[SET-III]

GROUP A

Marks: 150 **Time: 2.30 hours**

NOTE:

(i) Attempt all questions. Each question carries one mark. There will be negative marking and ¼ marks will be deducted for each wrong answer.

(ii) There are 150 questions in this booklet. Against each question four alternative choices A, B,C and D are given, out of which only one is correct. Indicate your choice of answer by darkening the suitable circle with Black/Blue Ball Pen in the OMR answer sheet supplied to you separately.

1	Which of the following is the oldest English daily in India?			
	A.	The Hindustan Times	C.	Deccan Chronicle
	B.	The Indian Express	D.	The Times of India
2	"CTBT" is a term related to			
	A.	Taxes	C.	Nuclear weapons
	B.	Space research	D.	Railway goods
3	Which country is set to become the 28th member state of the *European Union* on 1 July 2013?			
	A.	Croatia	C.	Spain
	B.	Greece	D.	Belgium
4	Who controls the government money in India?			
	A.	The Reserve Bank of India	C.	Finance Minister
	B.	President	D.	Parliament
5	The song 'VandeMantaram' was composed by?			
	A.	Rabindranath Tagore	C.	Sarojini Naidu
	B.	BankimchandraChatterji	D.	Gopal Krishna Gokhale
6	The ozone layer is present in			
	A.	Troposphere	C.	Mesosphere
	B.	Thermosphere	D.	Stratosphere
7	Chief Justice of India inaugurated First Fast-Track Court for dealing with the crimes against females on 2 January 2013 in which of the following place?			
	A.	Delhi	C.	Mumbai
	B.	Hyderabad	D.	Chennai
8	Find The Next Number in the series 1 , 2 , 3 , 6 , 12 , 24 , 48 , ...			
	A.	64	C.	90
	B.	78	D.	96
9	Two trains running in opposite directions cross a man standing on the platform in 27 seconds and 17 seconds respectively and they cross each other in 23 seconds. The ratio of their speeds is:			
	A.	1:3	C.	3:4
	B.	3:2	D.	None of these
10	A can do a work in 15 days and B in 20 days. If they work on it together for 4 days, then the fraction of the work that is left is :			
	A.	1/4	C.	7/15
	B.	1/10	D.	8/15
11	The cost price of 20 articles is the same as the selling price of *x* articles. If the			

	profit is 25%, then the value of x is:		
	A. 15	C. 18	
	B. 16	D. 25	
12	Choose the correct meaning of proverb/idiom : To bite the dust		
	A. To be defeated in battle	C. To be ashamed of	
	B. To learn a lesson	D. To work very hard	
13	Choose the correct meaning of proverb/idiom : To cry wolf		
	A. To listen eagerly	C. To turn pale	
	B. To give false alarm	D. To keep off starvation	
14	Sam ..... the marathon for the first time last year.		
	A. was running	C. runs	
	B. has run	D. ran	
15	Change the tense to past perfect continuous : He will mend his clothes.		
	A. He had been mended his clothes.	C. He had been mending his clothes.	
	B. He had mend his clothes.	D. He had mended his clothes.	
16	Convert the sentence to indirect speech : "If you don't keep quite I shall shoot you", he said to her in a calm voice.		
	A. He warned her to shoot if she didn't keep quite calmly.	C. He warned her calmly that he would shoot her if she didn't keep quite.	
	B. He said calmly that I shall shoot you if you don't be quite.	D. Calmly he warned her that be quite or else he will have to shoot her.	
17	Convert the sentence to direct speech : She said that her brother was getting married.		
	A. She said, "Her brother is getting married."	C. She said, "My brother is getting married."	
	B. She told, "Her brother is getting married."	D. She said, "My brother was getting married."	
18	Catching the earlier train will give us the ..... to do some shopping.		
	A. chance	C. possibility	
	B. luck	D. occasion	
19	I saw a ..... of cows in the field.		
	A. group	C. swarm	
	B. herd	D. flock	
20	Which of the following countries would host the next Commonwaelth Summit in 2013?		
	A. Sri Lanka	C. China	
	B. Japan	D. USA	

