



XII MCQ - MATHEMATICS

QUESTION PAPER - SET B

1. If $\begin{bmatrix} a+b & 2 \\ 5 & ab \end{bmatrix} = \begin{bmatrix} 6 & 2 \\ 5 & 8 \end{bmatrix}$ Find values of a and b
 (A) A=5 and b=1 or a=1 and b=5 (B) a=3 and b=7 or a=7 and b=3
 (C) a=1; b=1 (D) a=4 and b=7 or a=7 and b=4
2. If a function $F: \mathbb{R} \rightarrow \mathbb{R}$ be defined by $f(x) = x^2 + 5x + 9$ then $f^{-1}(9)$
 (A) {0, -4} (B) {0, -6} (C) {0, -5} (D) {0, -1}
3. The law $a+b = b+a$ is called
 (A) Closure law (B) Associative law
 (C) communicative law (D) distributive law
4. If $\sin^{-1}(x) - \cos^{-1}(x) = \frac{\pi}{6}$ then $x =$
 (A) $\frac{1}{2}$ (B) $\frac{\sqrt{3}}{2}$ (C) $-\frac{1}{2}$ (D) None of these
5. $A = \begin{bmatrix} 5 & x \\ y & 0 \end{bmatrix}$ and $A = A^T$ then
 (A) $x=0, y=5$ (B) $x + y=5$ (C) $x=y$ (D) None of these
6. If A and B are square matrices of order 2 then $\det(A+B) = 0$ is possible when
 (A) $\det(A) = 0$ or $\det(B)=0$ (B) $\det(A) + \det(B)=0$
 (C) $\det(A) = 0$ and $\det(B)=0$ (D) $A+B=0$
7. $A = \begin{bmatrix} a & 0 & 0 \\ 0 & a & 0 \\ 0 & 0 & a \end{bmatrix}$ then value $|adjA|$ is
 (A) a^{27} (B) a^9 (C) a^6 (D) a^2
8. The system of equation $x + y + z = 2; 3x - y + 2z = 6$ and $3x + y + z = -18$ has
 (A) a unique solution (B) no solution
 (C) an infinite number of solution (D) zero solution as the only solution
9. If $f(x) = (x + 1)^{\cot x}$ be continuous at $x = 0$ the $f(0)$ equal to
 (A) 0 (B) $\frac{1}{e}$ (C) e (D) None of these



10. Let, $F(x) = \begin{cases} ax^2 + 1 & x > 1 \\ x + \frac{1}{2} & x \leq 1 \end{cases}$ then $F(x)$ is derivable at $x = 1$ if

- (A) $a = 2$ (B) $a = 1$ (C) $a = 0$ (D) $a = \frac{1}{2}$

11. For the curve $\sqrt{x} + \sqrt{y} = 1$; $\frac{dy}{dx}$ at $(\frac{1}{4}, \frac{1}{4})$ is

- (A) $\frac{1}{2}$ (B) -2 (C) -1 (D) 2

12. If $F(x) = \int g(x^2) dx$ then $F'(x)$ at $x = e$ is

- (A) 0 (B) 1 (C) $\frac{1}{e}$ (D) $\frac{1}{2e}$

13. If $y^2 = ax^2 + bx + c$, then $y^3 \left(\frac{d^2y}{dx^2}\right)$

- (A) constant (B) a function of x - only
 (C) a function of y only (D) a function of x and y

14. If $V = \frac{4}{3} \pi r^3$ at what rate in cubic units is V increasing when $r=10$ and $\frac{dr}{dt} = 0.01$

- (A) π (B) 4π (C) 40π (D) $\frac{4\pi}{3}$

15. If there is an error of 2.1 in measuring the length of a simple pendulum then percentage error in its period is

- (A) 1% (B) 2% (C) 3% (D) 4%

16. The equation of the normal to curve $y = \sin x$ at $(0,0)$ is

- (A) $x = 0$ (B) $y = 0$ (C) $x+y = 0$ (D) $x-y = 0$

17. $\int |x|^3 dx$ is equal to

- (A) $-\frac{x^4}{4} + c$ (B) $\frac{|x|^4}{-4} + c$ (C) $\frac{x^4}{4} + c$ (D) None of these

18. The value of $\int \frac{\cos\sqrt{x}}{\sqrt{x}} dx$ is

- (A) $2c \sqrt{x} + c$ (B) $\sqrt{\frac{\cos x}{x}} + c$ (C) $\sin\sqrt{x} + c$ (D) $2\sin\sqrt{x} + c$

19. In a ΔABC if C is a right angle then $\tan^{-1}\left(\frac{a}{b+c}\right) + \tan^{-1}\left(\frac{b}{c+a}\right) =$

- (A) $\frac{\pi}{3}$ (B) $\frac{\pi}{4}$ (C) $\frac{5\pi}{2}$ (D) $\frac{\pi}{6}$



20. The maximum value of $x^{1/x}; x > 0$ is
 (A) $e^{1/e}$ (B) $(\frac{1}{e})^0$ (C) 1 (D) None of these
21. The value of integral $\int_{-2}^2 |1 - x^2| dx$ is
 (A) 4 (B) 2 (C) -2 (D) 0
22. $\int_1^{\sqrt{3}} \frac{1}{1+x^2} dx$ is equal to
 (A) $\frac{\pi}{12}$ (B) $\frac{\pi}{6}$ (C) $\frac{\pi}{4}$ (D) $\frac{\pi}{3}$
23. $\int_0^{2a} x dx$ is equal to
 (A) $2 \int_0^a x dx$ (B) 0
 (C) $\int_0^a f(x) dx + \int_0^a f(2a - x) dx$ (D) None of these
24. The area of region bounded by x-axis and curve $y = c \sin x$ when $0 \leq x \leq 2\pi$ is
 (A) 0 (B) 2 (C) 3 (D) 4
25. The general solution of differential equation $\frac{dy}{dx} = \frac{y}{x}$ is
 (A) $\log y = kx$ (B) $y = kx$ (C) $xy = k$ (D) $y = k \log x$
26. If $\vec{a}, \vec{b}, \vec{c}$ are three non-zero vector, no two of which are collinear and the vector $\vec{a} + \vec{b}$ is collinear with \vec{c} , $\vec{b} + \vec{c}$ collinear with \vec{a} then $\vec{a} + \vec{b} + \vec{c} = ?$
 (A) \vec{a} (B) \vec{b} (C) \vec{c} (D) None of these
27. The integrating factor of differential equation $x \frac{dy}{dx} - y = 2x^2$
 (A) e^{-x} (B) e^{-y} (C) $\frac{1}{x}$ (D) x
28. If point A $(60i + 3j)$; B $(40i - 8j)$ and C $(ai - 52j)$ are collinear then a is equal to
 (A) 40 (B) -40 (C) 20 (D) -20
29. OACB is a parallelogram with $\vec{OC} = \vec{a}$ and $\vec{AB} = \vec{b}$ then \vec{OA} is
 (A) $\vec{a} + \vec{b}$ (B) $\vec{a} - \vec{b}$ (C) $\frac{1}{2}(\vec{b} - \vec{a})$ (D) $\frac{1}{2}(\vec{a} - \vec{b})$
30. The line $\frac{x}{1} = \frac{y}{2} = \frac{z}{3}$ and $\frac{x-1}{-2} = \frac{y-2}{-4} = \frac{z-3}{-6}$ are
 (A) C incident (B) Skew (C) Intersecting (D) Parallel



