

# **PACE MEDICAL**

DELHI / MUMBAI / AKOLA / NASHIK / GOA / PUNE / KOLKATA / LUCKNOW / PATNA / NAGPUR / DUBAI

## **SAMPLE PAPER – ACE OF PACE**

**FOR STUDENTS MOVING FROM CLASS – 10<sup>TH</sup> TO CLASS 11<sup>TH</sup>  
(MEDICAL ASPIRANTS)**

**DURATION: 2 HOURS**

**TOTAL MARKS: 240**

### **Paper Pattern:**

Section: 1	Physics	Q. No. 01 to 20
Section: 2	Chemistry	Q. No. 21 to 40
Section: 3	Biology	Q. No. 41 to 60

### **INSTRUCTIONS**

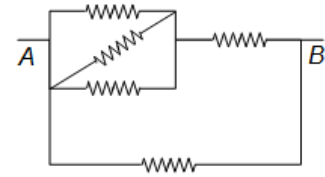
1. This booklet is your question paper. Answers have to be marked on the provided OMR sheets.
2. Blank sheets are provided for rough work along with the question paper.
3. Log tables, Slide rule, Calculators, Cellular phones and other Electronic devices in any form are NOT allowed in the examination hall.
4. If a student is caught copying, he / she will not be allowed to write the exam.
5. On the OMR sheet, write in ink your name, roll number and name of the centre and put your signature in the appropriate boxes.
6. USE ONLY BALL PEN TO DARKEN YOUR ANSWERS.
7. There are total 60 questions in this paper. Only one choice is correct. Each question carries +4 for correct answer 0 for wrong answer.

**For answer key of this sample paper contact our nearest centre**

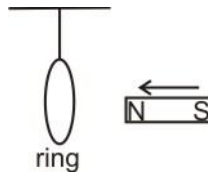
**SECTION – 1 (PHYSICS)**

- In a metallic conductor, an atom loses one or more electrons. Now choose the **INCORRECT** statement:
  - atoms become positive ion
  - the electrons detached from an atom become free and are called free / conduction electrons
  - the electrons attached to the atom is called bound electrons
  - positive ions and free electrons move from one part of the conductor to other part
- Five identical resistance coils are connected in the network as shown in the figure and the resistance measured between *A* and *B* is  $1\Omega$ . Then the individual coil must have a resistance of

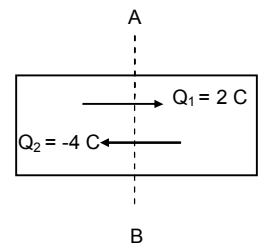
- $1\Omega$
- $\frac{1}{4}\Omega$
- $\frac{7}{4}\Omega$
- $\frac{4}{7}\Omega$



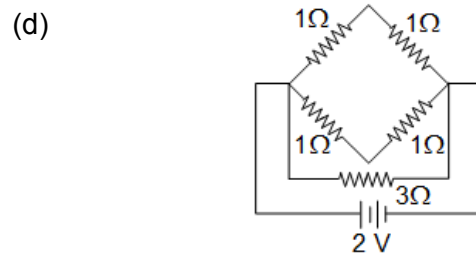
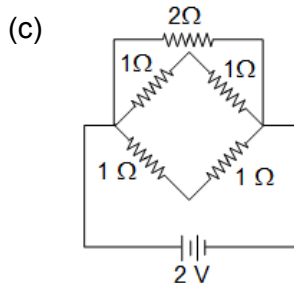
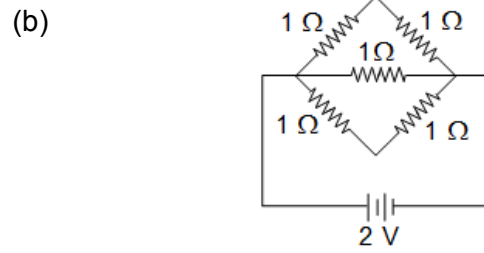
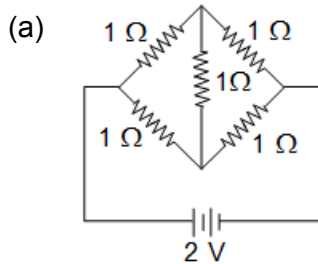
- A copper wire ring is suspended vertically, on bringing a bar magnet towards the ring then ring will :



