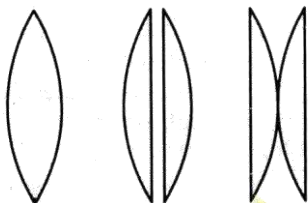
15. The resistances in the following fig are in ohm. Then, the effective resistance between the point A and B is :



- (1) 3 Ω (2) 2 Ω (3) 6 Ω (4) 36 Ω
16. When the current through a solenoid increases at a constant rate, the induced current :
- (1) is a constant and is in the direction of the inducing current
 (2) is a constant and is opposite to the direction of the inducing current
 (3) increases with time and is in the direction of inducing current
 (4) increases with time and is opposite to the direction of inducing current
17. A very long straight wire carries a current I . At the instant when a charge $+Q$ at point P has velocity \vec{v} , as shown, the force on the charge is:



- (1) along OY
 (2) opposite to OY
 (3) along OX
 (4) opposite to OX
18. If an object is placed unsymmetrically between two plane mirrors inclined at an angle of 72° then the total number of image formed is :
- (1) 5 (2) 4 (3) 2 (4) infinite
19. A convex lens of focal length 20 cm is cut into two equal parts so as to obtain two plano-convex lenses as shown in fig. The two parts are then put in contact as shown in fig. What is the focal length of the combination?



- (1) Zero
 (2) 5 cm
 (3) 10 cm
 (4) 20 cm

20. Two heater wires of equal length are first connected in series and then in parallel. The ratio of heat produced in two cases is :
- (1) 2 : 1
 (2) 1 : 2
 (3) 4 : 1
 (4) 1 : 4
21. A uniform electric field and a uniform magnetic field are acting along the same direction in a certain region. If an electron is projected along the direction of the fields with a certain velocity then :
- (1) it will turn towards right of direction of motion
 (2) it will turn towards left of direction of motion
 (3) its velocity will decrease
 (4) its velocity will increase
22. A man 180 cm high stands in front of a plane mirror. His eyes are at a height of 170 cm from the floor. Then the minimum length of the plane mirror for him to see his full length image is :
- (1) 90 cm
 (2) 180 cm
 (3) 45 cm
 (4) 360 cm
23. A convex lens A of focal length 20 cm and a concave lens B of focal length 5 cm are kept along the same axis with a distance d between them. If a parallel beam of light falling on A leaves B as a parallel beam, then distance d in cm will be :
- (1) 25 (2) 15
 (3) 30 (4) 50
24. An electric kettle has two coils; when one of these is switched on the water in the kettle boils in 6 minutes. When the other coil is switched on, the water boils in 3 minutes. If the two coils are connected in series the time taken to boil water in the kettle is :
- (1) 3 minutes (2) 6 minutes
 (3) 2 minutes (4) 9 minutes

25. White silver chloride in sunlight turns to –
(1) grey
(2) yellow
(3) remain white
(4) red
26. When the gases sulphur dioxide and hydrogen sulphide mix in the presence of water, the reaction is
$$\text{SO}_2 + 2\text{H}_2\text{S} \rightarrow 2\text{H}_2\text{O} + 3\text{S}.$$

Here hydrogen sulphide is acting as –
(1) an oxidising agent
(2) a reducing agent
(3) a dehydrating agent
(4) a catalyst
27. Basic salts are formed by neutralisation of –
(1) strong acid and strong base
(2) strong acid and weak base
(3) weak acid and weak base
(4) strong base and weak acid
28. 'Alum' is an example of –
(1) single salt
(2) double salt
(3) acids
(4) none of the above
29. Which of the following is 'quicklime' –
(1) CaO
(2) Ca(OH)₂
(3) CaCO₃
(4) CaCl₂.6H₂O
30. Plaster of Paris has the formula –
(1) CaSO₄. 1/2H₂O
(2) CaSO₄.H₂O
(3) CaSO₄. 1 1/2H₂O
(4) CaSO₄.2H₂O
31. Washing soda has the formula –
(1) Na₂CO₃.7H₂O
(2) Na₂CO₃.10H₂O
(3) Na₂CO₃.H₂O
(4) Na₂CO₃
32. Which of the following methods is suitable for preventing an iron frying pan from rusting ?
(1) applying grease
(2) applying paint
(3) applying a coating of zinc
(4) all of the above
33. Decrease in species diversity in tropical countries is mainly due to
(1) Urbanisation
(2) Pollution
(3) Deforestation
(4) Soil erosion
34. One of the most important function of botanical gardens is that -
(1) They provide a beautiful area for recreation
(2) One can observe tropical plants there
(3) They allow ex-situ conservation of germ plasm
(4) They provide the natural habitat for wild life
35. Which of the following animal has become almost extinct in India ?
(1) Wolf
(2) Rhinoceros
(3) Hippopotamus
(4) Cheetah
36. Which gas is mainly responsible for the depletion of ozone layer ?
(1) Oxygen
(2) CFC
(3) Nitrogen dioxide
(4) All of them
37. Which gas is responsible for the global warming?
(1) O₂ (2) N₂
(3) H₂ (4) CO₂
38. The part of earth comprising water is called an
(1) atmosphere
(2) hydrosphere
(3) lithosphere
(4) none of the above
39. In the biosphere, which of the following is the ultimate source of energy ?
(1) Carbon
(2) Water
(3) Sunlight
(4) Nitrogen
40. As a biologist, if you become very interested in the study of the interaction of organisms with each other and the environment your subspecialty would be
(1) Zoology
(2) Ecology
(3) Botany
(4) Herpetology

