answer the following questions:

1	The angle between centripetal acceleration and tangential acceleration is?	
	A. 0^0	C. 90^0
	B. 45^0	D. 180^0
2	A particle having position vector of a particle in S.I units is $\vec{r} = 4t^2\hat{i} + 3t^2\hat{j} + 2t\hat{k}$, the acceleration of the particle will be :	
	A. 4 m /s^2	C. 5 m /s^2
	B. 10 m /s^2	D. None of these
3	A mortar shell is fired with the velocity of 10 m/s at an angle of 45^0, Calculate range of shell	
	A. 9 m	C. 11.2 m
	B. 10.2 m	D. 11.2 cm
4	A rock is released from the top of a very high cliff, approximately how far does the rock travel in the first 7 seconds of its free-fall? (Assume no air friction.)	
	A. 120.05 m	C. 240.1 m
	B. 60.2 m	D. None of these
5	If 'I' is the moment of inertia and 'E' is the kinetic energy of rotation of a body, then its angular momentum will be	
	A. $\sqrt{(EI)}$	C. EI
	B. 2EI	D. $\sqrt{(2EI)}$
6	A circular thin disc of mass 4 kg has a diameter 0.4 m. Calculate the moment of inertia about an axis passing through the edge and perpendicular to the plane of the disc (in kgm^2)	
	A. 0.24	C. 0.16
	B. 0.96	D. None of these
7	A round disc of moment of inertia I_2 about its axis perpendicular to its plane and passing through its centre is placed over another disc of moment of inertia I_1 rotating with an angular velocity 'ω' about the same axis. The final angular velocity of the combination of discs is:	
	A. $I_2\omega/(I_1 + I_2)$	C. ω
	B. $I_1\omega/(I_1 + I_2)$	D. $(I_1 + I_2)\omega/I_1$
8	A particle moves with constant angular momentum, what is true out of the following:	
	A. Torque will be non zero but constant.	C. Linear momentum and displacement are parallel to each other
	B. Torque will be zero.	D. None of these
9	If the pressure of an ideal gas is decreased by 10%, isothermally, then its volume will	
	A. Increase by 11.1%	C. Increases by 9%
	B. Increase by 10.1%	D. None of these
10	Translational kinetic energy for one mole of the gas, is equal	
	A. 3/2 RT	C. 3/2 kT
	B. ½ RT	D. ½ kT
11	For the propagation of electro-magnetic waves, Electric and magnetic field	
	A. Oscillate parallel to each other and perpendicular to the direction of light	C. Oscillate parallel to each other and also to the direction of light

	B. Oscillate perpendicular to each other and also to the direction of light	D. None of these
12	**What is not must for the propagation of Electromagnetic waves**	
	A. medium	C. electric field
	B. magnetic field	D. a charge
13	**The work function of Na is greater than that of K. If both the surfaces are irradiated with yellow light, then the K.E. of the emitted photoelectrons in the Na surface as compared to the K.E. of the photoelectrons in the K surface will be**	
	A. Less	C. More
	B. Same	D. Cannot be determined
14	**The Half Life of a radioactive substance is 6 hours. After how much time will one eighth of the radioactivity in a sample remain?**	
	A. 12	C. 15
	B. 18	D. 24
15	**The Radioactive Decay Law is expressed by**	
	A. a linear function	C. a quadratic function
	B. a sinusoidal function	D. an exponential function
16	**The electron affinity of chlorine is 349 kJ/mol. What is the correct equation for the formation of chloride?**	
	A. $Cl(s) + e^- \rightarrow Cl^-(s) + 349\ kJ$	C. $Cl(s) + 349\ kJ + e^- \rightarrow Cl^-(s)$
	B. $Cl(g) + e^- \rightarrow Cl^-(g) + 349\ kJ$	D. $Cl(g) + 349\ kJ + e^- \rightarrow Cl^-(g)$
17	**Which set of elements has the strongest tendency to form positive ions in their gaseous state?**	
	A. Li, Na, K	C. F, Cl, Br
	B. Be, Mg, Ca	D. O, S, Se
18	**Out of these diatomic molecules C_2, N_2, O_2, F_2 which has maximum bond order**	
	A. C_2	C. N_2
	B. O_2	D. F_2
19	**Which of the following ions would have the smallest ionic radius?**	
	A. O^{2-}	C. Cl^-
	B. Mg^{2+}	D. Al^{3+}
20	**The geometry and type of hybrid orbital present around the central atom in PCl_3**	
	A. Linear, *sp*	C. Tetrahedral, sp^3
	B. Trigonal planar, sp^2	D. Pyramidal, sp^3
21	**Which statement does not explain why elements in a group are placed together?**	
	A. They have the same number of valence electrons	C. They tend to have the same electronegativities
	B. They tend to have similar oxidation number	D. They tend to have the same chemical reactivity
22	**What is the empirical formula for a compound that contains 17.32% hydrogen and 82.68% carbon**	
	A. C_6H	C. CH_4
	B. C_2H_5	D. C_2H_6
23	**Uncertainty in position of a particle of 20 g in space is 10^{-4} m. Hence, uncertainty in velocity (m s^{-1}) is (Planck's constant, $h = 6.6 \times 10^{-34}$ J s)**	