21	What is the value of $\lim_{x\to 0}\left(\frac{tan3x-2x}{3x-sin^2x}\right)$?		
	A. 1	C. 1/3	
	B. 0	D. −1	

22	If α, β are the roots of the equations $ax^2 + bx + c = 0$, then the value of $\frac{\alpha+\beta}{\alpha^{-1}+\beta^{-1}}$ is	
	A. b/a	C. a/c
	B. $-b/a$	D. c/a
23	What is the sum of first 35 terms of an A.P. If second term is 2 and seventh term is 2 ?	
	A. 2210	C. 2110
	B. 2310	D. 2410
24	A group consists of 4 girls and 7 boys. In how many ways can a team of 5 members be selected if the team has at least 3 girls?	
	A. 91	C. 92
	B. 93	D. 95
25	$sin10^0 sin30^0 sin50^0 sin70^0 =$	
	A. 3/16	C. 1
	B. 1/16	D. 1/2
26	$tan\left(\frac{\pi}{4}+x\right) tan\left(\frac{3\pi}{4}+x\right) =$	
	A. 1	C. –1
	B. 2	D. –2
27	What is the value of x in $an2x + \sqrt{3}tanx\, tan2x = \sqrt{3}$?	
	A. $\frac{n\pi}{2}+\frac{\pi}{2}$, n is any integer	C. $\frac{n\pi}{3}+\frac{\pi}{9}$, n is any integer
	B. $\frac{n\pi}{3}+\frac{\pi}{2}$, n is any integer	D. $\frac{n\pi}{2}+\frac{\pi}{9}$, n is any integer
28	The angle between the lines is $y - \sqrt{3}x = 5$ and $\sqrt{3}y - x = -6$ is	
	A. 30^0	C. 60^0
	B. 90^0	D. 120^0
29	The equation of a straight line perpendicular to the line $x - 2y + 3 = 0$ and having intercept 3 on x-axis is	
	A. $2x + y + 6 = 0$	C. $x + 2y + 6 = 0$
	B. $2x + 3y - 6 = 0$	D. $2x + y - 6 = 0$
30	The equation of the circle passing through origin and cutting intercepts a and b on x-axis and y-axis respectively is	
	A. $x^2 + y^2 - bx - ay = 0$	C. $x^2 + y^2 + bx + ay = 0$
	B. $x^2 + y^2 - ax - by = 0$	D. $x^2 + y^2 + ax + by = 0$
31	The equation of the ellipse with centre at the origin, the length of the major axis 12 and one focus at $(4,0)$ is	
	A. $\frac{x^2}{36}+\frac{y^2}{20}=1$	C. $\frac{x^2}{20}+\frac{y^2}{36}=1$
	B. $\frac{x^2}{36}-\frac{y^2}{20}=1$	D. $\frac{x^2}{20}-\frac{y^2}{36}=1$
32	The ratio in which the x-axis divides the line segment joining points $(7,-3)$ and $(5,2)$ is	
	A. 2:3	C. 3:2
	B. 1:2	D. 4:3
33	The equation of the two tangents to $x^2 + y^2 = 3$ which make an angle of 60^0 with the x-axis of x is	
	A. $y = \sqrt{3}(x \pm 1)$	C. $x = \sqrt{3}(y \pm 2)$