31. Then equation of plane which cuts equal intercept of units length on the co-ordinate axes is
 (A) $x + y + z = 1$ (B) $x + y + z = 0$ (C) $x + y - z = 1$ (D) $x + y + z = 2$
32. Which of the following sets are convex
 (A) $\{x, y\}; x^2 + y^2 \geq 1\}$ (B) $\{x, y\}; y^2 \geq x\}$
 (C) $\{x, y\}; 3x^2 + 4y^2 \geq 5\}$ (D) $\{x, y\}; y \geq 2, y \leq 4\}$

33. Out of 30 consecutive integers 2 are chosen at random. The probability that their sum is odd is
 (A) $\frac{14}{29}$ (B) $\frac{16}{29}$ (C) $\frac{15}{29}$ (D) $\frac{10}{29}$

34. The probability that a leap year will have 53 Fridays or 53 Saturdays is
 (A) $\frac{2}{7}$ (B) $\frac{3}{7}$ (C) $\frac{4}{7}$ (D) $\frac{1}{7}$

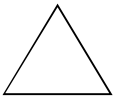
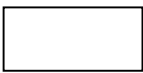
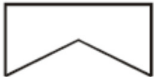

35. If X is a random- variable with probability distribution as given below

$X = x_i$	0	1	2	3
$P(X = x_i)$	k	3k	3k	k

The value of k and it's variance are

- (A) $\frac{1}{8}, \frac{22}{27}$ (B) $\frac{1}{8}, \frac{23}{27}$ (C) $\frac{1}{8}, \frac{24}{27}$ (D) $\frac{1}{8}, \frac{3}{4}$
36. Image of (1,6,3) in the line $\frac{x}{1} = \frac{y-1}{2} = \frac{z-2}{3}$
 (A) (0,1,7) (B) (1,7,0) (C) (1,0,7) (D) (7,7,0)
37. Equation of y - axis in 3D is
 (A) $\frac{x}{0} = \frac{y}{1} = \frac{z}{0}$ (B) $\frac{x}{1} = \frac{y}{1} = \frac{z}{0}$ (C) $\frac{x}{0} = \frac{y}{0} = \frac{z}{0}$ (D) $y = 0$
38. D.C 's of x - axis are
 (A) 1,0,0 (B) 0,1,0 (C) 0,0,1 (D) 0,0,0
39. Direction angle of z - axis are
 (A) $0^\circ, 90^\circ, 90^\circ$ (B) $90^\circ, 90^\circ, 0^\circ$ (C) $0^\circ, 90^\circ, 0^\circ$ (D) $0^\circ, 0^\circ, 90^\circ$
40. Angle between 2 diagonals of a cube is
 (A) $\sin^{-1}\left(\frac{1}{3}\right)$ (B) $\cos^{-1}\left(\frac{2}{3}\right)$ (C) $\sin^{-1}\left(\frac{2}{3}\right)$ (D) None of these
41. Angle between the vectors with drs proportional to 4,-3,5 & 3,4,5, is
 (A) $\frac{\pi}{4}$ (B) $\frac{\pi}{6}$ (C) $\frac{\pi}{12}$ (D) $\frac{\pi}{3}$



42. $[\hat{i}\hat{j}\hat{k}] =$
(A) 1 (B) 0 (C) 2 (D) -1
43. $[\hat{i}\hat{i}\hat{i}] =$
(A) 1 (B) 0 (C) 2 (D) -1
44. Two dice are thrown simultaneously. If X denotes the number of sixes then $E(x) =$
(A) 3 (B) $\frac{1}{3}$ (C) $\frac{2}{3}$ (D) $\frac{1}{2}$
45. In a single throw of a dice, if X denotes the number on its upper face, then mean of X is
(A) $\frac{2}{7}$ (B) $\frac{7}{2}$ (C) $\frac{1}{7}$ (D) $\frac{1}{2}$
46. A dice is thrown thrice getting an even number is considered as success, then variance of the binomial distribution is
(A) $\frac{1}{2}$ (B) 3 (C) $\frac{1}{4}$ (D) $\frac{3}{4}$
47. For a binomial distribution if mean is 4 & variance 3, then number of trials is
(A) 16 (B) 24 (C) 36 (D) 4
48. Which of the following does not represent a CONVEX set?
(A)  (B)  (C)  (D) 
49. In LPP if there is no solution, then the condition is known as
(A) Condition of feasibility (B) Condition of infeasibility
(C) Both (A) and (B) (D) None of these
50. LPP can be solved using
(A) Iso - profit method (B) Iso - cost method
(C) Corner Point Method (D) All of the above



XII MCQ - BIOLOGY

QUESTION PAPER – SET B

- Crassulacean acid metabolism operates in
(A) In succulents (B) in hydrophytes
(C) in mesophytes (D) In non-succulents
- Which of the following is correct?
(A) ZIFT - Gamete Intra fallopian transfer
(B) AI - Artificial insemination
(C) IUI - Inter -uterine insemination
(D) ICSI - Inter cytoplasmic sperm injection
- A chlorophyll molecule has the magnesium located in the
(A) Phytol chamber (B) Centre of porphyrin
(C) Corner of porphyrin (D) Isocyclic ring
- To evolve pureline in animals which breeding method is required ?
(A) Cross-breeding (B) In-breeding
(C) Out-Crossing (D) Interspecific hybridisation
- R.Q is measured by
(A) Auxanometer (B) Ganong's potometer
(C) Ganong's respirometer (D) Darwin's porometer
- Read the following statements
(I) After implantation finger like projections appear on the trophoblast called chorionic villi
(II) Placenta acts as an endocrine gland
(III) The placenta facilitate the supply of carbondioxide and nutrients to the embryo How many of the above statements are not correct
(A) 1 (B) 3 (C) 2 (D) zero
- In amoeboid type of tapetum, the cell fuse to form
(A) Plasmodium (B) Proubisch bodies (C) Ubisch bodies (D) None of these
- Find the incorrect match
(A) Haemophilia - Sex linked recessive
(B) Pattern baldness - Sex linked dominant
(C) Sickle cell anaemia - Autosomal dominant
(D) Myotonic dystrophy - Autosomal recessive
- Antibiotics are mostly obtained from
(A) Fungi (B) Actinomycetes (C) Cyanobacteria (D) A and B

