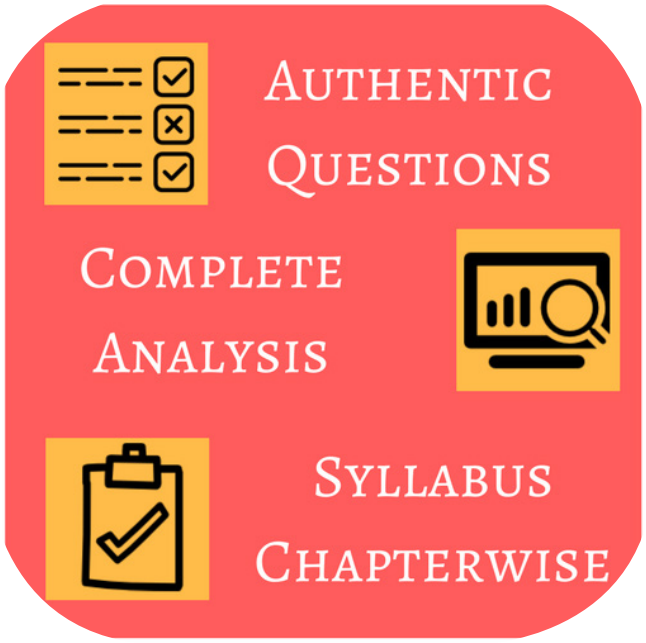
Aim4 AIIMS NEET

CHEAPEST PMT ONLINE TEST SERIES

AIIMS/NEET TOPPER PREPARE QUESTIONS



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NEET PHASE II PRACTICE PAPER - 2016

Important Instructions:

The test is of 3 hours duration and Test Booklet contains 180 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 720.

BIOLOGY

1. **The system of naming with two components (Binomial nomenclature) is proposed by:**
   a)C.Linnaeus b)E.Haeckel c)Julius Wilun d)Igenhousz

2. **They play a great role in recycling nutrients like nitrogen, phosphorous, iron and sulphur:**
   a)Autotrophic bacteria b)Hetertropic bacteria c)Chemotropic bacteria d)All of these

3. **Flagellar number & position of insertion in Rhodophyceae:**
   a)2-8, equal, apical b)2, unequal, lateral c) Absent d)2-8, unequal, apical

4. **Development of the zygotes into young embryos takes place within female gametophytes. This event is a precursor to the seed habit .It seen in:**
   a)Pteridophytes b)Gymnosperms c)Algae d)Bryophytes

5. **In Arthropods and mollusks, true coelom is reduced and filled with blood known as:**
   a)Acoelomate b)Pseudocoelomate c)Haemocoelomates d)Eucoelomate

6. **Pinnately compound leaf found in:**
   a)Banana b)Mango c)Neem d)Banyan

7. **In some flowers like lily, the calyx and corolla are not distinct and are termed as**
   a)Peithan b)Perianth c)Parianth d)Periynth

8. **Gymnosperms lack :**
   a)Tracheids b)Vessels c)Roots d)Phloem

9. **In grasses, the guard cells are :**
   a)Bell shaped b)Violen shaped c) Dumbbell shaped d)Sterio shaped

10. **Help to stop substances from leaking across a tissue:**
    a)Tight Junction b)Adhering junction c)Gap junction d)None of these

11. **Which one following is incorrect regarding Cartilage:**

    a)In this, intercellular material (matrix) is solid and non- pliable (due to *chondroitin salts)* and resists compression.
    b)Cartilage cells (chondrocytes) are enclosed in small cavities within the matrix secreted by them.

c)Most of the cartilages in vertebrate embryos are replaced by bones in adults.
d)Cartilage is present in the tip of nose, outer ear, joints in the vertebral column, limbs and hands in adults.