	B. $2.2 \times 10^{-}$	D. 3.3×10	
24	The number of radial nodes of 4s and 2p orbitals are respectively:		
	A. 3, 0	C. 0, 3	
	B. 2, 0	D. 2, 1	
25	The values of four quantum numbers of valence electron of an element are n=4, l=0, m=0 and s=+1/2. The element is :		
	A. V	C. Na	
	B. K	D. Sc	
26	What is the oxidation number of phosphorus in KH_2PO_4?		
	A. –VI	C. +V	
	B. II	D. +VI	
27	Which one of the following is not a form of chemical bonding?		
	A. Covalent bonding	C. Ionic bonding	
	B. Hydrogen bonding	D. Metallic bonding	
28	According to the Bohr model of the atom		
	A. Electrons in orbit around nuclei lose energy so slowly	C. Quantum theory is not applicable to the ultra-structure of an atom.	
	B. Electrons around a nucleus can have only certain particular energies and can only occupy certain specific orbits at particular distances from the nucleus	D. None of these.	
29	Calculate the molarity of NaOH in solution prepared by dissolving its 2g in water of 250 mL of the solution		
	A. 0.2 mol L^{-1}	C. 0.1 mol L^{-1}	
	B. 0.4 mol L^{-1}	D. 0.02 mol L^{-1}	
30	The wave function Ψ (*psi*)		
	A. Represents the particle function associated with a wave	C. A large value of psi squared indicates the strong possibility of the particle's presence	
	B. It is not related to quantum theory and de Broglie waves	D. A small value of psi squared indicates the strong possibility of the particle's presence	
31	Amla (gooseberries) is the richest source of which vitamin?		
	A. Vitamin A	C. Vitamin C	
	B. Vitamin B	D. Vitamin D	
32	Which of the following elements is a metal?		
	A. S	C. Cl	
	B. Se	D. Ga	
33	Indian Constitution was amended for the first time in —		
	A. 1950	C. 1951	
	B. 1952	D. 1953	
34	Which of the following states has the largest representation in the Lok Sabha?		
	A. Bihar	C. Madhya Pradesh	
	B. Maharashtra	D. Uttar Pradesh	
35	Which one of the following statements regarding Ashokan stone pillars is incorrect?		

