



AFCAT EKT ME Previous Year Paper (Feb 2016)

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50 Questions

Que. 1 A can solve 90% of the problems given in a book and B can solve 70%. What is the probability that at least one of them will solve a problem, selected at random from the book?

1. 0.16
2. 0.69
3. 0.97
4. 0.20

Testbook Solution Correct Option - 3

Que. 2 An unbiased die with faces marked 1, 2, 3, 4, 5 and 6 is rolled four times. Out of four face values obtained, the probability that the minimum face value is not less than 2 and the maximum face value is not greater than 5 is

1. 16/81
2. 1/81
3. 80/81
4. 65/81

Testbook Solution Correct Option - 1

Que. 3 According to kinetic theory of gases, the absolute temperature is attained when

1. Volume of the gas is zero
2. Pressure of the gas is zero
3. Kinetic energy of the molecules is zero
4. Specific heat of the gas is zero

Testbook Solution Correct Option - 3

Que. 4 A radioactive isotope has a half-life of 10 days. If today there are 125 g of it left, what was its original weight 40 days earlier?

1. 600 g
2. 1000 g
3. 1250 g
4. 2000 g

Testbook Solution Correct Option - 4

Que. 5 The compression ratio for petrol engines is:

1. 3 to 6
2. 8 to 10
3. 20 to 30
4. 15 to 20

Testbook Solution Correct Option - 2

Que. 6 If the value of $n = 0$ in the equation $PV^n = C$, then the process is called

1. Constant volume process

2. Adiabatic process
3. Constant pressure process
4. Isothermal process

Testbook Solution Correct Option - 3

Que. 7 The hoop stress in a thin cylindrical shell is

1. Longitudinal stress
2. Compressive stress
3. Radial stress
4. Circumferential tensile stress

Testbook Solution Correct Option - 4

Que. 8 Which is the incorrect statement about Carnot cycle

1. It is used as the alternate standard of comparison of all heat engines
2. All the heat engines are based on Carnot cycle
3. It provides concept of maximising work output between the two temperature limits
4. All of the above

Testbook Solution Correct Option - 2

Que. 9 The divergent portion of a venturimeter is made longer than the convergent portion in order to

1. Avoid the tendency of breaking away the stream of liquid
2. To minimise frictional losses
3. Both (a) and (b)
4. None of these

Testbook Solution Correct Option - 3

Que. 10 A ladder is resting on a rough ground and leaning against a smooth vertical wall. The force of friction will act

1. downward at its upper end
2. upward at its upper end
3. zero at its upper end
4. perpendicular to the wall at its upper end

Testbook Solution Correct Option - 3

Que. 11 The Kelvin-Planck statement of the second law of thermodynamics deals with the conversion of:

1. heat into work
2. work into heat
3. mass
4. volume

Testbook Solution Correct Option - 1

Que. 12 The gas in the cooling chamber of a closed cycle gas turbine is cooled at

1. Constant volume
2. Constant temperature

3. Constant pressure
4. None of these

Testbook Solution Correct Option - 3

Que. 13 The temperature at which the volume of a gas becomes zero is called:

1. Absolute scale temperature
2. Absolute zero temperature
3. Absolute temperature
4. None of these

Testbook Solution Correct Option - 2

Que. 14 The compressors used in a gas turbine are typically of which type?

1. Centrifugal
2. Centripetal
3. Reciprocating
4. Axial

Testbook Solution Correct Option - 4

Que. 15 The efficiency of a jet engine as compared to propeller is higher at

1. low speeds
2. high speeds
3. low altitudes
4. high altitudes

Testbook Solution Correct Option - 4

Que. 16 Time dependent permanent deformation is called _____.