10. Human blood group is example of
 (A) Dominance (B) Codominance
 (C) Multiple allelism (D) All of these
11. MOET is a method of
 (A) Fish cultivation (B) Birth control in humans
 (C) Cloning in sheep (D) Hybridization in cattles
12. If heterozygous tall and yellow seeded plant is crossed with dwarf and green seeded plant the progeny will be obtained in the ratio of
 (A) 3 : 1 (B) 9 : 3 : 3 : 1 (C) 1 : 1 : 1 : 1 (D) 12 : 3 : 1
13. GAATTC is the recognition site of which of the following restriction endonuclease.
 (A) Hird III (B) Eco RI (C) Bam I (D) Hae III
14. Which class of tissue seems to be the most primitive among all types of tissues ?
 (A) Fibres (B) Vessels (C) Parenchyma (D) Sieve tubes
15. The sequence of DNA not translated is
 (A) Introns (B) Exons (C) Cistrons (D) Recons
16. Consider the following four statements (a-d) and select the option which includes all the incorrect ones only.
 (a) Cross-breeding allows the desirable qualities of two different species to be combined.
 (b) Wax is the food of high nutritive value and is used in the preparation of cosmetics and polishes of various kinds.
 (c) Pisciculture is an industry devoted to the catching processing or selling of fish, shellfish or other aquatic animals.
 (d) Controlled breeding experiments are carries out using artificial inseminatism
 Options :
 (A) Statement (b), (c) and (d) (B) Statement (a) and (d)
 (C) Statement (c) and (d) (D) Statement (a), (c) and (b)
17. The gene that encodes for BT protein, specific to co on bollworm is
 (A) Cry I AC (B) Cry II ABC (C) Cry II AC (D) Cry II AB
18. Read the following statements (I-IV)
 (I) The first movement of the foetus and appearance of hair on the head are usually observed during fourth month
 (II) SAHELI a new oral contraceptive for the females
 (III) MTPs are considered relatively safe during the second trimester
 (IV) The corpus luteum secretes large amount of estrogen which is essential for maintenance of the endometrium

How many statement are incorrect ?

- (A) Four (B) Three (C) Two (D) One

19. The growth of a population is determined by
 (A) Natality rate (B) Mortality rate
 (C) Vital index (D) Population density
20. The treatment of snake bite by antivenom is an example of
 (A) Specific natural immunity (B) Naturally acquired passive immunity
 (C) Artificially acquired passive immunity (D) Artificially acquired active immunity
21. Streptokinase [TPA] helps in
 (A) Cleaning blood clots (B) Increasing plasma
 (C) Dissolving tissue (D) Increasing O.P of cell
22. In Drosophila the genes for eye colour and body colour are present on _____ and distance between the genes is _____ cM
 (A) X chromosome, 1.3 (B) X chromosome, 37.2
 (C) Autosome, 1.3 (D) Autosome, 37.2
23. The polyembryony was first observed in
 (A) Coconut (B) Cycas (C) Citrus (D) Tomato
24. Which of the following is properly matched
 (A) Membrane Attack complex - Natural killer cells
 (B) Phagolysosomes - Hydrolytic enzymes
 (C) Active immunity - Immediately effective
 (D) MHC-I Antigen presenting cells - Only on antigen
25. Given below are four methods (1-4) and their modes of action (a-d) in achieving contraception. Select their correct matching from the four options that follow

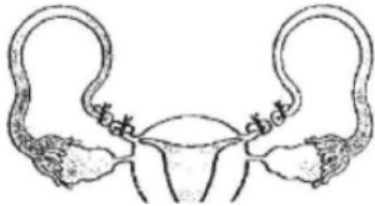
	Method		Mode of Action
1.	The pill	(a)	Prevents sperms reaching cervix
2.	Condom	(b)	Prevents implantation
3.	Vasectomy	(c)	Prevents ovulation
4.	Copper T	(d)	Semen contains no sperms

Matching :-

- (A) 1 - (c), 2 - (d), 3 - (a), 4 - (b) (B) 1 - (b), 2 - (c), 3 - (a), 4 - (d)
 (C) 1 - (c), 2 - (a), 3 - (d), 4 - (b) (D) 1 - (d), 2 - (a), 3 - (b), 4 - (c)

26. Ranikhet disease is caused by
 (A) Bacteria (B) Virus (C) Fungus (D) Parasite
27. Mendel's work remain unrecognised till 1900 due to all except
 (A) His work could not be widely publicised
 (B) His work was not supported with required data
 (C) He could not provide any proof for existence of factors
 (D) His concept of gene was not accepted by his contemporaries
28. The initiation codon in protein synthesis is
 (A) AUG only (B) GUG only (C) Met (D) AUG or GUG

29. What is the figure given below showing in particular?



- (A) Tubectomy (B) Vasectomy (C) Ovarian cancer (D) Uterine cancer
30. Double fertilization occurs in
 (A) Ovule (B) Embryo (C) Ovary (D) Embryo Sac
31. Which of the following diagnostic test is performed for analysis of typhoid ?
 (A) Widal test (B) PSMP
 (C) ELISA test (D) Western blot test
32. PCR technique discovered by
 (A) Hamilton Smith (B) Watson and Crick (C) Mendel (D) Mullis
33. Consider the following four statements (I-IV) and select the option which includes all the incorrect ones only.
 (I) Amount of glucose is maximum in honey.
 (II) Honey is the food of high nutritive value and is used in the preparation of cosmetics and polishes of various kinds.
 (III) Pisciculture is an industry devoted to the catching processing or selling of fish, shellfish or other aquatic animals.
 (IV) Honey bee are the pollinaters of many of our crops.
 Options :
 (A) Statement (II), (III) and (IV) (B) Statement (I) and (IV)
 (C) Statement (III) and (IV) (D) Statement (I), (II) and (III)

34. The first artificial cloning vector was
 (A) pBR322 (B) (C) Cosmid (D) Phagemid
35. Which one of the following is the correct matching of the events occurring during menstrual cycle ?
 (A) Menstruation : Breakdown of myometrium and ovum not fertilised
 (B) Ovulation : LH and FSH attain peak level and sharp fall in the secretion of progesterone
 (C) Proliferative phase : Rapid regeneration of myometrium and maturation of Graafian follicle
 (D) Secretory Phase : Development of corpus luteum and increased secretion of progesterone
36. Secondary productivity is rate of formation of new organic matter by
 (A) Consumers (B) Decomposers (C) Producers (D) Parasite
37. Cu ions released from copper-releasing Intra Uterine Devices (IUDs) :
 (A) prevent ovulation
 (B) make uterus unsuitable for implantation
 (C) increase phagocytosis of sperms
 (D) suppress sperm motility
38. Silencing of m-RNA has been used in producing transgenic plants resistant to
 (A) Bollworms (B) Nematodes (C) White rusts (D) Bacterial blights
39. Most severe symptom of salmonellosis (enteric fever) is
 (A) Immuno deficiency (B) Anaphylactic shock
 (C) Intestinal perforation (D) RBC hemolysis
40. Bioreactor is a
 (A) Atomic reactor (B) Large vessel to grow cells
 (C) BOD incubator (D) COD incubator
41. In a lake phytoplankton grow in abundance in
 (A) Littoral zone (B) Limnetic zone (C) Profundal zone (D) Benthic zone
42. Which of the following is the infective stage of the malarial parasite (Plasmodium) ?
 (A) Gametocyte (B) Merozoite (C) Sporozoite (D) Trophozoite
43. Second trophic level in lake is
 (A) Fishes (B) Phytoplankton (C) Zooplankton (D) Benthos

44. Identify the human development stage shown below as well as the related right place of its occurrence in a normal pregnant woman, and select the right option for the two together.