	B. $x = \sqrt{3}(y \pm 1)$	D. $y = \sqrt{3}(x \pm 2)$
34	$\frac{d}{dx}\left(tan^{-1}\sqrt{\frac{1+cosx}{1-cosx}}\right) =$	
	A. $\frac{1}{2}$	C. $-\frac{1}{2}$
	B. 1	D. -1
35	If $x = a(t + sin\,t)$ and $y = a(1 - cos\,t)$ then $\frac{dy}{dx}$ is	
	A. $tan\frac{t}{2}$	C. $cot\frac{t}{2}$
	B. $-tan\frac{t}{2}$	D. $-cot\frac{t}{2}$
36	What is the point on the curve, $2y = 3 - x^2$ at which the tangent is parallel to the line $x + y = 0$?	
	A. $(-1,-1)$	C. $(-1,1)$
	B. $(1,-1)$	D. $(1,1)$
37	$\int \frac{dx}{1+\sin x} =$	
	A. $\tan x - \sec x + c$	C. $\tan x + \sec x + c$
	B. $\sec x - \tan x + c$	D. $-\sec x - \tan x + c$
38	$\int e^x\left(\frac{1}{x} - \frac{1}{x^2}\right)dx =$	
	A. $\frac{x}{e^x} + c$	C. $\frac{e^x}{x} + c$
	B. $\frac{x^2}{e^x} + c$	D. $\frac{e^x}{x^2} + c$
39	$\int_{-\pi/2}^{\pi/2} sin^2 x\,dx =$	
	A. $\pi/4$	C. $\pi/3$
	B. $\pi/2$	D. π
40	$\int_0^{\pi/4} \sqrt{1 + \sin 2x}\,dx =$	
	A. π	C. 0
	B. -1	D. 1

41	How many moles of water are present in 180 g of water	
	A. 1	C. 18
	B. 10	D. 100
42	The quantum numbers for the last electron in an atom are n = 3, l = 1 and m = -1. The atom is	
	A. Al	C. Mg
	B. Si	D. C
43	The type of hybrid orbitals used by boron in BF_3 are	
	A. sp	C. sp^3d
	B. sp^2	D. sp^3
44	The s and p characters in the bond formed by the central atom are equal in	

	A. CH_4	C. CH_3^+
	B. $CH{\equiv}CH$	D. CH_3^-
45	**The total number of electrons present in 18 ml of water (density 1 g/ml) is**	
	A. 6.023×10^{23}	C. 6.023×10^{25}
	B. 6.023×10^{24}	D. 6.023×10^{21}
46	**Types of hybridization exhibited by the C atoms in acetylene, C_2H_2, include which of the following?** I. *sp* II. sp^2 III. sp^3	
	A. I only	C. I and II
	B. III only	D. II and III
47	**Hydrogen bonding results in**	
	A. higher heats of vaporization	C. higher boiling points
	B. higher melting points	D. All are correct
48	**Which one among the following does not have the hydrogen bond**	
	A. Phenol	C. Liquid HCl
	B. Liquid NH_3	D. Water
49	**Which of the following describes a hydrogen bond?**	
	A. the bond between hydrogen in one water molecule and another hydrogen in a different water molecule	C. the bond between hydrogen in one water molecule and oxygen in a different water molecule
	B. the bond between two hydrogen atoms within a molecule of water	D. the bond between hydrogen and oxygen within a molecule of water
50	**Which of the following compounds is not correctly named?**	
	A. SO_2, sulfur dioxide	C. CO, carbon monoxide
	B. CCl_4, carbon tetrachloride	D. NO_2, dinitrogen oxide
51	**When the equation ? Fe + ? O_2 → ? Fe_2O_3 is balanced, the coefficients of the respective reactants and products (in order) could be:**	
	A. 2, 3, 2	C. 4, 3, 4
	B. 4, 3, 2	D. None of these
52	**All atoms of an element have the same**	
	A. number of neutrons	C. atomic number
	B. atomic mass	D. mass number
53	**What is the total number of electrons in an Mg^{+2} ion?**	
	A. 10	C. 2
	B. 24	D. 12
54	**Which of the following element has highest Ionization energy**	
	A. Sodium	C. Calcium
	B. Aluminium	D. Phosphorus
55	**In the modern Periodic Table, the elements are arranged according to**	
	A. Atomic mass	C. Mass number
	B. Atomic number	D. Oxidation number