12. Development of *P. americana* is
a)Paurometabolous b)Metabolous c)Parametabolus d)Orthometabolous

13. Schleiden and Schwann are:
a)Botanist and zoologist respectively b)Zoologist and botanist respectively
c)Both are botanist d)Both are Zoologist

14. Ribosomes are not found in:
a)Cytoplasm b)Chloroplasts c)Mitochondria d)SER.

15. Golgi apparatus remains in close association with the:
a)Cytoplasm b)Mitochondria c)Nucleus d)Endoplamsic reticulum

16. Which one following is Acidic amino acids:
a)Valine b)Lysine c)Glutamic acid d)HCl

17. Codeine is the alkaloid used in:
a)Urinary diseases b)Respiratory problems c)Heart issues d)Encehalopathical disorders

18. *Carbonic anhydrase* is the _____enzyme.
a)Slowest b)Abundant c)Fastest d)Longest

19. Nucleolus, Golgi complex and ER reappear in:
a)Anaphase b)Telophase c)Metaphase d)Prophase

20. Seedlings are emerged out of the soil due to the:
a)Osmotic pressure b)Tugur pressure c)Imbibition pressure d)Ground pressure

21. An activator of alcohol dehydrogenase
a)Zinc b)Potassium c)Magnesium d)Iron

22. The best defined function of manganese is in the:
a)Chlorine uptake b)Splitting of water c)Respiration d)Uptake of Nitrogen

23. It acts as a Final acceptor of Hydrogen:
a)Peroxide b)Oxygen c)Carbon d)Glucose

24. In animals, when oxygen is inadequate during exercise, pyruvic acid in muscle cells is reduced to lactic acid by
a) lactate hydrogenase b)lactate dehydrogenase c)lactatose hydrogenase d)Sucrose dehydrogenase

25. If we plot the parameter of growth against time, we get a typical :
a)Straight graph b)Sigmoid curve c) Parabolic curve d)Elliptical curve

26. Largest salivary gland is:
a)Submandible b)Sub Lingular c)Submaxillary d)Parotid

27. Castle's gastric factor released by:

a)Chief cells b)Oxyntic cells c)Parietal cells d)Both b & d

28. With Respect to Emphysema choose the incorrect one:

a)Alveolar walls are damaged.
b)It decreases respiratory surface.
c)Major cause is cigarette smoking.
d)It increases the respiratory surface

29. Volume of air remaining in lungs even after a forcible expiration:

a)IRV b)RV c)ERV d)TV

30. The first sound (lub) is due to the closure of:

a)Semilunar valve b)Tricuspid valve c)Bicuspid valve d)Both b& c

31. Circulation b/w heart and various body parts known as:

a)Pulmonary b)Systemic c)Both a& b d)Single circulation

32. *Adrenal medullary hormones* _____the cardiac output.

a)Decraese b)Increases c)Not affected d)None

33. Green glands play a imp role in:

a)Respiration b)Excretion c)Breathing d)Circulation

34. Reddish brown, bean-shaped structures situated between the levels of last thoracic and 3rd lumbar vertebra:

a)Heart b)Appendix c)Large intestine d)Kidneys

35. On the concave side of kidney, there is an opening through which *blood vessels, nerves, lymphatic ducts* and *ureter* enter the kidney.

a)*hilum* b)*hilus* c)Both a& b d)Convoluted pipes

36. Each rib has 2 articulation surfaces on its dorsal end and is hence called

a)Bicephalic b)Cephalic c)Mecephalic d)Parcephalic

37. Osteoporosis is due to :

a)Decrease level of testosterone b)Decrease level of Progesterone
c)Decreases level of Estrogen d)Increases level of testosterone

38. No connection with sternum or other ribs:

a)True ribs b) Vertebrochondral c)False ribs d)Floating ribs

39. Seen in temporal lobe. Related with understanding speech and language.

a)Wernicke's area b)Brocas area c)Hypothalamus d)Pituitary

40. Oxytocin is released from :

a)Pituitary b)Hypothalamus c)Adrenal d)Ovary

41. Acts on both *pancreas* and *gall bladder* and stimulates the secretion of *pancreatic enzymes* and *bile juice*, respectively.
a)Gastrin b)Secretin c)CCK d)IID

42. libido is technical term for :
a)Female sexual behavior b)Male sexual behavior c)IUD d)Latest Barrier method

43. Adventitious buds arise from the notches present at _____of leaves of *Bryophyllum*.
a)Mid b)Tips c)Margins d)Petiole