- (A) Developmental stage - Blastocyst; Site of occurrence - Uterine wall
 (B) Developmental stage - 8 - celled morula; Site of occurrence - Starting point of Fallopian tube
 (C) Developmental stage - Late morula; Site of occurrence - Middle part of Fallopian tube
 (D) Developmental stage - Blastula; Site of occurrence - End part of Fallopian tube
45. Climax community is in a state of
 (A) Non-equilibrium (B) Equilibrium
 (C) Disorder (D) Constant change
46. Fruit fly was suitable for Morgan's work because it
 (A) Is bisexual
 (B) Complete life cycle in two days
 (C) Has many type of hereditary variations
 (D) All of these
47. Maximum energy amongst ecosystem is contributed by
 (A) Crops (B) Forests (C) Corals (D) Fuelgas
48. Females produce two types of gametes in
 (A) Hen (B) Human beings (C) Cockroach (D) Honey Bee
49. Mycorrhiza shows
 (A) Symbiotic relationship (B) Proto-co-operation
 (C) Commensalism (D) Ectoparasitism
50. Consider the given sequence carefully.
 (a) Mammary tubules → Mammary duct → Mammary ampulla
 (b) Spermiation → Semination → Ejaculation
 (c) Mature follicle → LH surge → Ovulation
 (d) Fertilization → Cleavage → Embryo formation
 Which of the above are not correct
 (A) a, b, c, d (B) a, b (C) a, b, c (D) None of these

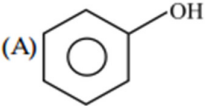
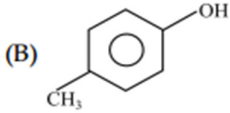
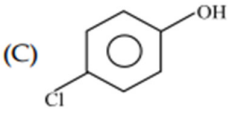
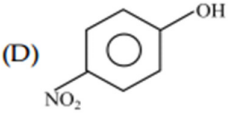
XII MCQ - CHEMISTRY
QUESTION PAPER – SET B

- Which of the following compound is gas at room temperature?
(A) $HCHO$ (B) CH_3CHO (C) CH_3COCH_3 (D) CH_3CH_2OH
- Arrange these compounds according to their b.p.
(1) $CH_3CH_2CH_2OH$ (2) CH_3COCH_3
(3) $CH_3 - O - CH_2CH_3$ (4) $CH_3CH_2CH_2CH_3$
(A) $2 > 1 > 3 > 4$ (B) $4 > 3 > 2 > 1$ (C) $1 > 2 > 3 > 4$ (D) $1 > 4 > 2 > 3$
- Write the IUPAC name of $CH_2 = CH - \overset{\overset{O}{||}}{C} - CH_2CH_3$
(A) Vinyl Ethyl Ketone (B) Pent-1-en-3-one
(C) 3-keto pent-1-ene (D) None of these
- Which of the following does not have α -H
(A) Acetaldehyde (B) Benzaldehyde (C) Acetone (D) Acetophenone
- (+ effect is shown by
(A) $\text{—}C_2$ (B) $\text{—}C$ (C) Cl (D) $\text{—}CH_3$ CH_2
- Which of the following is paramagnetic
(A) N_2 (B) NO (C) CO (D) O_3
- Reaction of cold dil. $NaOH$ with Cl_2 gives
(A) Cl^- , ClO^- (B) ClO_2^- , ClO_3^-
(C) Cl^- , ClO_3^- (D) None of these
- Which of these pairs have same bond order
(A) N_2 , CO (B) CO , NO (C) O_2 , NO (D) O_2 , H_2
- After removing the hard shell of an egg by HCl it is kept in a saturated $NaCl$ solution, the size of the egg will
(A) Shrink (B) Grow (C) Remain same (D) None of these
- 250 ml of Na_2CO_3 (M.w. = 106 g/mol) solution has 2.65 gms of Na_2CO_3 . If we take 10 ml of this solution and dilute it to 1 lit., what will be the resultant molarity of the solution
(A) 0.1 M (B) 0.01 M (C) 0.001 M (D) 0.0001 M
- Which of the following pair shows positive deviation from Raoult's law ?
(A) H_2O/HCl (B) C_6H_6/CH_3OH (C) H_2O/HNO_3 (D) $CH_3COCH_3/CHCl_3$

12. The rise in the boiling point of a solution containing 1.8 gm of Glucose in 100g of solvent 0.1°C . The molal elevation constant of the liquid is
- (A) 0.01 K/m (B) 0.1 K/m (C) 1 K/m (D) 100 K/m
13. The unit of the rate constant for first order reaction is
- (A) mol^{-1} (B) sec^{-1} (C) $\text{sec}^{-1} \text{mol}^{-1} \text{dm}^3$ (D) $\text{sec}^{-1} \text{mol dm}^3$
14. Which of the following statement is correct
- (A) Molarity does not change with temperature
 (B) Molality does not change with temperature
 (C) Normality does not change with temperature
 (D) None of these
15. For a reaction $A + B \rightarrow \text{product}$. On doubling the conc. of A keeping the conc. of B same rate is doubled. On doubling the conc. of both A & B rate increases 8 times. rate law can be given as
- (A) $r = k[A][B]$ (B) $r = k[A]^2[B]$
 (C) $r = k[A][B]^2$ (D) $r = k[A]^2[B]^2$
16. For the reaction $\text{BrO}_3^-(\text{aq}) + 5\text{Br}^-(\text{aq}) + 6\text{H}^+(\text{aq}) \rightarrow 3\text{Br}_2(\text{l}) + 3\text{H}_2\text{O}(\text{l})$
 Which of the relation is true?
- (A) $\frac{d[\text{Br}_2]}{dt} = \frac{3}{5} \frac{d[\text{Br}^-]}{dt}$ (B) $\frac{d[\text{Br}_2]}{dt} = \frac{-3}{5} \frac{d[\text{Br}^-]}{dt}$
 (C) $\frac{d[\text{Br}_2]}{dt} = \frac{5}{3} \frac{d[\text{Br}^-]}{dt}$ (D) $\frac{d[\text{Br}_2]}{dt} = \frac{-5}{3} \frac{d[\text{Br}^-]}{dt}$
17. A ligand can be regarded as
- (A) Lewis acid (B) Lewis base (C) Bronsted acid (D) Bronsted base
18. Primary and secondary valency of platinum in the complex $[\text{Pt}(\text{en})_2\text{Cl}_2]$ are
- (A) 4, 6 (B) 2, 6 (C) 4, 4 (D) 6, 4
19. How many different carbonyl compound will form in the reaction?
- $$\text{CH}_3\text{CH}=\text{CHCH}_3 \xrightarrow[\text{H}_2\text{O}/\text{Zn}]{\text{O}_3}$$
- (A) 1 (B) 2 (C) 3 (D) 0
20. Which of the following statement is not true about Benzene?
- (A) It is planar
 (B) There are two types C-C of bond, 3 single bond, 3 double bond
 (C) All the C- atoms are sp^2 hybridised
 (D) It has 6 delocalizing π -electrons
21. The EAN of $[\text{Mn}(\text{Cl})_6]^{4-}$ is
- (A) 33 (B) 34 (C) 35 (D) 36