56	**What is constant for a body moving in a horizontal circle?**	
	A. Acceleration	C. Force
	B. Velocity	D. Kinetic energy
57	**An electron revolves around the nucleus of an atom, the necessary centripetal force is provided by the**	
	A. electrostatic force	C. nuclear force
	B. magnetic force	D. gravitational force
58	**A stone released with zero velocity from the top of a tower reaches the ground**	

	In 4 seconds. The height of the tower is about	
	A. 20 m	C. 80 m
	B. 40 m	D. 160 m
59	In an inelastic collision	
	A. momentum is conserved but energy is not	C. both momentum and energy are conserved
	B. momentum is not conserved but energy is conserved	D. neither energy nor momentum are conserved
60	A car moving with 72 km/hr is brought to rest in 10 s after applying the brakes. The retardation produced is	
	A. 20 m/s	C. 2 m/s^2
	B. 2 m/s	D. 10 m/s^2
61	The moment of inertia of a solid sphere (mass M, radius R) about its diameter is:	
	A. MR^2	C. 5/2 MR^2
	B. 2/5MR^2	D. 1/4 MR^2
62	If a gymnast sitting on a rotating stool with his arms outstretched, suddenly lowers his arms.	
	A. The angular velocity decrease	C. The angular velocity remains same
	B. His moment of inertia decrease	D. The angular momentum increases
63	The mass of a flywheel is concentrated near its rim so as to have	
	A. A large moment of inertia	C. A stable moment of inertia
	B. A small moment of inertia	D. An unstable equilibrium
64	Average kinetic energy of molecules of a gas measures its	
	A. Specific heat	C. Temperature
	B. Quantity of heat	D. Latent heat
65	The absolute zero is the temperature at which	
	A. Water freezes	C. All type of molecular motion ceases
	B. All substance exist in solid state	D. Molecular motion of conductors increases
66	The law which states that the variation of electric field causes magnetic field is	
	A. Faraday's law	C. Modified Ampere's law
	B. Biot Savert law	D. Lenz's law
67	The expression $\sqrt{\mu_0 \epsilon_0}$ has the dimensions of	
	A. $[LT^{-1}]$	C. $[L^{-1}T]$
	B. $[LT^{-2}]$	D. $[L^{-2}T^{-1}]$
68	An electromagnetic radiation has an energy 14.4 eV. To which region of electromagnetic spectrum does it belong?	
	A. Ultraviolet region	C. X-ray region
	B. Visible region	D. γ-ray region
69	The minimum potential to start the discharge in a gas tube is called	
	A. critical potential	C. excitation potential
	B. ionization potential	D. striking potential
70	The half-life of a radioactive substance is 140 days. After how much time, 15 gm will decay from a 16 gm sample of the substance?	
	A. 140 days	C. 420 days
	B. 560 days	D. 280 days

71	If the integer needs two bytes of storage, then maximum value of an unsigned integer is -	
	A. $(2^{16}-1)$	C. (2^{16})
	B. $(2^{15}-1)$	D. (2^{15})
72	Which of the following operator takes only integer operands in C.	
	A. +	C. /