44. Pollen grains are long and ribbon like:
a)Vallisneria b)Sea grasses c)Tomato d)Sea horse

45. The oldest seed is excavated from Arctic Tundra is
a)Lupine b) *Phoenix c)Citrus d)Orchids*

46. The wall of ovary develops into :
a)Mesocarp b)Pericarp c)Perisperm d)Seeds

47. Endometrium attains maximum vascularity, thickness and softness at:
a)Luteal phase b)Menstrual phase c)Proliferative phase d)Ovulatory phase

48. The placenta & remnants of umbilical cord are expelled from the maternal body after parturition. It is called:
a)Before birth b)After birth c)Between birth d)Between intercourse

49. Maiden head is common name of :
a)Clitoris b)Hymen c)Labia majora d)Uterus

50. All persons are vulnerable to STDs. These are very high among persons in the age group of
a)15-24 years b)14-20years c)20-30years d)10-30years

51. A woman bears a child for a couple unable to produce children:
a)surrogate mother b)Step Mother c)Maternal mother d)Padosan

52. One of the best methods for couples looking for parenthood:
a)Test tube b)GIFT c)Adoption d)Abortion

53. Mirabilis jalapa is an example of :
a)Polygenic inheritance b)Epistatis c)Pleiotropy d)Incomplete dominance

54. de Vries, Correns & von Tschermak independently rediscovered Mendel's results in:
a)1999 b)1990 c)1900 d)1940

55. Example of XX-XO mechanism is:
a)Humans b)Rats c)Grasshoper d)Birds

56. de Vries, Correns & von Tschermak independently rediscovered Mendel's results in:
a)1999 b)1990 c)1900 d)1940

57. The earth was formed about _____billion years ago.

a)4 b)4.5 c)5 d)4.6

58. Theory of chemical evolution proposed by:

a)Francisco Redi b)Oparin & Haldane c) Spallanzan d) Louis Pasteur

59. First cellular forms of life appears on:

a)Paleozoic era b)Mesozoic era c) Proterozoic era d)Caenozoic era

60. Hugo de Vries proposed Mutation Theory of evolution. He conducted some experiments on:

a)Oenothera lamarckiana b)Rosa domestica c)Solanum tubersum d)Salviana indica

61. A single gene can exhibit multiple phenotypic expression:

a)Polygenic b)epinastic c)Pleiotropy d)Codominance

62. Pick out the incorrect one about colourt blindness:

a)This defect is due to mutation in certain genes present in the X chromosome.
b)It occurs in about 8 per cent of males and only about 0.4 per cent of females.
c)The mother is not herself colour blind because the gene is recessive.
d)sex-linked dominant disorder.

63. Thalassemia differs from sickle-cell anaemia in that the :

a)former is a quantitative problem of synthesising too few globin molecules while the latter is a qualitative problem of synthesising an incorrectly functioning globin.
b)former is a qualitative problem of synthesising too few globin molecules while the latter is a quantitative problem of synthesising an incorrectly functioning globin.
c)affect of sickle cell anaemia is more
d)Affect of thalaasemia is more

64. Environment (Protection) Act,passed on:

a)1986 b)1998 c)1987 d)1999

65. Pick out the incorrect one:

a)A scrubber can remove gases like sulphur dioxide.
b)According to Central Pollution Control Board (CPCB), particulate size 2.5 micrometers or less in diameter (PM 2.5) are responsible for causing the greatest harm to human health.
c)Particulate size 2.5 micrometers or less in diameter (PM 2.5) Not damaged the lungs
d) Automobiles are a major cause for atmospheric pollution atleast in the metro cities.

66. Bharat Stage II which is equivalent to:

a)Euro norms I Euro norms II Euro norms III Euro norms 0.