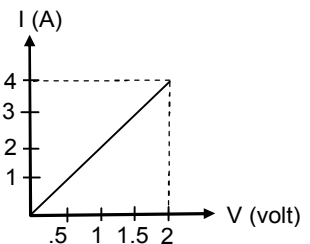
- move towards magnet
  - move away from magnet
  - remains stationary
  - rotate with respect to suspension fibre
- At a cross-section AB charges  $Q_1 = 2\text{ C}$  and  $Q_2 = -4\text{ C}$  passes in 2 sec as shown. The electric current passing is



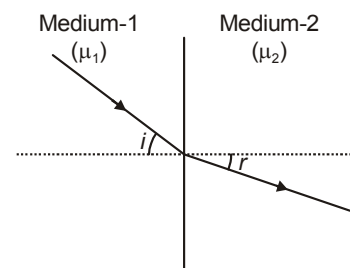
- $\frac{5}{7}$
  - $\frac{10}{7}$
  - $\frac{7}{5}$
  - $\frac{7}{10}$
- Which of the following is an application of the phenomenon of total internal reflection?
    - Laser
    - Spherical lenses
    - Optical fibres
    - LED
  - Which of the following networks yields maximum current?



8. Which among the following gets strongly attracted by magnets?  
 (a) Diamagnetic substances (b) Paramagnetic substances  
 (c) Ferromagnetic substances (d) All of the above
9. A heater of coil resistance  $120\ \Omega$  draws a current of  $3\ \text{A}$  from a battery. The same battery is connected across a toaster which draws a current of  $5\ \text{A}$  from it. The resistance of the toaster is  
 (a)  $8\ \Omega$  (b)  $72\ \Omega$  (c)  $200\ \Omega$  (d)  $1800\ \Omega$
10. Soft iron is used to manufacture electromagnets because their :  
 (a) coercive force is high  
 (b) retentivity is high  
 (c) area of hysteresis curve is large  
 (d) magnetic saturation limit is high & retentivity and coercive force are small
11. The given graphs show the variation of current ( $I$ ) in a conductor with the applied potential difference ( $V$ ) across its end. The resistance of the conductor is:  
 (a)  $0.25\ \text{ohm}$  (b)  $0.5\ \text{ohm}$   
 (c)  $1\ \text{ohm}$  (d)  $2\ \text{ohm}$

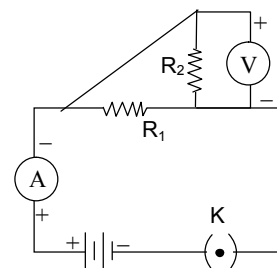


12. When light passes from medium-1 to medium-2, it bends towards the normal as shown in the given figure, then which of the following is correct?  
 (a)  $\sin r < \sin i$  (b)  $\frac{\mu_2}{\mu_1} < 1$   
 (c)  $\frac{\mu_1}{\mu_2} = 1$  (d) None of these



13. Which of the circuit components in the following circuit diagram are connected in parallel?

- (a)  $R_1$  and  $R_2$  only      (b)  $R_1$ ,  $R_2$  and V  
(c)  $R_2$  and V only      (d)  $R_1$  and V only



14. A student moves towards a plane mirror with velocity 2 m/s. With what velocity will the boy observe the image moving?

- (a) Zero      (b) 4 m/s towards the boy  
(c) 2 m/s away from the boy      (d) 2 m/s towards the boy

15. A bar magnet has been cut equally lengthwise and widthwise to give four equal pieces. The pole strength of each piece as compared to the pole strength of original bar magnet is :

- (a) Same      (b)  $\frac{1}{8}$       (c)  $\frac{1}{4}$       (d)  $\frac{1}{2}$

16. The resistance of germanium \_\_\_\_\_ with rise in temperature

- (a) increases      (b) decreases  
(c) remains the same      (d) first increases then decreases

17. 32 joule of work is done in moving a charge q between two points having potential difference of 8 volt. The value of charge is

- (a) 256 C      (b) 4 C      (c) 1 C      (d) 0.25 C

18. Which of the following has the least calorific value?

- (a) Coal      (b) Petrol  
(c) Diesel      (d) Natural gas

19. A concave mirror of focal length 20 cm produces a real image, of an object placed 30 cm away from the mirror. What is the height of the image if the height of object is H?