	B. •	D. %
73	Any C program	
	A. Must contain at least one function	C. Needs input data
	B. Need not contain any function	D. None of these
74	The expression (4 + 6 / 3 * 2 – 2 + 7 % 3) evaluates to	
	A. 3	C. 6
	B. 4	D. 7
75	The statement Int **a;	
	A. Is illegal	C. Is syntactically and semantically correct
	B. Is legal but meaningless	D. None of these
76	The only state transition that is initiated by the user process itself is	
	A. Block	C. Wakeup
	B. Dispatch	D. None of these
77	The number of instructions needed to add 'n' numbers and store the result in memory using one address instructions is	
	A. n	C. n+1
	B. n-1	D. Independent of 'n'
78	Which of the following service is not supported by the operating system	
	A. Protection	C. Compilation
	B. Accounting	D. I/O operation
79	In Round Robin CPU scheduling, as the time quantum is increased, the average turn around time	
	A. Increases	C. Remains constant
	B. Decreases	D. Varies irregularly
80	The Boolean expression X + X'Y equals	
	A. X + Y	C. Y + YX
	B. X + XY	D. X'Y + Y'X
81	Any given truth table can be represented by	
	A. Karnaugh map	C. Product of sums of Boolean expressions
	B. Sum of products of Boolean expressions	D. All of these
82	The average successful search time for sequential search on 'n' items is	
	A. n/2	C. (n+1)/2
	B. (n-1)/2	D. log(n) + 1
83	The number of possible binary trees with 4-nodes is	
	A. 12	C. 14
	B. 13	D. 15
84	A sorting technique that guarantees that record with the same primary key occurs in the same order in the sorted list as in the original unsorted list is said to be	
	A. Stable	C. External
	B. Consistent	D. Linear
85	Which of the following is useful in implementing quick sort	
	A. Stack	C. List
	B. Set	D. Queue
86	If every non-key attribute is functionally dependent on the primary key, then the relation will be in	
	A. First normal form	C. Third normal form
	B. Second normal form	D. Fourth normal form
87	In an E-R diagram, ellipses represent	
	A. Entity sets	C. Attributes

	B. Relationship among entity sets	D. Link between attributes and entity sets
88	**The attributes of one table matching the primary key of another table, is called as**	
	A. Foreign key	C. Candidate key
	B. Secondary key	D. Composite key
89	**The employee salary should not be greater than Rs. 2000. This is**	
	A. Integrity constraint	C. Over-defined constraint
	B. Referential constraint	D. Feasible constraint
90	**The topology with highest reliability is**	
	A. Bus topology	C. Ring topology
	B. Star topology	D. Mesh topology
91	**The Hamming distance between 001111 and 010011 is**	
	A. 1	C. 3
	B. 2	D. 4
92	**End-to-end connectivity is provided from host-to-host in**	
	A. The network layer	C. The session layer
	B. The transport layer	D. It is combined functionality of the network and the data link layer
93	**In broad sense, a railway track is an example of**	
	A. Simplex	C. Full-duplex
	B. Half-duplex	D. All of these
94	**Assertions are conditions which are true at the point of execution**	
	A. Always	C. Many times
	B. Sometimes	D. No times
95	**The extent to which the software can continue to operate correctly despite the introduction of invalid input is called as**	
	A. Reliability	C. Fault-tolerance
	B. Robustness.	D. Portability
96	**If the number of conditions in a decision table is *n*, the maximum number of rules (columns) possible is**	
	A. n	C. 2^n
	B. 2n	D. $\log_2 n$
97	**Software testing techniques are most effective if applied immediately after**	
	A. Requirement specification.	C. Coding
	B. Design	D. Integration

98	**Transistor as a digital device operates in which region**	
	A. Cut off region	C. Active region
	B. Saturation region	D. Both cut off and saturation region
99	**At a P-N junction the potential barrier is due to charges on either side of the junction. These charges are**	
	A. Majority carriers	C. Both majority and minority carriers
	B. Minority carriers	D. Fixed donor and accepter ions
100	**The input resistance of BJT is**	
	A. More than that of FET	C. Same as that of FET
	B. Less than that of FET	D. None of these
101	**An addition of impurity atoms to the pure semiconductor makes it an**	
	A. Extrinsic semiconductor	C. Both (A) and (B) are correct
	B. Intrinsic semiconductor	D. None of these
102	**Maximum efficiency of a half wave rectifier is**	
	A. 33.33%	C. 50%
	B. 40.6%	D. None of these