	A. These are highly polished	C. These are monolithic
	B. The shaft of pillars is tapering in shape	D. These are parts of architectural structures
36	**The river most mentioned in early Vedic literature is ---**	
	A. Sindhu	C. Sarasvati
	B. Sutudri	D. Ganga
37	**10 cats caught 10 rats in 10 seconds. How many cats are required to catch 100 rats in 100 seconds?**	
	A. 100	C. 10
	B. 20	D. 50
38	**Choose the correct alternative to fill in the blank that will continue the same pattern.** **4, 9, 13, 22, 35, ?**	
	A. 57	C. 63
	B. 60	D. 75
39	**Which of the following was a recommendation of Hunter's Commission?**	
	A. Women's education	C. Gradual withdrawal of state support from higher education
	B. New regulation for the organized senates system	D. Introduction of civic education at college and university level
40	**Choose the correct meaning of the phrase/idiom-** **Smell a rat**	
	A. To act unfairly	C. To have reason for suspect
	B. To talk boastfully	D. To discourage
41	**Where was the final match of Cricket World Cup 2015 held?**	
	A. Melbourne	C. Sydney
	B. Wellington	D. Auckland
42	**Who is the Chief Minister of Gujarat?**	
	A. Narendra Modi	C. Shri Santosh Kumar Gangwar
	B. Anandiben Patel	D. K. Chandrashekar Rao
43	**What is meaning of underlined idiom in the following sentence?** **I am afraid he is burning <u>the candle at both ends</u> and ruining his life.**	
	A. Becoming overgenerous	C. Wasting his money
	B. Overtaxing his energies	D. Losing his objectives
44	**What is meaning of underlined idiom in the following sentence?** **In the organised society of today no individual or nation can <u>plough a lonely furrow</u>.**	
	A. Remain unaffected	C. Do without the help of others
	B. Survive in isolation	D. Remain non-aligned
45	**____ Gahga is a sacred river:**	
	A. The	C. An
	B. A	D. None
46	**Gandhi ji _____ on charkha every day.**	
	A. was spinning	C. had spun
	B. spins	D. spun
47	**This is _____ best player I have ever met.**	
	A. a	C. Both (A) and (B)
	B. the	D. None of these
48	**My brother _____ football in the same club to which I am associated.**	

	A. play	C. played
	B. plays	D. Is playing
49	**John says, "I shall go there". Indirect narration form of this sentence is -**	
	A. John said that he went there.	C. John says that he went there.
	B. John says that he will go there.	D. John said that I will go there.
50	**Robert will say to me, "I am your classmate". Indirect narration form of this sentence is -**	
	A. Robert will tell me that he is my classmate.	C. Robert will tell me that he will be my classmate.
	B. Robert will tell me that he was my classmate.	D. Robert said me that he is my classmate.
51	**If a+b=1, then $\sum_{r=0}^{n} C(n,r)a^r b^{n-r}$ is equal to**	
	A. 1	C. 0
	B. n	D. None of these
52	**Let S(K) = 1+3+5+.....+(2K-1) = 3+K². Then which of the following is true?**	
	A. S(K) does not imply S(K+1)	C. S(1) is correct
	B. S(K) imply S(K+1)	D. Principle of mathematical induction can be used to prove the formula
53	**Let α and β are the roots of equation x^2-x+1=0, then $\alpha^{2009} + \beta^{2009}$ =**	
	A. -1	C. 1
	B. 2	D. -2
54	**If a>0, b>0, c>0, then (a+b)(b+c)(c+a) is greater than**	
	A. 2(a+b+c)	C. 3(a+b+c)
	B. 6abc	D. 8abc
55	**Total number of four digit odd numbers that can be formed using 0,1,2,3,5,7 are**	
	A. 216	C. 600
	B. 375	D. 720
56	**tan9° + tan81° +tan27° +tan63° =**	
	A. $4\sqrt{5}$	C. $\sqrt{5}/4$
	B. 4	D. None of these
57	**In a triangle ABC, cosA + 2cosB + cosC = 2, then a,b,c are in**	
	A. H.P.	C. A.P.
	B. G.P.	D. None of these
58	**A flagstaff 10m high stands at the centre of an equilateral triangle, which is horizontal. At the top of the flagstaff each side subtends an angle of 60° . The length of each side of triangle is**	
	A. $6\sqrt{3}$	C. $5\sqrt{6}$
	B. $4\sqrt{6}$	D. $6\sqrt{5}$
59	**The equation of $\sin^6 x + \cos^6 x$ = a has a real solution in x if**	
	A. $0.5 \le a \le 1$	C. $-1 \le a \le 1$
	B. $0.25 \le a \le 1$	D. $0 \le a \le 0.5$
60	**If sec2Θ = tanϕ + cotϕ, then a value of Θ+ϕ is**	
	A. π/2	C. π/3