- (a) 0.3H      (b)  $\frac{H}{5}$   
(c) 2H      (d)  $\frac{H}{2}$

20. Which of the following is used to absorb the neutrons in a nuclear reactor ?

- (a) Moderator      (b) Coolant  
(c) Boron Rod      (d) Graphite

**SECTION – 2 (CHEMISTRY)**

21. Action of heat on copper sulphate crystal is a

- (a) Reversible process      (b) Physical change  
(c) Dehydration      (d) All of the above

22. Graphite is a

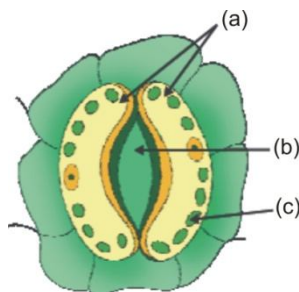
- (a) Mixture of carbon and sand      (b) Compound of carbon and silica  
(c) Elemental carbon      (d) Mixture of charcoal & sulphur

23. Water is  
 (a) Mixture (b) Compound (c) Element (d) none of the above
24. Electrolysis of water is a  
 (a) Physical change (b) Chemical change  
 (c) Dehydration process (d) All of the above
25. What is the conjugate base of  $\text{NH}_3$ ?  
 (a)  $\text{NH}_2^-$  (b)  $\text{NO}_2$  (c)  $\text{NO}_3^-$  (d)  $\text{NH}_4^+$
26. Which of the following hydroxides is alkali?  
 (a)  $\text{NH}_4\text{OH}$  (b)  $\text{Ca}(\text{OH})_2$  (c)  $\text{Cu}(\text{OH})_2$  (d)  $\text{NaOH}$
27. Aqua-regia is  
 (a) 1 vol.  $\text{HCl}$  + 3 vol.  $\text{HNO}_3$  (b) 1 vol.  $\text{HNO}_3$  + 3 vol.  $\text{HCl}$   
 (c) equal volume of  $\text{HNO}_3$  and  $\text{HCl}$  (d) 1 volume  $\text{HNO}_3$  + 3 vol.  $\text{H}_2\text{SO}_4$
28. Name a base which is amphoteric in nature:  
 (a)  $\text{H}_2\text{O}$  (b) Zinc oxide (c) Ammonium hydroxide  
 (d) None of the above
29. If pH value increases acidic nature  
 (a) Increases (b) Decreases (c) No change (d) None of these
30. If  $\text{H}^+$  concentration is  $10^{-8}$  M for  $\text{HCl}$  then it is  
 (a) Acidic (b) Basic (c) Neutral (d) None of these
31. If concentration is  $10^{-2}N$   $\text{H}_2\text{SO}_4$  then pH is  
 (a) 2 (b) 1.7 (c) 7 (d) 6.99
32. Name a gas obtained when zinc reacts with con. nitric acid.  
 (a) Nitric acid (b) Zinc acids (c) Nitrogen monoxides  
 (d) Nitrogen dioxide
33. Which of the following is correct?  
 (a) Elements is the simplest form of matter  
 (b) The constituents of mixture retain their identity  
 (c) Melting of ice is a physical change  
 (d) All of the above are correct
34. Bleaching powder is added to water in order to  
 (a) Make it odorless (b) Destroy the bacteria  
 (c) Remove the suspended impurity (d) ppt salt as nitrate
35. Carborundum is  
 (a) Silicon Carbides (b) Silicon dioxides (c) Silium nitroxide  
 (d) Silicon phosphids
36. Which of the following is not a neutral oxide?  
 (a) Carbon monoxide (b) Sulphur dioxide (c) Water (d) Nitric oxide
37. Which of the following decomposition reaction required heat energy to take place?  
 (a) Decomposition of lead nitrate (b) Decomposition of water  
 (c) Decomposition of silver chloride (d) Decomposition of silver bromide

38. Silver article turn black on exposure to air an example of  
 (a) Displacement reaction (b) Redox reaction  
 (c) Reduction reaction (d) Oxidation reaction
39.  $Fe + 4H_2O \rightarrow Fe(OH)_3 + H_2$ . Which atom is balanced?  
 (a) Iron (b) Hydrogen (c) Oxygen (d) Both (b) & (c)
40. Iron displaces copper from its salt solution because  
 (a) Both Fe & Cu are equally reactive (b) Fe is less reactive than Cu.  
 (c) Fe is more reactive than Cu (d) None of the above

**SECTION – 3 (BIOLOGY)**

41. To test the presence of starch in leaf we rinse it off with \_\_\_\_\_  
 (a) Iodine solution (b) Sugar Solution (c) Sulphur solution (d) Salt solution
42. Which of the labelled parts in the given figure, regulate opening & closing of the stomatal pore?