103	The acceptor type of impurity is	
	A. Phosphor	C. Freon
	B. Boron	D. None of these
104	The ripple frequency in case of a full wave rectifier is	
	A. Twice the supply frequency	C. Thrice the supply frequency
	B. Equal to supply frequency	D. None of these
105	FET is a	
	A. Bipolar device	C. Current controlled device
	B. Unipolar device	D. None of these
106	In which of the following modes MOSFET can be operated?	
	A. Enhancement	C. Both enhancement and depletion
	B. Depletion	D. None of these
107	A NAND circuit with positive logic will operate as	
	A. NOR with negative logic	C. OR with negative logic
	B. AND with negative logic	D. None of these
108	In the active region of CB transistor, while the collector base junction is _____ biased and base emitter junction is _____ biased	
	A. Forward, Forward	C. Forward, Reverse
	B. Reverse, Forward	D. Reverse, Reverse
109	What is the most frequently encountered transistor configuration?	
	A. CB	C. CE
	B. CC	D. None of these
110	Which component of collector current is called the leakage current?	
	A. Majority	C. Minority
	B. Independent	D. None of these
111	In a transistor	
	A. The conductivity of emitter region is lower than that of base region	C. The conductivity of emitter region is higher than that of base region
	B. The conductivity of emitter region and base region are of same order	D. None of these
112	A carrier is simultaneously amplitude modulated by sine wave with modulation indices of 30% and 40% respectively. The overall modulation index will be	
	A. 50%	C. 100%
	B. 70%	D. None of these
113	What PWM pulse parameter is directly proportional to the amplitude of the message signal?	
	A. Amplitude	C. Width
	B. Position	D. None of these
114	A non-inverting closed-loop op-amp circuit generally has a gain factor	
	A. Less than 1	C. zero
	B. Greater than 1	D. None of these
115	Which of the following statement is not true for PPM	
	A. It requires constant transmitter power output	C. It can be generated from PWM
	B. It depends upon transmitter receiver synchronisation	D. The pulse amplitude does not remain constant
116	By changing modulation index from 0 to 1 in AM the change in transmitted power will be	
	A. Increases by 50 percent	C. Halved
	B. Doubles	D. Remains same
117	In a modulation system if the modulating frequency is doubled, the modulation index also becomes double. The system is	
	A. FM	C. PM

	B. AM	D. None of these
118	Sixty capsules are to be filled in a bottle automatically employing an electronic counter. The number of flip flops in such a counter will be	
	A. 4	C. 6
	B. 5	D. 7
119	In a SR flip flop when S=0, R=1 the flip flop output will	
	A. Toggle	C. Becomes zero
	B. Becomes one	D. None of these
120	The 2-Input NAND gate has a low output when the input bits are	
	A. High	C. Different
	B. Low	D. None of these
121	How many flip flops are required to implement Twisted ring counter having 10 states	
	A. 10	C. 5
	B. 20	D. 4
122	The output of a logic gate is 1 when all its inputs are at logic 0. the gate is either	
	A. a NAND or an EX-OR	C. an OR or an EX-NOR
	B. an AND or an EX-OR	D. a NOR or an EX-NOR
123	An Ideal Op-Amp has	
	A. Zero input impedance	C. Infinite input impedance
	B. Infinite output impedance	D. None of these
124	For an op-amp having differential gain A_v and common-mode gain A_c the CMRR is given by	
	A. $A_v + A_c$	C. $\frac{A_v}{A_c}$
	B. $A_v - A_c$	D. $\frac{A_c}{A_v}$

125	The average value of voltage (in volts) for a 230 V, 50-Hz, single-phase ac supply is	
	A. zero	C. 230
	B. 325	D. 398
126	A 100 watt 230 V bulb is supplied with 115 V volts. Power consumption (in watts) by the bulb will be (assuming the value of bulb resistance constant)	
	A. 100	C. 75
	B. 50	D. 25
127	For an R-L-C series circuit, the voltage across the capacitor at resonance is	
	A. always more than supply voltage	C. always less than supply voltage
	B. depends on the supply frequency	D. depends on the values of R, L and C
128	Tellegens' theorem is applicable to	
	A. linear network only	C. nonlinear network only
	B. both linear and nonlinear networks	D. none of these
129	The active and apparent power of a load is 100 W and 200 VA, the power factor of the load is	
	A. 0.5	C. 0.6
	B. 0.8	D. unity
130	The power in an ac circuit is measured using	
	A. power factor meter	C. wattmeter
	B. voltmeter	D. voltmeter and ammeter
131	A dc voltage source of 100 V having variable internal resistance which can be varied from zero to 10 ohm. What should be the value of internal resistance in order to transfer maximum power to a load of 5 ohm resistor connected with this source?	