22. How many double bonds are present in $C_6H_{10}Cl_2Br_2$
 (A) 0 (B) 1 (C) 2 (D) 4
23. In hcp arrangement atoms present at the corners are shared by how many cells
 (A) 2 (B) 4 (C) 6 (D) 8
24. What % of space is free in BCC arrangement
 (A) 12 (B) 22 (C) 32 (D) 42
25. In a molecule atoms of A are arranged in FCC and atoms of B are located in all the octahedral voids. The molecular formula of the compound is
 (A) A_8B (B) AB_8 (C) AB (D) None of these
26. How many tetrahedral sites are there in FCC unit cell
 (A) 2 (B) 4 (C) 6 (D) 8
27. What is the distance between two nearest atom in BCC arrangement if the side length of The unit cell is 'a'
 (A) a (B) $\sqrt{3}a$ (C) $\frac{\sqrt{3}a}{2}$
 (D) $3\sqrt{3}a$
28. Cinnabar and Bauxite are ores of
 (A) Hg & Fe (B) Al & Fe (C) Fe & Al (D) Hg & Al
29. Mg^{2+} is isoelectronic with
 (A) Ca^{2+} (B) Na^+ (C) Ba^{2+} (D) Cu^{2+}
30. Bakelite is formed from the reaction of Phenol with
 (A) HCHO (B) HCOOH (C) CH_3CHO (D) CH_3OH
31. Nylon is not a
 (A) Co-polymer (B) Polyamide
 (C) Condensation polymer (D) Natural polymer
32. Monomers of Buna -S- rubber are
 (A) Butadiene , isoprene (B) Butadiene , styrene
 (C) Butadiene , toluene (D) Butadiene , vinyl chloride
33. Which of the polymer is used for non-stick coating on cooking wares
 (A) PVC (B) Teflon (C) Bachelite (D) Buna - S- rubber

34. Which of the following statement is false
 (A) Catalysts are selective (B) Catalysts affect the equilibrium
 (C) Catalysts affect the activation energy (D) Catalysts affect the mechanism
35. If KMnO_4 is reduced to oxalic acid in an acidic medium, then oxidation no. of Mn changes from
 (A) 4 to 2 (B) 6 to 4 (C) 7 to 2 (D) 7 to 4
36. Temperature of a system decreases in
 (A) Adiabatic compression (B) Adiabatic expansion
 (C) Isothermal compression (D) Isothermal expansion
37. Which of the following species has zero standard molar enthalpy of formation at 25°C
 (A) H_2O (g) (B) Cl_2 (g) (C) Br_2 (g) (D) CH_4 (g)
38. For a reversible reaction at temperature T , ΔH and ΔS both are positive. If T_e is the Equilibrium temp. then the reaction would be spontaneous at
 (A) $T_e = T$ (B) $T_e < T$ (C) $T_e > T$ (D) None of these
39. The activation energy of forward reaction $X \rightarrow Y$ is 60 KJ Mol^{-1} and ΔH is -20 KJ Mol^{-1} . The activation energy for the reverse reaction is
 (A) 60 KJ Mol^{-1} (B) 60 KJ Mol^{-1} (C) 80 KJ Mol^{-1} (D) 20 KJ Mol^{-1}
40. The impurities associated with mineral used in metallurgy are called collectively
 (A) Slag (B) Gangue (C) Flux (D) Froth
41. Calcination is used in metallurgy for the removal of
 (A) water and sulphide (B) water and H_2S
 (C) water and CO_2 (D) water and CO
42. If a gas expands at constant temperature then
 (A) No. of the molecules of the gas increases
 (B) K.E. of the molecules increases
 (C) K.E. of the molecules decreases
 (D) K.E. of the molecules remains the same
43. Faraday's constant is defined as
 (A) Charge carried by 1 electron (B) Charge carried by 1 mol of electrons
 (C) Charge carried by 1 gm of electrons (D) none of these
44. How many moles of pt will be deposited on cathode when 0.80 F electricity is passed through 1M solution of Pt^{4+}
 (A) 0.80 mol (B) 8 mol (C) 0.20 mol (D) 1 mol
45. Bell metal is an alloy of
 (A) Cu, Zn and Sn (B) Cu and Sn (C) Cu and Zn (D) Sn and Zn

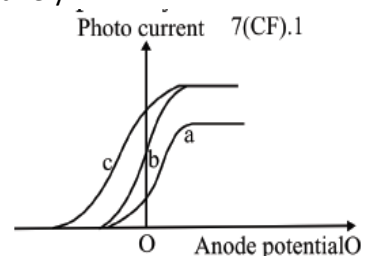
46. Which of these has highest packing efficiency
 (A) SCC (B) BCC (C) FCC (D) ECC (Edge centred)
47. Which of these is correct IUPAC name
 (A) Prop-2 ene (B) Pentan -3- al (C) Pentan -1 -one (D) Pentan -2- one
48. Which of the following is most acidic
- (A)  (B)  (C)  (D) 
49. Faraday's first law of electricity states :
- (A) For the same electrolyte, the mass of a substance produced or consumed at an electrode directly proportional to the quantity of electricity passed through the electrolyte cells
- (B) For the same electrolyte, the mass of a substance produced or consumed at an electrode is inversely proportional to the quantity of electricity passed through the electrolytic cell
- (C) When the same quantity of electricity is passed through different electrolytes, the amounts of products obtained are proportional to their equivalent weights
- (D) When same quantity of electricity is passed through different electrolytes, the amounts of products obtained are proportional to their molecular masses
50. Boiling point _____ as a result of Intramolecular H- bonding
- (A) Increases (B) Decreases (C) Remains the same (D) None of these