1. Plastic deformation
2. Elastic deformation
3. Creep
4. Fatigue

Testbook Solution Correct Option - 3

Que. 17 Internal gears are manufactured by

1. hobbing
2. shaping with pinion cutter
3. shaping with rack cutter
4. milling

Testbook Solution Correct Option - 2

Que. 18 The primary function of the bias circuit is to:

1. Hold the circuit stable at V_{CC}
2. Hold the circuit stable at V_{in}
3. Ensure proper gain is achieved
4. Hold the circuit stable at the designed Q-point

Testbook Solution Correct Option - 4

Que. 19 Lift of an aircraft when it is flying straight and level is

1. Equal to the weight
2. Slightly higher than the weight
3. Double the weight
4. None of the above

Testbook Solution Correct Option - 1

Que. 20 The liquid is flowing separately through each of two pipes whose diameters are in the ratio of 2 : 1, if the ratio of the velocities of flow in the two pipes by 1 : 2, then the ratio of the amounts of the liquid flowing per sec through the pipe will be

1. 2 : 1
2. 1 : 1
3. 4 : 1
4. 1 : 8

Testbook Solution Correct Option - 1

Que. 21 The sum of the age of father and son is 45. Five years back, the product of age was 4 times the age of the father, what is the age of father and son

1. 36 years, 9 years
2. 39 years, 6 years
3. 35 years, 10 years
4. 40 years, 5 years

Testbook Solution Correct Option - 1

Que. 22 For any vector a, the value of $(a \times i)^2 + (a \times j)^2$ is equal to

1. $3a^2$
2. a^2
3. $2a^2$
4. $4a^2$

Testbook Solution Correct Option - 2

Que. 23 A single acting reciprocating pump, running at 60 rpm, delivers $0.01 \text{ m}^3/\text{sec}$ of water. The area of the piston is 0.05 m^2 and stroke length is 40 cm. Then theoretical discharge of the pump will be,

1. $0.015 \text{ m}^3/\text{sec}$
2. $0.02 \text{ m}^3/\text{sec}$
3. $0.025 \text{ m}^3/\text{sec}$
4. $0.03 \text{ m}^3/\text{sec}$

Testbook Solution Correct Option - 2

Que. 24 Permeance of a magnetic circuit corresponds to the following quantity in electrical circuit

1. Conductivity
2. Resistivity

3. Conductance
4. Permeance

Testbook Solution Correct Option - 3

Que. 25 A bar of length 'L' meters extends by 'l' mm under a tensile force of 'P'. The strain produced in the bar is

1. l/L
2. $0.1 l/L$
3. $0.01 l/L$
4. $0.001 l/L$

Testbook Solution Correct Option - 4

Que. 26 A rod is enclosed centrally in a tube and the assembly is tightened by rigid washers. If the assembly is subjected to a compressive load, then

1. rod is under compression
2. tube is under compression
3. both rod and tube are under compression
4. tube is under tension and rod is under compression

Testbook Solution Correct Option - 3

Que. 27 Which of the following statement is not true

1. PERT is probabilistic
2. CPM is deterministic
3. In CPM probability to complete a project in given duration is calculated
4. None of the above

Testbook Solution Correct Option - 3

Que. 28 In a flange coupling, the flanges are coupled together by means of

1. Bolts and nuts
2. Studs
3. Headless taper bolts
4. none of these

Testbook Solution Correct Option - 1

Que. 29 In the assembly design of shaft, pulley and key the weakest member is

1. Pulley
2. Key
3. Shaft
4. None

Testbook Solution Correct Option - 2

Que. 30 When Mach number is more than 6, the flow is called

1. subsonic flow
2. sonic flow
3. supersonic flow

4. hypersonic flow

Testbook Solution Correct Option - 4

Que. 31 In the multiple disc clutch, if there are 6 discs on the driving shaft and 5 discs on the driven shaft, then the number of pairs of contact surfaces will be equal to

1. 11
2. 12
3. 10
4. 22

Testbook Solution Correct Option - 3

Que. 32 In a centrifugal compressor, an increase in speed at a given pressure ratio causes

1. Increase in flow and increase in efficiency
2. Increase in flow and decrease in efficiency
3. Decrease in flow and decrease in efficiency
4. Decrease in flow and increase in efficiency