41. Light waves

- (1) Require air or another gas to travel through
- (2) Require an electric field to travel through
- (3) Require a magnetic field to travel through
- (4) Can travel through perfect vacuum

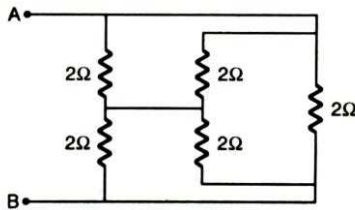
42. A cylindrical rod is reformed to twice its length with no change in its volume. If the resistance of the rod was R, the new resistance will be

- (1) R
- (2) 2R
- (3) 4R
- (4) 8R

43. Three resistance of 2, 3 and 5Ω are connected in parallel to a 10 V battery of negligible internal resistance. The potential difference across the 3 Ω resistance will be

- (1) 2 V
- (2) 3 V
- (3) 5 V
- (4) 10 V

44. Find the equivalent resistance across AB :



- (1) 1 Ω
- (2) 2 Ω
- (3) 3 Ω
- (4) 4 Ω

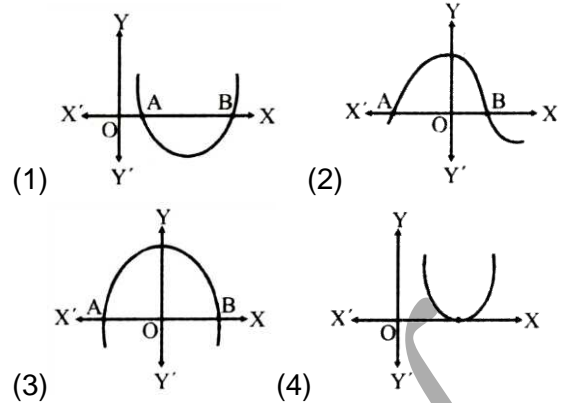
45. Two circular, similar, coaxial loops carry equal currents in the same direction. If the loops are brought nearer, what will happen ?

- (1) Current will increase in each loop
- (2) Current will decrease in each loop
- (3) Current will remain same in each loop
- (4) Current will increase in one and decrease in the other

46. A quadratic polynomial when divided by $x + 2$ leaves a remainder of 1 and when divided by $x - 1$, leaves a remainder of 4. What will be the remainder if it is divided by $(x + 2)(x - 1)$?

- (1) 1
- (2) 4
- (3) $x + 3$
- (4) $x - 3$

47. Which of the following is/are not graph of a quadratic ?



48. The ratio of the roots of $bx^2 + nx + n = 0$ is p : q, then

- (1) $\sqrt{\frac{q}{p}} + \sqrt{\frac{p}{q}} + \sqrt{\frac{l}{n}} = 0$
- (2) $\sqrt{\frac{p}{q}} + \sqrt{\frac{q}{p}} + \sqrt{\frac{n}{l}} = 0$
- (3) $\sqrt{\frac{q}{p}} + \sqrt{\frac{p}{q}} - \sqrt{\frac{l}{n}} = 0$
- (4) $\sqrt{\frac{p}{q}} - \sqrt{\frac{q}{p}} + \sqrt{\frac{n}{l}} = 0$