XII MCQ - PHYSICS

QUESTION PAPER – SET B

1. A thin rod of length $f/3$ lies along the axis of a concave mirror of focal length f . One end of its magnified image touches an end of the rod. The length of the image is:
(A) f (B) $\frac{1}{2}f$ (C) $2f$ (D) $\frac{1}{4}f$
2. In a concave mirror, an object is placed at a distance l_1 from the focus and the real image is formed at a distance l_2 from the focus. Then the focal length of the mirror is :
(A) $\frac{l_1 l_2}{l_1 + l_2}$ (B) $\frac{l_1 + l_2}{2}$ (C) $\frac{l_1 + l_2}{2}$ (D) $\frac{l_1 l_2}{l_1 + l_2}$
3. Refractive index of diamond is 2.41. What is the minimum angle of incidence of a ray to get totally internally reflected in diamond?
(A) 42° (B) 35° (C) 24.5° (D) 48.4°
4. A plano convex lens has focal length $f = 20 \text{ cm}$. If its plane surface is silvered, then new focal length will be
(A) 20 cm (B) 5 cm (C) 10 cm (D) 25 cm
5. A ray of light is incident at an angle of incidence, i , one face of prism of angle A (assumed to be small) and emerges normally from the opposite face. If the refractive index of the prism is μ , the angle of incidence i , is nearly equal to:
(A) μA (B) $\frac{\mu A}{2}$ (C) A/μ (D) $A/2\mu$
6. For an angle of minimum deviation of a prism to be equal to its refracting angle, the prism must be made of a material whose refractive index:
(A) Lies between $\sqrt{2}$ and 1 (B) lies between 2 and $\sqrt{2}$
(C) is less than 1 (D) is greater than 2
7. In Young's double slit expt., the intensity is I at a point where the path difference is $\lambda/6$, where λ is wavelength of light used. If I_0 denotes the maximum intensity, then I/I_0 is equal to
(A) $3/4$ (B) $1/\sqrt{2}$ (C) $\sqrt{3}/2$ (D) $\frac{1}{2}$
8. Two periodic waves of intensities I_1 and I_2 pass through a region at the same time in the same direction. The sum of the maximum and minimum intensities is
(A) $I_1 : I_2$ (B) $(\sqrt{I_1} + \sqrt{I_2})^2$ (C) $(\sqrt{I_1} - \sqrt{I_2})^2$ (D) $2\sqrt{I_1} + \sqrt{I_2}$

9. At two points P and Q on screen in Young's double slit experiment, waves from slits S_1 and S_2 have a path difference of 0 and $\frac{\lambda}{4}$ respectively, the ratio of intensities at P and Q will be
 (A) 3:2 (B) 2:1 (C) $\sqrt{2}:1$ (D) 4:1
10. Assuming human pupil to have a radius of 0.25 cm and a comfortable viewing distance of 25 cm, the minimum separation between two objects that human eye can resolve at 500 nm wavelength is
 (A) $1 \mu m$ (B) $30 \mu m$ (C) $100 \mu m$ (D) $300 \mu m$
11. A photoelectric surface is illuminated successively by monochromatic light of wavelength λ and $\frac{\lambda}{2}$. If the maximum kinetic energy of the emitted photoelectrons in the second case is 3 times that of first case, the work function of the material is (h = plank's constant c = speed of light)
 (A) $\frac{hc}{3\lambda}$ (B) $\frac{hc}{2\lambda}$ (C) $\frac{hc}{\lambda}$ (D) $\frac{2hc}{\lambda}$
12. If K_1 and K_2 are maximum kinetic energies of photoelectrons emitted when light of wavelength λ_1 and λ_2 respectively are incident on a metallic surface. If $\lambda_1 = 3\lambda_2$ then
 (A) $K_1 > \left(\frac{K_2}{3}\right)$ (B) $K_1 < \left(\frac{K_2}{3}\right)$ (C) $K_1 = 3K_2$ (D) $K_1 = 3K_1$
13. According to Einstein's photoelectric equation, the plot of the kinetic energy of the emitted photo-electrons from a metal verses the frequency of the incident radiation gives a straight line whose slope.
 (A) depends on the nature of the metal used
 (B) depends on the intensity of the radiation
 (C) depends both on the intensity of the radiation and the metal used
 (D) is the same for all metals and independent of the intensity of the radiation
14. A and B are two metals with threshold frequencies $1.8 \times 10^{14} Hz$ and $2.2 \times 10^{14} Hz$. Two identical photons of energy 0.825 eV each are incident on them. Then photoelectrons are emitted in (take $h = 6.6 \times 10^{-34} J/S$)
 (A) B alone (B) A alone
 (C) Neither A nor B (D) Both A and B
15. The figure 7(CF).1 shows the variation of photo current with anode potential for a photo-sensitive surface for three different radiations. Let I_a , I_b , and I_c be the intensities and f_a , f_b , and f_c be the frequencies for the curves a, b and c respectively.



- (A) $f_a = f_b$ and $I_a \neq I_b$ (B) $f_a = f_c$ and $I_a = I_c$
 (C) $f_a = f_b$ and $I_a = I_b$ (D) $f_a = f_c$ and $I_b = I_c$

16. Consider 3rd orbit of Helium. Using non-relativistic approach, the speed of electron in this orbit will be [given $K = 9 \times 10^9$, $Z = 2$ and $h = 6.6 \times 10^{-34} \text{ J}_s$]

- (A) $1.46 \times 10^6 \text{ m/s}$ (B) $0.73 \times 10^6 \text{ m/s}$
 (C) $3 \times 10^8 \text{ m/s}$ (D) $2.92 \times 10^6 \text{ m/s}$

17. In the spectrum of hydrogen, the ratio of the longest wavelength in the Lyman series to the longest wavelength in the Balmer Series is :

- (A) $\frac{5}{27}$ (B) $\frac{4}{9}$ (C) $\frac{9}{4}$ (D) $\frac{27}{5}$

18. Binding energy per nucleon in Deuteron (${}_1H^2$) and Helium (${}_2He^4$) atoms is 1.1 Me V and 7.0 Me V respectively. If two deuteron atoms combine to form a single helium atom, then energy released is:

- (A) 13.9 MeV (B) 19.2 MeV (C) 23.6 MeV (D) 26.9 MeV

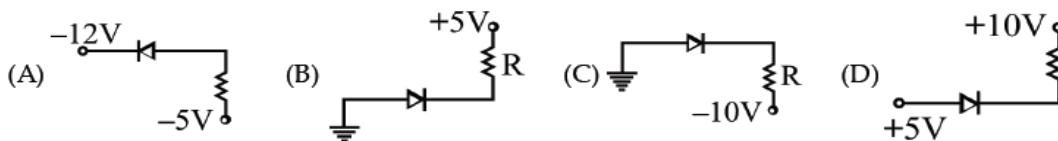
19. Nuclear reactor in which uranium – 235 is used as fuel, uses 2 kg of uranium – 235 in 30 days. The power output of the reactor will be (given Energy released per fission = 185 MeV)

- (A) 43.5 MW (B) 58.5 MW (C) 69.6 MW (D) 73.1 MW

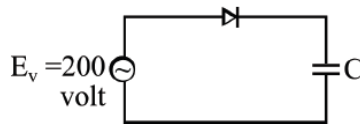
20. The thermal neutrons in a nuclear reactor may be regarded as a gas at a temperature $T^\circ\text{K}$, which obeys the laws of kinetic theory. Then the de-Broglie wavelength of such thermal neutrons in terms of temperature T, mass of neutron m is given by

- (A) $\lambda = \frac{h}{\sqrt{3m KT}}$ (B) $\lambda = \frac{h}{\sqrt{6m KT}}$
 (C) $\lambda = \frac{h}{\sqrt{5m KT}}$ (D) $\lambda = \frac{h}{\sqrt{2m KT}}$

21. Of the diodes shown in the following diagrams, which one is reverse biased.

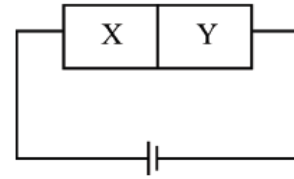


22. A sinusoidal voltage of r.m.s. voltage of 200 volt is connected to the function diode and a capacitor C in the circuit shown in figure. so that half wave rectification occurs. The final potential difference in volt across C is



- (A) 500 (B) 283 (C) 200 (D) 41

23. The semiconductor X is made by doping a germanium crystal with arsenic ($Z = 33$). A second semiconductor Y is made by doping germanium with indium ($Z = 49$). The two are joined end to end and connected to a battery as shown, which of the following statements is correct?