	B. $\pi/4$	D. Π
61	If C is the reflection of A(2,4) in x-axis and B is the reflection of C in y-axis, then [AB] is	
	A. 20	C. $4\sqrt{5}$
	B. $2\sqrt{5}$	D. 4
62	The circles $x^2 + y^2 = 9$ and $x^2 + (y-5)^2 = 16$	
	A. Touch each other internally	C. Do not intersect
	B. Touch each other externally	D. Cut orthogonally
63	The axis of the parabola, $9y^2 - 16x - 12y - 57 = 0$	
	A. $3y = 2$	C. $y = 0$
	B. $16x + 61 = 0$	D. None of these
64	The eccentricity of an ellipse, with its centre at the origin is 0.5. If one of the directrices is x=4, then the equation of an ellipse is	
	A. $4x^2 + 3y^2 = 12$	C. $3x^2 + 4y^2 = 1$
	B. $3x^2 + 4y^2 = 12$	D. $4x^2 + 3y^2 = 11$
65	The locus of the equation, $(x^2+y^2)(x^2+y^2+x+y) = 0$ is	
	A. A straight line	C. A circle with centre at origin
	B. A circle through the origin	D. None of these
66	If $\sin^{-1} x + \sin^{-1}(1-x) + \cos^{-1} x = 0$ then x is equal to	
	A. 0	C. 2
	B. 1	D. None of these
67	Matrices A and B will be inverse of each other only if	
	A. AB = BA	C. AB = 0 , BA = I
	B. AB = BA = 0	D. None of these
68	A simplex in two dimension is	
	A. triangle	C. both triangle and rectangle.
	B. rectangle	D. none of these
69	$\frac{d^2x}{dy^2}$ equal to	
	A. $-\left(\frac{d^2y}{dx^2}\right)^{-1}\left(\frac{dy}{dx}\right)^{-3}$	C. $-\left(\frac{d^2y}{dx^2}\right)\left(\frac{dy}{dx}\right)^{-3}$
	B. $\left(\frac{d^2y}{dx^2}\right)\left(\frac{dy}{dx}\right)^{-2}$	D. $\left(\frac{d^2y}{dx^2}\right)^{-1}$
70	$\int_0^{\pi/2} \sin^2 x\, dx$ equal to	
	A. $\frac{\pi}{4}$	C. $\frac{\pi}{6}$
	B. $\frac{\pi}{2}$	D. $\frac{\pi}{3}$.
71	Surface endurance limit of gear material is dependent upon its	
	A. yield strength	C. brinell hardness number
	B. elastic strength	D. toughness
72	The resistance to fatigue of a material is measured by	
	A. elastic limit	C. ultimate tensile strength

	B. Young's modulus	D. endurance limit
73	**Stress concentration is caused due to**	
	A. variations in load acting on a member	C. abrupt change of cross-section
	B. variations in properties of materials	D. all of these
74	**The size of a gear is usually specified by**	
	A. circular pitch	C. diametral pitch
	B. pressure angle	D. pitch circle diameter
75	**The radial distance of a tooth from the pitch circle to the top of the tooth is called**	
	A. working depth	C. dedendum
	B. clearance	D. addendum
76	**A machine part subjected to _____ is called a strut.**	
	A. an axial tensile force	C. a tangential force
	B. an axial compressive force	D. any one of these
77	**Which one of the following is a positive drive?**	
	A. Crossed flat belt drive	C. V-belt drive
	B. Rope drive	D. Chain drive
78	**The included angle for the British Association thread is**	
	A. 47.3°	C. 55°
	B. 29°	D. 60°
79	**A differential pulley block has larger and smaller diameters of 100 mm and 80 mm respectively. Its velocity ratio is**	
	A. 40	C. 10
	B. 5	D. 20
80	**A body of weight W is required to move up on rough inclined plane whose angle of inclination with the horizontal is α. The effort applied parallel to the plane is given by (where μ = tanφ = Coefficient of friction between the plane and the body.)**	
	A. P = W tan(α + φ)	C. P = W (cosα + μsinα)
	B. P = W tanα	D. P = W (sinα + μcosα)
81	**The angular velocity (in rad/s) of a body rotating at N revolutions per minute is**	
	A. πN/60	C. πN/180
	B. 2πN/60	D. 2πN/180
82	**When the spring of a watch is wound, it will possess**	
	A. strain energy	C. heat energy
	B. kinetic energy	D. electrical energy
83	**Two forces are acting at an angle of 120°. The bigger force is 40N and the resultant is perpendicular to the smaller one. The smaller force is**	
	A. 20 N	C. 40 N
	B. 30 N	D. none of these
84	**The centre of gravity a T-section 100 mm × 150 mm × 50 mm from its bottom is**	
	A. 50mm	C. 75mm
	B. 87.5mm	D. 125mm
85	**As compared to uniaxial tension or compression, the strain energy stored in bending is only**	
	A. 1/3	C. 1/4
	B. 1/2	D. 1/5
86	**If the width of a simply supported beam carrying an isolated load at its centre**	