	A. 5 ohm	C. 10 ohm
	B. zero	D. 20 ohm
132	**The current through an inductor in an R-L series circuit connected with dc supply at t = 0 (assuming zero initial current through the inductor)**	
	A. increases from zero to maximum	C. decreases from maximum to zero
	B. it may increase or decrease	D. none of these
133	**Two resistors of resistances 75±2 ohm and 125±3 ohm are connected in series. What will be the absolute and relative error (%) in equivalent resistance?**	
	A. 1 ohm, 0.5	C. 5 ohm, 2.5
	B. 1 ohm, 2.5	D. 5 ohm, 0.5
134	**A galvanometer can be converted into an ammeter by connecting ..... value resistor in .....with the galvanometer.**	
	A. low, series	C. high, series
	B. high, parallel	D. low, parallel
135	**Moving iron type instruments can be used for the measurement of**	
	A. only ac voltage and current	C. only dc voltage and current
	B. both ac and dc voltage and current	D. none of the above
136	**Standardization of potentiometer is done in order that, they become**	
	A. precise	C. accurate
	B. accurate and direct reading	D. accurate and precise
137	**Which of the following bridge is used for the measurement of high Q**	
	A. Hay's bridge	C. Maxwell's bridge
	B. Wheatstone bridge	D. all of above
138	**A Lissajous pattern on an oscilloscope is stationary and has 5 horizontal tangencies and 2 vertical tangencies. The frequency of horizontal input is 1000 Hz. The frequency of vertical input in Hz is**	
	A. 400	C. 2500
	B. 1000	D. 2000
139	**A cathode ray oscilloscope can be used for the measurement of**	
	A. voltage and current	C. phase difference between signals
	B. time period and frequency of a signal	D. all of the above
140	**How many display segments are required for display of alphanumeric characters**	
	A. seven	C. nine
	B. five	D. fourteen
141	**Since input resistance of an operational amplifier is infinite**	
	A. its output resistance is zero	C. its input current is zero
	B. it becomes a current controlled device	D. its output voltage becomes independent of load resistance
142	**A successive approximation A/D converter has a resolution of 20 mV. What will be its digital output for an analog input of 2.17 V?**	
	A. 01101100	C. 01101011
	B. 01101101	D. 11000001
143	**An LVDT is used for the measurement of**	
	A. displacement	C. voltage
	B. temperature	D. magnetic flux density
144	**A transformer can be used for**	
	A. ac to dc conversion	C. power amplification
	B. electrical isolation	D. all of above
145	**A 1-phase transformer has 200 primary and 100 secondary turns. If its secondary current is 10 A. What will be its primary current?**	
	A. 5 A	C. 15 A
	B. 10 A	D. 20 A
146	**Which of the following electrical motors runs at constant speed?**	

	A. synchronous	C. induction
	B. dc series	D. dc shunt motor
147	**At no load, the speed of dc series motor is high because**	
	A. armature current is high	C. field current is high
	B. field current is low	D. armature voltage is low
148	**Which of the following electrical motors produce high starting torque**	
	A. Induction	C. dc shunt
	B. dc series	D. none of these
149	**For generation of bulk electric power, which of the following generator is used**	
	A. ac generator (alternator)	C. dc shunt generator
	B. dc series generator	D. induction generator
150	**Which of the following can be used for impedance matching**	
	A. capacitive transducer	C. transformer
	B. rotating machines	D. none of the above