- (A) X is P-type, Y is N-type and the junction is forward biased.
 (B) X is N-type, Y is P-type and the junction is forward biased.
 (C) X is P-type, Y is N-type and the junction is reverse biased.
 (D) X is N-type, Y is P-type and the junction is reverse biased.
24. Electromagnetic wave of frequencies higher than $9\sqrt{2}$ MHz are found to be not reflected by the ionosphere on a particular day at a place. The maximum electron density in the ionosphere is:

- (A) $\sqrt{5} \times 10^{12} \text{ m}^{-3}$ (B) $\sqrt{2} \times 10^{12} \text{ m}^{-3}$
 (C) $2 \times 10^{12} \text{ m}^{-3}$ (D) $5 \times 10^{12} \text{ m}^{-3}$

25. An EM wave of maximum frequency 300 kHz and critical frequency 100 kHz is to be transmitted to a height equal to 150 km. Calculate the skip distance.

- (A) 624 km (B) 849 km (C) 636 km (D) 942 km

26. Three point charges Q , $-2Q$ and $-2Q$ are placed at the vertices of an equilateral triangle of side r . The work done to increase their separation to $2r$ is

- (A) Zero (B) $\frac{Q^2}{4\pi\epsilon_0 r}$ (C) $\frac{2Q^2}{4\pi\epsilon_0 r}$ (D) $\frac{\sqrt{2}Q^2}{4\pi\epsilon_0 r}$

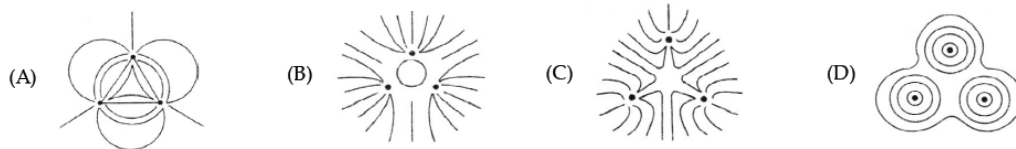
27. A metal sphere of radius R carries a charge Q , electric field on its surface is E and the electric potential is V . If R is doubled keeping Q the same, then new values of E and V will be

- (A) $\frac{E}{4}$ and $\frac{V}{2}$ (B) $\frac{E}{2}$ and $\frac{V}{4}$ (C) $4E$ and $2V$ (D) $2E$ and $4V$

28. A charge q is placed at the centre of the line joining two equal charges Q . The system of the three charges will be in equilibrium if q is equal to

- (A) $-\frac{Q}{2}$ (B) $-\frac{Q}{4}$ (C) $+\frac{Q}{2}$ (D) $+\frac{Q}{4}$

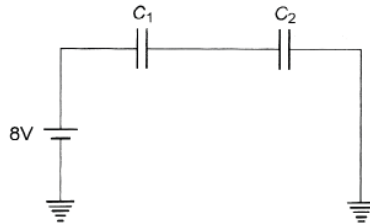
29. Three positive charges of equal value q , are placed at the vertices of an equilateral triangle. The resulting lines of force should be sketched as in (see figure)



30. A spherical capacitor consists of an inner sphere of radius $r_1 = r$ and the outer sphere of radius $r_2 = 2r$. The capacitance is c_1 when the inner sphere is charged and the outer sphere is earthed and c_2 when the inner sphere is earthed and the outer sphere is charged. The ratio C_1/C_2 is

(A) $\frac{1}{3}$ (B) $\frac{1}{2}$ (C) 2 (D) 3

31. In the circuit shown in figure $c_1 = 3\mu F$ and $c_2 = 9\mu F$. The charge on capacitor c_2 is



(A) $9\mu C$ (B) $18\mu C$ (C) $27\mu C$ (D) $81\mu C$

32. Two parallel plate capacitors of capacitances C and $2C$ are connected in parallel and charged to potential difference V by a battery. The battery is then disconnected and the space between the plates of capacitor of capacitance C is completely filled with a material of dielectric constant K . The potential difference across the capacitors now becomes

(A) $\frac{V}{K+1}$ (B) $\frac{2V}{K+2}$ (C) $\frac{3V}{K+2}$ (D) $\frac{3V}{K+3}$

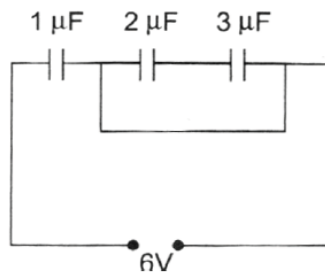
33. A parallel plate capacitor of plate area A has a charge Q . The force on each plate of the capacitor is

(A) $\frac{2Q^2}{\epsilon_0 A}$ (B) $\frac{Q^2}{\epsilon_0 A}$ (C) $\frac{Q^2}{2\epsilon_0 A}$ (D) Zero

34. In n drops, each capacitance C , coalesce to form a single big drop, the capacitance of the big drop will be

(A) $n^3 C$ (B) $n C$ (C) $n^{5/3} : 1$ (D) $n^2 : 1$

35. Figure shows three capacitors connected to a 6V power supply. What is the charge on the $2\mu F$ capacitor?

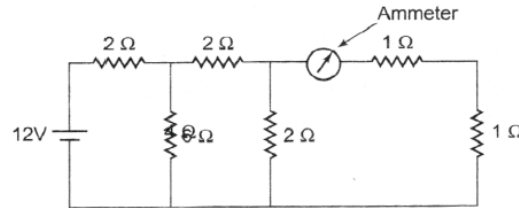


(A) $1\mu C$ (B) $2\mu C$ (C) $3\mu C$ (D) $4\mu C$

36. Two wires of equal lengths, equal diameters and having resistivities p_1 and p_2 are connected in series. The equivalent resistivity of the combination is

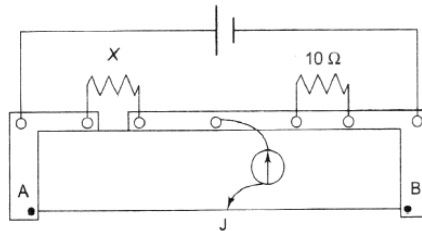
- (A) $p_1 + p_2$ (B) $\frac{1}{2} p_1 + p_2$ (C) $\frac{p_1 + p_2}{p_1 + p_2}$ (D) $\overline{p_1 p_2}$

37. In the circuit shown in figure, the reading of ammeter is



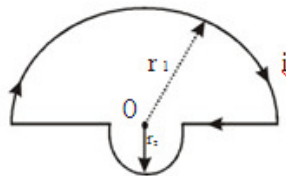
- (A) 1A (B) 2A (C) 3A (D) 4A

38. A meter bridge is set-up as shown in figure to determine an unknown resistance 'X' using a standard 10 ohm resistor. The galvanometer shows null point when tapping-key is at 52 cm mark. The end-corrections are 1 cm and 2 cm respectively for the ends A and B. The determined value of 'X' is