67. Ahmed Khan, aged 57 years old, has been producing plastic sacks for 20 years. About 8 years ago, he realised that plastic waste was a real problem. A fine powder of recycled modified plastic, was developed then by his company is:

a)Ployene b)Polyblend c)Polythene d)Polypol

68. Dagar has created the Haryana Kisan Welfare Club, with a current membership of 5000 farmers for their contributions towards :

a)Chipko movement b)Organic farming c)Awareness for global warming d)Narmada aandolan

69. Montreal Protocol, was signed at Montreal (Canada) in 1987 (effective in 1989) to control the emission of:

a)Global warming gases b)Ozone depleting substances c)Methane d)Pollutants

70. The failure of testosterone secretion results in:

a)Gynaecomastia b)Hypogonadism c)Eunuchoidism d)Testopenia

71. Excesion/removal of the pituitary gland is known as:

a)Thiourea b)Sella turscica c)Hypophysctomy d)Cushing diseases

72. Excess corticosteroids hormones in the body is knowns as:

a)Thiourea b)Sella turscica c)Hypophysctomy d)Cushing diseases

73. Calcareous matter found in the pineal gland is knowns as:

a)Brain sand b)Brain calcium c)Cushing syndrome d)Addisons diseases

74. The accumulation of neurosecretory and carrier molecules in the axons of the neurons of the neurohypophysis is known as:

a)Thiourea b)Herring bodies c)Hypophysctomy d)Cushing diseases

75. The sites of protein synthesis in neurons is:

a)Nissls granules b)Axons c)Dendrites d)Cytoplasm

76. Disturbances in the form of thoughts ,mood,sence of self,relationship behavious is known as:

a)Schizophrenia b)Herring bodies c)Hypophysctomy d)Cushing diseases

77. Tay sachs diseases is a genetic diseases caused by deficiency of the enzyme :

a)Phenyalanine b)Trypsine c)Hexosaminidase d)HCL

78. Sliding filament theory was given by:

a)H.E Huxley & A.F Huxley b) A.F Huxley alone c)H.E Huxley alone d)Einstein

79. First kidney transplant was done by :

a)Hamburger b)Bohrs c)Rutherford d)Charles darvin

80. The excretory product released by only spider ;

a)Urea b)Guanine c)Trypsine d)Phenlyalanine

81. A deviations from the normal rhythm or pattern of heartbeats that cause the heart to pump improperly: a)Arrhythmias b)Tachycardias c)Bradycardias d)Neutropenia

82. A green iron protein respiratory pigment closely related to haemoglobin is known as :a
a)Chlorocruorin b)Chlorophysalis c)Greenopigases d)Harahaem

83. Excretory duct of the pancreas into the duodenum is called :
a)Stenson ducts b)whartons ducts c)Wirsungs duct d)Pancro duct

84. Disorder of lipid metabolism results in :
a)Gauchers diseases b)Lipohamy diseases c)Hypolipoyases d)Ablipoglyco deficiency

85. A fall in glomerular filtration rate (GFR) activates
a) Juxta glomerular cells to release renin
b) Adrenal cortex to release aldosterone
c) Adrenal medulla to release adrenaline
d) Posterior pituitary to release vasopressin

86. One of the constituents of the pancreatic juice while poured into the duodenum in humans, is :
a) Trypsinogen
b) Chymotrypsin
c) Trypsin
d) Enterokinase

87. Function of companion cells is :
a) Providing energy to sieve elements for active transport
b) Providing water to phloem
c) Loading of sucrose into sieve elements by passive transport
d) Loading of sucrose into sieve elements

88. The breakdown of detritus into smaller particles by earthworm is a process called :
a) Humification
b) Fragmentation
c) Mineralisation
d) Catabolism

89.Which one of the following structures in Pheretima is correctly matched with its function ?
a) Clitellum - secretes cocoon
b) Gizzard - absorbs digested food
c) Setae - defence against predators
d) Typhlosole - storage of extra nutrients

90.Fastest distribution of some injectible material/ medicine and with no risk of any kind can b achieved by injecting it into the
a) Muscles
b) Arteries m
c) Veins
d) Lymph vessels

PHYSICS

(Based On PYQP AIEEE 2002-2012)

1. **Speeds of two identical cars are u and $4u$ at a specific instant. If the same deceleration is applied on both the cars, the ratio of the respective distances in which the two cars are stopped from that instant is**
   (a) 1 : 1 (b) 1 : 4 (c)1 : 8 (d) 1 : 16.