	is doubled, the deflection of the beam at the centre is changed by	
	A. 0.5	C. 4
	B. 2	D. 1/8
87	The shape of the bending moment diagram over the length of a beam, carrying a uniformly distributed load is always	
	A. parabolic	C. cubical
	B. linear	D. circular
88	The ratio of strengths of solid to hollow shafts, both having outside diameter D and hollow having inside diameter D/2, in torsion, is	
	A. 1/2	C. 1/4
	B. 1/16	D. 15/16
89	The unit of modulus of elasticity is same as those of	
	A. stress, strain and pressure	C. stress, pressure and shear modulus
	B. stress, force and shear modulus	D. strain, force and pressure
90	The springs in brakes and clutches are used to	
	A. to store strain energy	C. to absorb shocks
	B. to apply forces	D. to measure forces
91	Fluid is a substance which does not offer any resistance to change of	
	A. Pressure	C. Volume
	B. Temperature	D. Shape
92	Ideal fluid is that fluid which is	
	A. Compressible	C. Viscous
	B. Incompressible and inviscous	D. Viscous and compressible
93	If 867 kg of a liquid occupies volume of 1 m^3, 0.867 represents its	
	A. Specific mass	C. specific weight
	B. Specific internal energy	D. specific gravity
94	For stable equilibrium of a ship in the sea the metacentre should lie	
	A. Below its centre of gravity	C. at least 5 cm below centre of gravity
	B. At the centre of gravity	D. above its centre of gravity
95	Buoyancy of liquid depends on	
	A. Mass of liquid displaced	C. Depth of immersion of the body
	B. Viscosity of the liquid	D. Temperature of the liquid
96	If atmospheric pressure, gauge pressure and absolute pressure be represented by A, B and C respectively, the correct equation is	
	A. A+B= C	C. A+C=B
	B. A-B= C	D. A-C =B
97	The centre of gravity of the volume of the liquid being displaced by the body immersed in it is known as	
	A. Centre of buoyancy	C. Centroid
	B. Meta -centre	D. Centre of gravity
98	Kinematic viscosity is equal to	
	A. Dynamic viscosity x density	C. Reciprocal of A
	B. Dynamic viscosity/density	D. Reciprocal of B
99	S.I. unit of dynamic viscosity is	
	A. N-s/m	C. N-s/m^2
	B. N-s^2/m	D. N-m/s
100	Pascal's law states that the pressure at a point is equal in all directions in a	