- (A) 10.2 ohm (B) 10.6 ohm (C) 10.8 ohm (D) 11.1 ohm

39. In figure, there are two semi-circles of radii r_1 and r_2 in which a current i is flowing. The magnetic induction at centre O will be



- (A) $\frac{\mu_0 i}{4}(r_1 + r_2)$ (B) $\frac{\mu_0 i}{4}(r_1 - r_2)$ (C) $\frac{\mu_0 i}{4} \left(\frac{r_1 + r_2}{r_1 r_2} \right)$ (D) $\frac{\mu_0 i}{4} \left(\frac{r_1 - r_2}{r_1 r_2} \right)$

40. Soft iron is preferred as the core of transformers due to its

- (A) high retentivity, high coercivity (B) high retentivity, low coercivity
(C) low retentivity, high coercivity (D) low retentivity, low coercivity

41. The magnetic flux through a circuit of resistance R changes by an amount $\Delta\phi$ in time Δt . Then the total quantity of electric charge Q that during this time passes any point of the circuit is given by

- (A) $Q = \frac{\Delta\phi}{\Delta t}$ (B) $Q = \frac{\Delta\phi}{\Delta t} \times R$ (C) $Q = \frac{\Delta\phi}{\Delta t} + R$ (D) $Q = \frac{\Delta\phi}{R}$

42. Wavelength range for visible spectrum is,
 (A) (4000 - 8000) °A (B) (40 - 80) °A (C) (1200 - 1800) °A (D) (8000 - 12000) °A
43. In Young's experiment the distance between two slits is $d/3$ and the distance between the screen and the slits is $3D$. The number of fringes in $1/3$ m on the screen, formed by monochromatic light of wavelength 3λ , will be
 (A) $\frac{d}{9D\lambda}$ (B) $\frac{d}{27D\lambda}$ (C) $\frac{d}{81D\lambda}$ (D) $\frac{d}{D\lambda}$
44. Polaroid glass is used in sun glasses because
 (A) It reduces the light intensity to half on account of polarisation
 (B) It is fashionable
 (C) It has good colour
 (D) It is cheaper
45. A convex lens is dipped in a liquid whose refractive index is equal to the refractive index of the lens. Then its focal length will
 (A) become zero (B) become infinite (C) reduce (D) increase
46. A mark at the bottom of a beaker containing liquid appears to rise by 0.1 m. The depth of the liquid is 1m. The refractive index of liquid is
 (A) 1.33 (B) $\frac{9}{10}$ (C) $\frac{10}{9}$ (D) 1.5
47. If the work function of the metal is ϕ and the frequency of incident light is ν there is no emission of photoelectrons when
 (A) $\nu < \frac{\phi}{h}$ (B) $\nu = \frac{\phi}{h}$ (C) $\nu > \frac{\phi}{h}$ (D) (C) $\nu \geq \frac{\phi}{h}$
48. A monochromatic source of light is placed at a distance d from a metal surface. Photoelectrons are ejected at rate n , kinetic energy being E . If the source is brought nearer to distance $\frac{d}{2}$, then the rate and kinetic energy per photoelectron becomes nearly :
 (A) $2n$ and $2E$ (B) $4n$ and $4E$ (C) $4n$ and E (D) n and $4E$
49. In order to carry out the nuclear reaction : ${}_1H^1 + {}_1H^1 + {}_1H^2 = {}_2He^4 + {}_1e^0 + \text{energy}$
 (A) very high temperature will only be necessary
 (B) moderate temperature and very high pressure will be necessary
 (C) very high temperature and relative high pressure would be necessary
 (D) very high temperature and low pressure would be necessary
50. The ratio (R) of the rate of production of neutrons to the rate of leakage of neutrons from a spherical body of uranium of radius r is proportional to
 (A) $R \propto r$ (B) $R \propto \frac{1}{r}$ (C) $R \propto r^2$ (D) $R \propto \frac{1}{r^2}$

MCQ's Answer Key of Set B

ANSWER KEY - MATHEMATICS

01. (A)	02. (C)	03. (C)	04. (B)	05. (C)
06. (D)	07. (C)	08. (A)	09. (C)	10. (D)
11. (C)	12. (D)	13. (B)	14. (B)	15. (A)
16. (C)	17. (D)	18. (D)	19. (B)	20. (A)
21. (A)	22. (A)	23. (C)	24. (D)	25. (B)
26. (D)	27. (C)	28. (B)	29. (D)	30. (A)
31. (A)	32. (D)	33. (C)	34. (B)	35. (D)
36. (C)	37. (A)	38. (A)	39. (B)	40. (D)
41. (D)	42. (A)	43. (B)	44. (B)	45. (B)
46. (D)	47. (A)	48. (C)	49. (B)	50. (D)

ANSWERKEY - PHYSICS

1. B	2. A	3. C	4. C
5. A	6. B	7. A	8. D
9. B	10. B	11. B	12. B
13. D	14. B	15. A	16. A
17. A	18. C	19. B	20. A
21. B	22. B	23. D	24. C
25. B	26. A	27. A	28. B
29. C	30. B	31. B	32. C
33. C	34. D	35. B	36. B
37. A	38. B	39. D	40. D
41. D	42. A	43. C	44. A
45. B	46. C	47. A	48. C
49. C	50. A		

ANSWERKEY - BIOLOGY

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|-------|-------|-------|-------|
| 1. A | 2. B | 3. B | 4. B |
| 5. C | 6. A | 7. A | 8. C |
| 9. B | 10. D | 11. D | 12. C |
| 13. B | 14. C | 15. A | 16. D |
| 17. D | 18. B | 19. A | 20. C |
| 21. A | 22. A | 23. C | 24. B |
| 25. C | 26. B | 27. B | 28. D |
| 29. A | 30. D | 31. A | 32. D |
| 33. D | 34. A | 35. D | 36. A |
| 37. D | 38. B | 39. C | 40. B |
| 41. B | 42. C | 43. D | 44. A |
| 45. B | 46. C | 47. B | 48. A |
| 49. A | 50. D | | |

ANSWERKEY - CHEMISTRY

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|-------|-------|-------|-------|
| 1. A | 2. C | 3. B | 4. B |
| 5. D | 6. B | 7. A | 8. A |
| 9. A | 10. C | 11. B | 12. C |
| 13. B | 14. B | 15. C | 16. B |
| 17. B | 18. B | 19. A | 20. B |
| 21. C | 22. A | 23. C | 24. C |
| 25. C | 26. D | 27. C | 28. D |
| 29. B | 30. A | 31. D | 32. B |
| 33. B | 34. B | 35. C | 36. B |
| 37. B | 38. B | 39. C | 40. B |
| 41. C | 42. D | 43. B | 44. C |
| 45. B | 46. C | 47. D | 48. D |
| 49. A | 50. B | | |