2. **A ball is thrown from a point with a speed v 0 at an angle of projection q. From the same point and at the same instant a person starts running with a constant speed v 0 /2 to catch the ball. Will the person be able to catch the ball? If yes, what should be the angle of projection?**
   (a) yes, 60° (b) yes, 30° (c) no (d) yes, 45°.

3. **When forces F 1 , F 2 , F 3 are acting on a particle of mass m such that F 2 and F 3 are mutually perpendicular, then the particle remains stationary. If the force F 1 is now removed then the acceleration of the particle is**
   (a) F 1 /m (b) F 2 F 3 /mF 1 (c) (F 2 – F 3)/m (d) F 2 /m.

4. **The minimum velocity (in ms –1) with which a car driver must traverse a flat curve of radius 150 m and coefficient of friction 0.6 to avoid skidding is**
   (a) 60 (b) 30 (c) 15 (d) 25.

5. **Consider the following two statements.**
   A. Linear momentum of a system of particles is zero.
   B. Kinetic energy of a system of particles is zero. Then
   (a)A does not imply *B* and *B* does not imply *A*
   (b)A implies *B* but *B* does not imply *A*
   (c)A does not imply *B* but *B* implies *A*
   (d)A implies *B* and *B* implies *A*.

6. **A particle is projected at 60° to the horizontal with a kinetic energy$K$. The kinetic energy at the highest point is**
   (a) K/2 (b) K (c) zero (d) K/4

7. **A particle performing uniform circular motion has angular momentum L. If its angular frequency is doubled and its kinetic energy halved, then the new angular momentum is**
   (a) L /4 (b) 2L (c) 4L (d) L /2.

8. **A solid sphere is rotating in free space. If the radius of the sphere is increased keeping mass same which one of the following will not be affected?**
   (a) moment of inertia
   (b) angular momentum
   (c) angular velocity
   (d) rotational kinetic energy.

9. **The change in the value of *g* at a height *h* abovethe surface of the earth is the same as at a depth *d* below the surface of earth. When both *d* and *h* are much smaller than the radius of earth, then which of the following is correct?**
   (a) $d = 2h$ (b) $d = h$ (c) $d = h/2$ (d) $d = 3h/2$

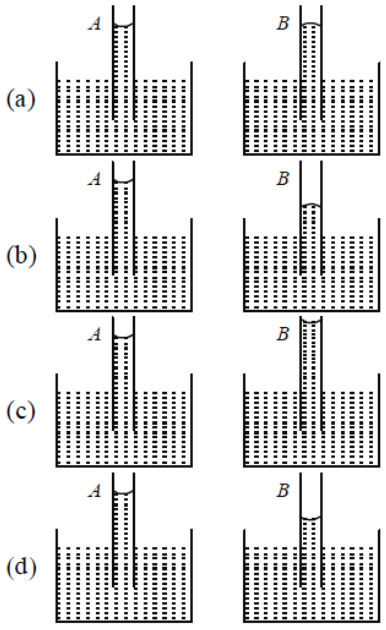
10. **Suppose the gravitational force varies inversely as the *n* th power of distance. Then the time period of a planet in circular orbit of radius *R* around the sun will be proportional to**

(a) $R^{\left(\frac{n+1}{2}\right)}$ (b) $R^{\left(\frac{n-1}{2}\right)}$

(c) R^n (d) $R^{\left(\frac{n-2}{2}\right)}$.

11. **A wire elongates by *l* mm when a load *W* is hanged from it. If the wire goes over a pulley and two weights *W* each are hung at the two ends, the elongation of the wire will be (in mm)**
   (a) $l/2$ (b) l (c) $2l$ (d) zero.

12. **A capillary tube (*A*) is dipped in water. Another identical tube (*B*) is dipped in a soapwater solution. Which of the following shows the relative nature of the liquid columns in the two tubes?**



13. **The length of a simple pendulum executing simple harmonic motion is increased by 21%. The percentage increase in the time period of the pendulum of increased length is**
   (a) 11% (b) 21% (c) 42% (d) 10%.