	A. Laminar flow		C. Fluid at rest	
	B. Turbulent flow		D. Liquid at rest	
101	**Thermodynamic equilibrium means**			
	A. Thermal equilibrium		C. Mechanical equilibrium	
	B. Chemical equilibrium		D. All the above	
102	**A system and its surroundings combined together constitute**			
	A. An open system		C. A closed system	
	B. An isolated system		D. A homogeneous system	
103	**An example of closed system is**			
	A. Bomb calorimeter		C. Universe	
	B. Boiler		D. Turbine	
104	**An example of intensive property is**			
	A. Temperature		C. Work	
	B. Volume		D. Enthalpy	
105	**The property which does not show any change in isochoric process is**			
	A. Temperature		C. Pressure	
	B. Work		D. Volume	
106	**Kelvin-Plank's statement of second law of thermodynamics deals with**			
	A. Conservation of work		C. Conservation of energy	
	B. Conversion of heat into work		D. Conversion of work into heat	
107	**The measurement of temperature is based on**			
	A. First law of thermodynamics		C. Zeroth law of thermodynamics	
	B. Second law thermodynamics		D. None of the above	
108	**If n=0 in the equation of polytropic process, pV^n = constant, the process is known as**			
	A. Isometric process		C. Isobaric process	
	B. Isothermal process		D. Isentropic process	
109	**When other factors are kept constant, with increase in the temperature of sink, the efficiency of Carnot engine**			
	A. Increases		C. Remains constant	
	B. Decreases		D. First increases and then decreases	
110	**In a Carnot cycle, the net change in entropy is**			
	A. Negative		C. Sometimes positive and sometimes negative	
	B. Positive		D. Negative	
111	**In a reversible cycle temperatures of the sink and the source are 27^0C and 227^0C respectively. The maximum available work for a heat input of 150 kJ is**			
	A. 60 kJ		C. 150 kJ	
	B. 90 kJ		D. 132 kJ	
112	**The difference between two specific heats, C_p and C_v for a gas represents**			
	A. Increase in potential energy of gas molecules		C. Increase in volume	
	B. Increase in kinetic energy of gas molecules		D. External work done	
113	**A heat engine receives 225 kJ/s of heat at a fixed temperature of 227^0C and rejects heat at 300K. For the cycle to be reversible the amount of heat rejected should be**			
	A. 90 kJ/s		C. 135 kJ/s	
	B. 75 kJ/s		D. 125 kJ/s	

114	**The efficiency of air standard diesel cycle is less than that of Otto cycle for the same**		
	A. Cylinder dimensions and rpm of engine	C.	Maximum pressure and heat addition
	B. Compression and pressure ratio	D.	Compression ratio and heat addition
115	**Polytropic specific heat is given by expression, wherein c_p, c_v and n are specific heat at constant pressure, specific heat at constant volume and polytropic exponent respectively,**		
	A. $(c_p - 2n\ c_v)/(1-n)$	C.	$(c_p - n\ c_v)/(1-n)$
	B. $(n\ c_p - c_v)/(1-n)$	D.	$(2c_p - n\ c_v)/(1-n)$
116	**Dryness fraction represents quality of steam and its value lies between**		
	A. 2 and 3	C.	0 and 1
	B. 3 and 4	D.	-1 and 0
117	**For a thermodynamic system, the odd one among the following is**		
	A. Enthalpy	C.	Entropy
	B. Temperature	D.	Heat
118	**A system contains ideal gas as working fluid and undergoes a change following isothermal process wherein the pressure changes from 20 kPa to 30 kPa and volume changes from 60 m^3 to 40 m^3. The change in internal energy is**		
	A. 200 kJ	C.	0
	B. 100 kJ	D.	300 kJ
119	**The unit of specific entropy is**		
	A. kJ/kg-K	C.	kJ/m^3-kg
	B. K/kg-kJ	D.	Kg/kJ-Pa
120	**An irreversible process**		
	A. Must pass through a continuous series of equilibrium states	C.	Exhibits both A and B
	B. Leaves history of the events in the surroundings	D.	Exhibits neither A nor B
121	**Tempering is a heat treatment process carried out to**		
	A. Increase hardness of annealed steel	C.	Control carbon content of steel
	B. Reduce brittleness of hardened steel	D.	Improve wear resistance steel
122	**Identify the process which is different from the others**		
	A. Carburising	C.	Cyaniding
	B. Nitriding	D.	Galvanizing
123	**Delta iron occurs at temperature t in the range of**		
	A. Room temperature $< t < 600^0$c	C.	$800^0c < t < 1200^0c$
	B. $600^0c < t < 730^0c$	D.	$1400^0c < t < 1530^0c$
124	**Dielectric strength of a material is**		
	A. Capacity to withstand stresses without yielding	C.	Capacity to attract magnetic materials
	B. Capacity to withstand high voltage	D.	None of the above
125	**Which of the following materials is used for making a heating element**		
	A. Nichrome	C.	Muntz Metal
	B. Inconel	D.	None of the above
126	**Gun metal is the alloy of**		
	A. Copper & zinc	C.	Copper, tin & zinc