49. If the first, second and the last terms of an A.P. are a, b, c respectively, then the sum is -

- (1) $\frac{(a + b)(a + c - 2b)}{2(b - a)}$
- (2) $\frac{(b + c)(a + b - 2c)}{2(b - a)}$
- (3) $\frac{(a + c)(b + c - 2a)}{2(b - a)}$
- (4) None of these

50. There are 60 terms in an A.P. of which the first term is 8 and the last term is 185. The 31st term is

- (1) 56
- (2) 94
- (3) 85
- (4) 98

51. The first and last term of an A.P. are a and l respectively, If S is the sum of all the terms of the A.P. and the common difference is

- (1) S
- (2) 2S
- (3) 3S
- (4) None of these

52. It is given that $\Delta ABC \sim \Delta PQR$ with $\frac{BC}{QR} = \frac{1}{3}$.

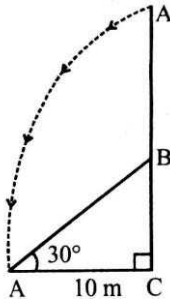
Then $\frac{\text{ar}(\Delta PRQ)}{\text{ar}(\Delta BCA)}$ is equal to

- (1) 9 (2) 3 (3) $\frac{1}{3}$ (4) $\frac{1}{9}$

53. Ratio in which the line $3x + 4y = 7$ divides the line segment joining the points (1, 2) and (-2, 1) is

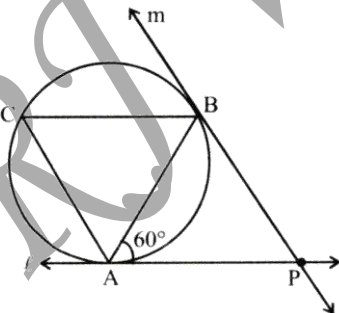
- (1) 3 : 5
(2) 4 : 6
(3) 4 : 9
(4) None of these

54. The top of a broken tree has its top touching the ground (shown in the adjoining figure) at a distance of 10 m from the bottom. If the angle made by the broken part with ground is 30° , then length of the broken part is



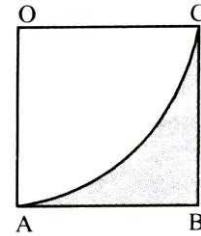
- (1) $10\sqrt{3}$ cm (2) $\frac{20}{\sqrt{3}}$ cm
(3) 20 cm (4) $20\sqrt{3}$ m

55. In the diagram below, if ℓ and m are two tangents and AB is a chord making an angle of 60° with the tangent ℓ , then the angle between ℓ and m is



- (1) 45° (2) 30°
(3) 60° (4) 90°

56. In the adjoining figure, OABC is a square of side 7 cm. OAC is a quadrant of a circle with O as centre. The area of the shaded region is



- (1) 10.5 cm^2
(2) 38.5 cm^2
(3) 49 cm^2
(4) 11.5 cm^2

57. If the radius of the sphere is increased by 100%, the volume of the corresponding sphere is increased by –

- (1) 200%
(2) 500%
(3) 700%
(4) 800%

58. If $\tan \theta + \sin \theta = m$ and $\tan \theta - \sin \theta = n$, then the value of $m^2 - n^2$ is equal to –

- (1) $4mn$
(2) $2\sqrt{mn}$
(3) $4\sqrt{mn}$
(4) $2\sqrt{m/n}$

59. If $b \tan \theta = a$, the value of $\frac{a \sin \theta - b \cos \theta}{a \sin \theta + b \cos \theta}$

- (1) $\frac{a-b}{a^2+b^2}$ (2) $\frac{a+b}{a^2+b^2}$
(3) $\frac{a^2+b^2}{a^2-b^2}$ (4) $\frac{a^2-b^2}{a^2+b^2}$

60. If $\sin \theta + \cos \theta = a$ and $\frac{\sin \theta + \cos \theta}{\sin \theta \cos \theta} = b$, then

- (1) $b = \frac{2a}{a^2 - 1}$
(2) $a = \frac{2b}{b^2 - 1}$
(3) $ab = b^2 - 1$
(4) $a + b = 1$

ANSWERS (RESONANCE - CLASS 11TH)

Q	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans	4	3	2	2	2	4	1	1	4	1	2	4	4	4	2
Q	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Ans	2	1	1	4	3	3	1	2	4	1	2	4	2	1	1
Q	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
Ans	2	3	3	3	4	2	4	2	3	2	4	3	4	1	2
Q	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
Ans	3	1,2,3	2	3	4	2	1	3	2	3	1	3	3	4	1