- (a) a, b, c (b) a & c (c) a only (d) c only
43. The transpiration in plants will be lowest when  
 (a) There is high humidity in atmosphere  
 (b) There is excess of water in cell  
 (c) Environmental conditions are dry  
 (d) There is high wind velocity
44. Which of the following is not the function of transpiration?  
 (a) Excretion of minerals (b) Cooling of leaves  
 (c) Uptake of water (d) Uptake of minerals
45. Which of the following contributes most to transportation of water from the ground to the leaves of a tall tree?  
 (a) Breakdown of ATP (b) Cohesion of water & transpiration pull  
 (c) Root pressure (d) Capillary rise of water
46. The growth regulator that retards the ageing of plant organs is \_\_\_\_\_  
 (a) Auxin (b) Gibberellin (c) Cytokinin (d) Abscisic acid
47. Nastic movements are  
 (a) Towards the stimulus (b) Away from stimulus  
 (c) Independent of direction of stimulus (d) None of the above
48. Flowering and seed germination are regulated by  
 (a) Geotropism (b) Phototropism (c) Photoperiodism (d) Photosynthesis

49. The mode of nutrition in algae is \_\_\_\_\_  
(a) Autotrophic (b) Heterotrophic (c) Chemotropic (d) Saprophytic
50. Bending of growing shoot towards sunlight is called \_\_\_\_\_  
(a) Chemotropism (b) Phototropism (c) Hydrotropism (d) Thigmotropism
51. If salivary amylase is lacking in the saliva, which of the following events in the mouth will be affected?  
(a) Proteins breaking down into amino acids.  
(b) Starch breaking down into sugars  
(c) Fats breaking down into fatty acids & glycerol  
(d) Absorption of vitamins
52. Choose the function of the pancreatic juice from the following  
(a) Trypsin digests proteins & lipase digests carbohydrates.  
(b) Trypsin digests emulsified fats & lipase digests proteins  
(c) Trypsin & lipase digests fats  
(d) Trypsin digests proteins & lipase digests emulsified fats
53. Which of the following statements(s) is (are) true about respiration?  
(i) During inhalation, ribs move inwards & diaphragm is raised.  
(ii) In the alveoli, exchange of gases takes place i.e. oxygen from the alveolar air diffuses into blood & CO<sub>2</sub> from blood diffuses into alveolar air.  
(iii) Haemoglobin has greater affinity for nitrogen than oxygen.  
(iv) Alveoli increases surface area for exchange of gases.  
(a) (i) & (iv) (b) (ii) & (iii) (c) (i) & (iii) (d) (ii) & (iv)
54. Which is the correct sequence of air passage during inhalation?  
(a) Nostrils → Larynx → Pharynx → Trachea → Lungs  
(b) Nasal Chamber → Nostrils → Trachea → Pharynx → Larynx → Alveoli  
(c) Larynx → Nostrils → Pharynx → Lungs  
(d) Nostrils → Pharynx → Larynx → trachea → Alveoli
55. The blood leaving the tissues becomes richer in  
(a) Carbon dioxide (b) Water (c) Haemoglobin (d) Oxygen
56. Which of the following statement(s) is (are) true about heart?  
(i) Left atrium receives oxygenated blood from different parts of body while right atrium receives deoxygenated blood from lungs.  
(ii) Left ventricle pumps oxygenated blood to different body parts while right ventricle pumps deoxygenated blood to lungs.  
(iii) Left atrium transfers oxygenated blood to right ventricle which sends it to different body parts.  
(iv) Right atrium receives deoxygenated blood from different parts of the body while left ventricle pumps oxygenated blood to different parts of the body.  
(a) (i) (b) (ii) (c) (ii) & (iv) (d) (i) & (iv)
57. Posture & balance of the body is controlled by  
(a) Cerebrum (b) Cerebellum (c) Medulla (d) Pons

58. Select the mis-matched pair
- (a) Adrenaline: Pituitary gland                      (b) Testosterone: Testes  
(c) Estrogen: Ovaries                                  (d) Thyroxin: Thyroid gland
59. In human females, an event that reflects onset of reproductive phase is
- (a) Growth of body    (b) Changes in hair pattern  
(c) Change in voice    (d) Menstruation
60. The correct sequence of organs in the male reproductive system for transport of sperms is
- (a) Testis → Vas deferns → Urethra  
(b) Testis → Ureter → Urethra  
(c) Testis → Urethra → Ureter  
(d) Testis → Vas deferns → Ureter