Testbook Solution Correct Option - 2

Que. 33 Cast iron during machining produces

1. Continuous chips
2. Discontinuous chips
3. Continuous chips with built-up-edge
4. None of these

Testbook Solution Correct Option - 2

Que. 34 When a cylinder is located in a V block, the number of degree of freedom would be

1. 2
2. 3
3. 4
4. 6

Testbook Solution Correct Option - 1

Que. 35 When setting up a mechanical drawing in AutoCAD the drafter should set the units to _____

1. Metric
2. Decimal
3. Fractional
4. Architectural

Testbook Solution Correct Option - 2

Que. 36 The magnitude of mutually perpendicular forces a, b and c is 2, 10 and 11 respectively. Then the magnitude of its resultant is

1. 12
2. 9
3. 18
4. None of the above

Testbook Solution Correct Option - 4

Que. 37 The motion of the cam is transferred to the valve through

1. Valve stems
2. Camshaft pulley
3. Rocker arms
4. Piston

Testbook Solution Correct Option - 3

Que. 38 The position vectors of three consecutive vertices of a parallelogram are $i + j + k$, $i + 3j + 5k$ and $7i + 9j + 11k$ the position vector of the fourth vertex is

1. $6(i - j + k)$
2. $7(i + j + k)$
3. $2j - 4k$
4. $6i + 8j + 10k$

Testbook Solution Correct Option - 2

Que. 39 The insulation resistance of cable, 1 km long is $1 \text{ M}\Omega$. Insulation resistance for 2 m is

1. $0.002 \text{ M}\Omega$
2. $0.5 \text{ M}\Omega$
3. $5 \text{ M}\Omega$
4. $500 \text{ M}\Omega$

Testbook Solution Correct Option - 4

Que. 40 The centre of gravity of a semi-circle lies at a distance of measured along the vertical radius.

1. $3r/8$
2. $4r/3\pi$
3. $8r/3$
4. $3r/4\pi$

Testbook Solution Correct Option - 2

Que. 41 A nozzle placed at the end of a water pipeline discharges water at a

1. Low pressure
2. High pressure
3. Low velocity
4. High velocity

Testbook Solution Correct Option - 4

Que. 42 Euler number is defined as the ratio of inertia forces to

1. Viscous Force
2. Elastic force
3. Pressure force
4. Gravity force

Testbook Solution Correct Option - 3

Que. 43 Reheating in a gas turbine

1. increases the compressor work
2. decreases the compressor work
3. increase the turbine work
4. decreases the turbine work

Testbook Solution Correct Option - 3

Que. 44 However complex the stress condition may be in the body, the principle planes will always be

1. 1
2. 2
3. 3
4. 4

Testbook Solution Correct Option - 3

Que. 45 Gas turbine as compared to a steam turbine

1. Requires less space for installation
2. Has compressor and combustion chamber
3. Has less efficiency
4. All of these

Testbook Solution Correct Option - 4

Que. 46 High air-fuel ratio in a gas turbine

1. Increases power output
2. Improves thermal efficiency
3. Reduces exhaust temperature
4. Do not damage turbine blades

Testbook Solution Correct Option - 3

Que. 47 What type of bearing is used for main bearings and connecting rod bearings?

1. Ball bearings
2. Plain bearings
3. Needle roller bearings
4. Taper roller bearings

Testbook Solution Correct Option - 2

Que. 48 The tool made of cemented carbide wears out faster at

1. medium speed
2. slow speed
3. fast speed
4. very fast speed

Testbook Solution Correct Option - 2

Que. 49 In helicopters tail rotor is used to control

1. Yaw

2. Roll
3. Pitch
4. Lift

Testbook Solution Correct Option - 1

Que. 50 The hardness of steel depends upon the

1. Amount of cementite it contains
2. Amount of carbon it contains
3. Amount of alloying it contains
4. Method of manufacturing of steel

Testbook Solution Correct Option - 2