14. A body executes simple harmonic motion. The potential energy (P.E.), the kinetic energy (K.E.) and total energy (T.E.) are measured as function of displacement *x*. Which of the following statement is true?

(a) K.E. is maximum when $x = 0$
(b) T.E. is zero when $x = 0$
(c) K.E. is maximum when x is maximum
(d) P.E. is maximum when $x = 0$.

15. The total energy of a particle, executing simple harmonic motion is directly proportional to

(a) x
(b) x
(c) independent of x
(d) $x^{1/2}$

where x is the displacement from the mean position.

16. An observer moves towards a stationary source of sound, with a velocity onefifth of the velocity of sound. What is the percentage increase in the apparent frequency?

(a) 5% (b) 20% (c) zero (d) 0.5%

17. "Heat cannot by itself flow from a body at lower temperature to a body at higher temperature" is a statement or consequence of

(a) second law of thermodynamics
(b) conservation of momentum
(c) conservation of mass
(d) first law of thermodynamics.

18. A Carnot engine, having an efficiency of h = 1/10 as heat engine, is used as a refrigerator. If the work done on the system is 10 J, the amount of energy absorbed from the reservoir at lower temperature is

(a) 100 J (b) 99 J (c) 90 J (d) 1 J

19. The earth radiates in the infrared region of the spectrum. The wavelength of the maximum intensity of the spectrum is correctly given by

(a) Rayleigh Jeans law
(b) Planck's law of radiation
(c) Stefan's law of radiation
(d) Wien's law.

20. Two spherical conductors *B* and *C* having equal radii and carrying equal charges in them repel each other with a force *F* when kept apart at some distance. A third spherical conductor having same radius as that of *B* but uncharged is brought in contact with *B*, then brought in contact with *C* and finally removed away from both. The new force of repulsion between *B* and *C* is

(a) $F/4$ (b) $3F/4$ (c) $F/8$ (d) $3F/8$.

21. The thermistors are usually made of

(a) metals with low temperature coefficient of resistivity
(b) metals with high temperature coefficient of resistivity
(c) metal oxides with high temperature coefficient of resistivity

(d) semiconducting materials having low temperature coefficient of resistivity.

22. The resistance of a wire is 5 ohm at 50°C and 6 ohm at 100°C. The resistance of the wire at 0°C will be

(a) 3 ohm (b) 2 ohm (c) 1 ohm (d) 4 ohm

23. A wire when connected to 220 V mains supply has power dissipation *P* 1 . Now the wire is cut into two equal pieces which are connected in parallel to the same supply. Power dissipation in this case is *P* 2 . Then *P* 2 : *P* 1 is

(a) 1 (b) 4 (c) 2 (d) 3.

24. An ammeter reads upto 1 ampere. Its internal resistance is 0.81 ohm. To increase the range to 10 A the value of the required shunt is

(a) 0.03 W (b) 0.3 W
(b) 0.9 W (d) 0.09 W.

25. If a current is passed through a spring then the spring will

(a) expand (b) compress (c) remains same (d) none of these.

26. 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

(a) it will turn towards right of direction of motion
(b) it will turn towards left of direction of motion
(c) its velocity will decrease
(d) its velocity will increase

27. The materials suitable for making electromagnets should have

(a) high retentivity and high coercivity
(b) low retentivity and low coercivity
(c) high retentivity and low coercivity
(d) low retentivity and high coercivity.

28. The self inductance of the motor of an electric fan is 10 H. In order to impart maximum power at 50 Hz, it should be connected to a capacitance of

(a) 1 mF (b) 2 mF (c) 4 mF (d) 8 Mf

29. If two mirrors are kept at 60° to each other, then the number of images formed by them is

(a) 5 (b) 6 (c) 7 (d) 8.

30. A plano convex lens of refractive index 1.5 and radius of curvature 30 cm is silvered at the curved surface. Now this lens has been used to form the image of an object. At what distance from this lens an object be placed in order to have a real image of the size of the object?

(a) 20 cm (b) 30 cm (c) 60 cm (d) 80 cm.