	B. Copper & tin	D. None of the above
127	**The product of a cupola is known as**	
	A. Pig iron	C. Stainless steel
	B. Cast steel	D. Cast iron
128	**Ability of a material to absorb energy when deformed elastically and to return the same when unloaded is called**	
	A. Hardness	C. Toughness
	B. Fatigue strength	D. Resilience
129	**Steel with 0.8% carbon is known as**	
	A. Dead mild steel	C. Eutectoid steel
	B. Medium carbon steel	D. Eutectic steel
130	**Material used for springs must have high**	
	A. Resilience	C. Hardness
	B. Toughness	D. Tensile strength
131	**Which of the following is an example of orthogonal cutting?**	
	A. Taper turning	C. Parting off
	B. Drilling	D. None of these
132	**Tool signature of a single point cutting tool is given as "20 – 18 – 12 – 10 – 16 – 15 – 01". What is the value of end cutting edge angle of the tool?**	
	A. 18	C. 10
	B. 12	D. 16
133	**Chip formation in metal machining occurs on account of**	
	A. Shear deformation of work piece material ahead of tool nose	C. Fatigue failure of work piece material at the contact point
	B. Crack generation in work piece material ahead of tool nose	D. None of these
134	**Continuous chip formation occurs in machining of**	
	A. Cast iron	C. Both of the above
	B. Mild steel	D. None of these
135	**Which one is the correct representation of the tool life equation?**	
	A. $VT^n = C$	C. $\log V - n \log T = C$
	B. $V + T^n = C$	D. None of these
136	**The standard material used for estimation of relative machinability, is**	
	A. Cast iron	C. Stainless steel
	B. Mild steel	D. Free cutting steel
137	**Which of the following is not the measure of tool life?**	
	A. Quantity of cutting fluid consumed	C. Volume of production between two successive grindings
	B. Total time of machining between two successive grinding	D. Volume of material removed between two successive grindings
138	**In which of the following welding processes flux is used in the form of granules?**	
	A. SAW	C. TIG
	B. MIG	D. None of these
139	**Which of the following welding processes make use of consumable electrodes?**	
	A. MIG welding	C. Laser welding
	B. TIG welding	D. Thermit welding

140	**Which of the following is a welding defect**	
	A. Scabs	C. Poured short
	B. Undercut	D. Mis-run
141	**$\overline{X}$ and R charts are used to establish**	
	A. Production control	C. Cost control
	B. Process control	D. Material control
142	**$\overline{X}$ charts indicate**	
	A. Central tendency of the process	C. Variability
	B. Consistency of the process	D. Proportion of defectives
143	**In a sampling plan, if c is the acceptance number, the rejection number will be**	
	A. $c + 1$	C. $c - 1$
	B. $1 - c$	D. c^2
144	**In a double sampling plan, second sample is taken, when the number of defectives**	
	A. Exceed c_1	C. Lies between c_1 and c_2
	B. Exceed c_2	D. None of these
145	**A product layout is generally suggested for**	
	A. Job production work	C. Efficient machine utilization criteria
	B. Batch production work	D. Continuous production
146	**In ABC analysis which class of items are large in number?**	
	A. A	C. C
	B. B	D. Any of the three classes can be large in number
147	**Economic Order Quantity is obtained using formula $Q = \sqrt{\frac{2Dr}{k}}$; what does k represents in the formula?**	
	A. Inventory holding cost	C. Shortage cost
	B. Reorder cost	D. None of these
148	**A gagger is a tool used in**	
	A. Welding	C. Powder metallurgy
	B. Press working	D. Foundry work
149	**In a foundry shop, the molasses is used for:**	
	A. Core making	C. Preventing rusting of castings
	B. Cleaning of castings	D. Application as fuel in furnace
150	**The property of moulding sand by virtue of which it evolves a great amount of steam and other gases during pouring of metal, is called:**	
	A. Collapsibility	C. Cohesiveness
	B. Permeability	D. Adhesiveness

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