31. Two lenses of power –15 D and +5 D are in contact with each other. The focal length of the combination is

(a) + 10 cm (b) –20 cm (c) –10 cm (d) + 20 cm

32. A Young's double slit experiment uses a monochromatic source. The shape of the interference fringes formed on a screen

(a) straight line (b) parabola (c) hyperbola (d) circle

33. If I_o is the intensity of the principal maximum in the single slit diffraction pattern, then what will be its intensity when the slit width is doubled?

(a) I_o (b) $I_o/2$ (c) $2I_o$ (d) $4I_o$

34. An electromagnetic wave of frequency u = 3.0 MHz passes from vacuum into a dielectric medium with permitivity e = 4.0. Then

(a) wavelength is doubled and the frequency remains unchanged
(b) wavelength is doubled and frequency becomes half
(c) wavelength is halved and frequency remains unchanged
(d) wavelength and frequency both remain unchanged.

35. If the kinetic energy of a free electron doubles, its de Broglie wavelength changes by the factor:

(a) $1/\sqrt{2}$ (b) $\sqrt{2}$ (c) 1/2 (d) 2.

36. If g_E and g_M are the accelerations due to gravity on the surfaces of the earth and the moon respectively and if Millikan's oil drop experiment could be performed on the two surfaces, one will find the ratio

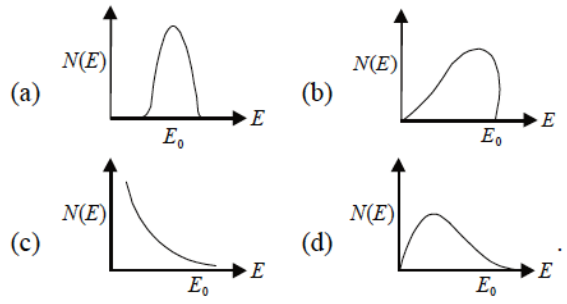
$$\frac{\text{electronic charge on the moon}}{\text{electronic charge on the earth}}$$ to be

(a) g_M/g_E (b) 1 (c) 0 (d) g_E/g_M

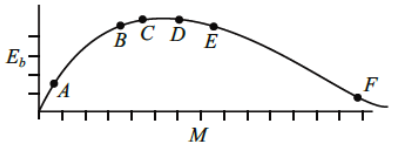
37. Which of the following cannot be emitted by radioactive substances during their decay?

(a) protons (b) neutrinos (c) helium nuclei (d) electrons.

38. The energy spectrum of bparticles [number $N(E)$ as a function of beta energy E] emitted from a radioactive source is:



39. The above is a plot of binding energy per nucleon E_b, against the nuclear mass M; A, B, C, D, E, F correspond to different nuclei. Consider four reactions:

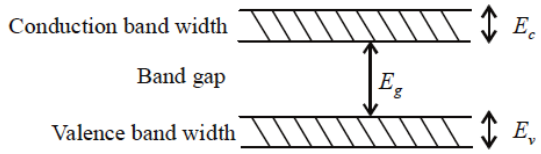


(i) $A + B \rightarrow C + \varepsilon$ (ii) $C \rightarrow A + B + \varepsilon$
(iii) $D + E \rightarrow F + \varepsilon$ (iv) $F \rightarrow D + E + \varepsilon$
where ε is the energy released? In which reactions is ε positive?
(a) (i) and (iv) (b) (i) and (iii)
(c) (ii) and (iv) (d) (ii) and (iii)

40. Which of the following transitions in hydrogen atoms emit photons of highest frequency ?
(a) $n = 1$ to $n = 2$ (b) $n = 2$ to $n = 6$ (c) $n = 6$ to $n = 2$ (d) $n = 2$ to $n = 1$

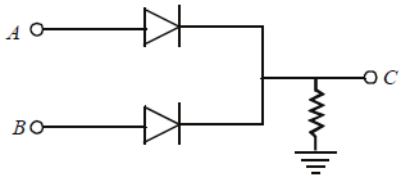
41. In the middle of the depletion layer of a reversebiased *pn* junction, the
(a) electric field is zero
(b) potential is maximum
(c) electric field is maximum
(d) potential is zero.

42. If the lattice constant of this semiconductor is decreased, then which of the following is correct?



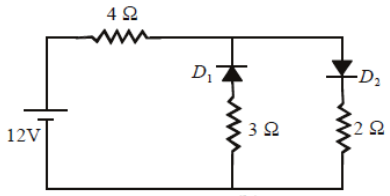
(a) all E_c, E_g, E_v decrease
(b) all E_c, E_g, E_v increase
(c) E_c, and E_v increase, but E_g decreases
(d) E_c, and E_v decrease, but E_g increases.

43. In the circuit below, *A* and *B* represent two inputs and *C* represents the output. The circuit represents



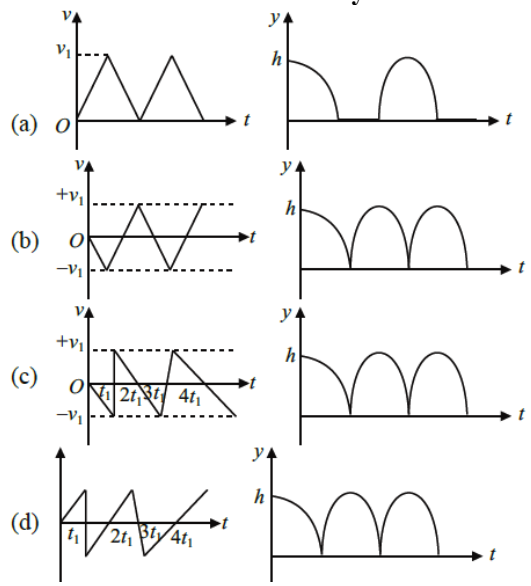
(a) OR gate (b) NOR gate
(c) AND gate (d) NAND gate.

44. The circuit has two oppositely connect ideal diodes in parallel. What is the current following in the circuit?



(a) 1.33 A (b) 1.71 A
(c) 2.00 A (d) 2.31 A.

45. Consider a rubber ball freely falling from a height h = 4.9 m onto a horizontal elastic plate. Assume that the duration of collision is negligible and the collision with the plate is totally elastic. Then the velocity as a function of time and the height as function of time will be



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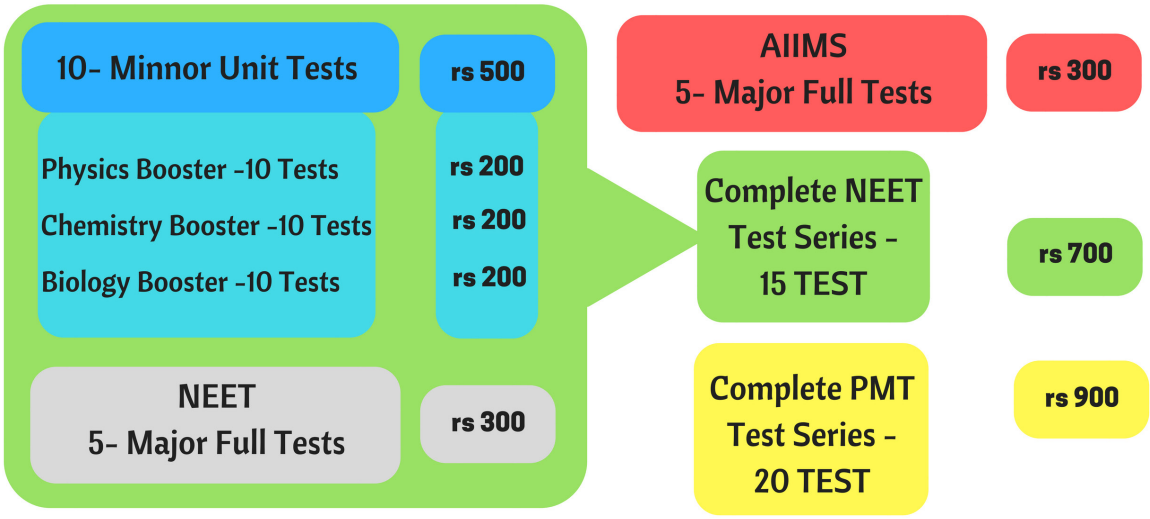

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