



Itemcode : **WM1001**

Q1: Four forces P , $2P$, $3P$ and $4P$ act along the sides, taken in order, of a square. The resultant force is

A $2\sqrt{2}P$

B $2P$

C $\sqrt{5}P$

D Zero

Correct Ans: **A**

Itemcode : **WM1002**

Q2: A man stands on a spring weighing scale in a lift which carries him upward with acceleration. The reading on the weighing scale will be

A lower than the true weight of the man

B zero

C true weight of the man

D greater than true weight of the man

Correct Ans: **D**

Itemcode : **WM1003**

Q3: In a circular cylinder of mass m , radius r and length l , the moment of inertia with respect to central longitudinal axis would be

A $m r^2/2$

B $m r^2/6$

C $m r^2/12$

D $m r^2/3$

Correct Ans: **A**

Itemcode : **WM1004**

Q4: A zero angle of friction implies that

A frictional force is infinite

B frictional force acts normal to the plane

C frictional force acts along the direction of motion

D frictional force is zero

Correct Ans: **D**

Itemcode : **WM1005**

Q5: Two bodies of mass M and m are moving in a concentric orbit of radius R and r such that their periods are same. The ratio between their angular velocity will be

A $mR : Mr$

B $1 : 1$

C $\sqrt{(R/r)} : (m/M)$

D $R : r$

Correct Ans: **B**

Itemcode : **WM1006**

Q6: Brakes are applied to a car travelling at 90 Km/hr and comes to stop after 5 seconds. Assuming acceleration due to gravity as 10m/s^2 , the coefficient of friction between the wheels and road surface is closed to

A 0.18

B 0.25

C 0.36

D 0.50

Correct Ans: **D**

Itemcode : **WM1007**

Q7: The stress-strain curve for glass during tensile test would exhibit

A a hyperbolic curve

B an irregular curve

C a sudden break

D a straight line

Correct Ans: **C**

Itemcode : **WM1008**

Q8: A solid circular shaft is subjected to a maximum shear stress of 140 MPa. The magnitude of maximum normal stress developed in the shaft is

A 70 MPa

B 80 MPa

C 140 MPa

D 60 MPa

Correct Ans: **C**

Itemcode : **WM1009**

Q9: In a thin cylindrical pressure vessel, the ratio of maximum shear stress to hoop stress is

A 2 : 1

B 1 : 1

C 4 : 1

D 1 : 4

Correct Ans: **D**

Itemcode : **WM1010**

Q10: A simply supported beam carries several concentrated loads. The shear force would be maximum

A at either of the supports

B under the smallest load

C under the largest load

D at mid span

Correct Ans: **A**

Itemcode : **WM1011**

Q11: Torsion rigidity of a solid circular shaft of diameter d and length l , shear modulus G and polar moment of inertia

J has been subjected to torque T, will be
A <u>GJ</u>
B <u>TI/GJ</u>
C <u>$T^2I/(2GJ)$</u>
D <u>GJ/I</u>
Correct Ans: A

Itemcode : WM1012
Q12: Which of the following sections will be best in torsion
A <u>hollow circular</u>
B <u>solid circular</u>
C <u>triangular</u>
D <u>rectangular</u>
Correct Ans: A

Itemcode : WM1013
Q13: In a circular shaft, the condition when maximum bending stress is equal to maximum shear stress developed is (in terms of Bending moment M and torque T)
A <u>$M=T$</u>
B <u>$M=2T$</u>
C <u>$M=4T$</u>
D <u>$M=T/2$</u>
Correct Ans: D

Itemcode : WM1014
Q14: The ratio of actual damping coefficient to the critical damping coefficient is known as
A <u>Critical damping ratio</u>
B <u>Logarithmic decrement</u>
C <u>Damping factor</u>
D <u>Magnification factor</u>
Correct Ans: C

Itemcode : WM1015
Q15: A Davis steering gear consists of four bar mechanism with
A <u>Three pairs turning and one pair sliding</u>
B <u>All four pairs turning</u>
C <u>Two pairs turning and two pairs sliding</u>
D <u>All four pairs sliding</u>
Correct Ans: C

Itemcode : WM1016
Q16: An idler pulley is used
A <u>To maintain requisite tension in the belt</u>
B <u>To change the direction of motion of the belt</u>
C <u>To run only during non-load periods</u>

D For frequent stoppage of motion
Correct Ans: A

Itemcode : WM1017
Q17: The function of flywheel is
A to smoothen the cyclic variations of energy output from the engine
B to reduce the fluctuations of speed during a cycle when delivering constant output
C to maintain engine speed within prescribed limits for varying load conditions
D to maintain constant uniform speed of the engine
Correct Ans: B

Itemcode : WM1018
Q18: The product of circular pitch and diametral pitch equals
A 1.57
B π
C infinity
D 1
Correct Ans: B

Itemcode : WM1019
Q19: The maximum efficiency of a screw jack provided with square threaded screw (angle of friction = 30^0) will be
A 27%
B 50%
C 61%
D 33%
Correct Ans: D

Itemcode : WM1020
Q20: During the dwell period of cam, the follower
A Moves in a straight line
B Moves with uniform speed
C Moves with simple harmonic motion
D Remains at rest
Correct Ans: D

Itemcode : WM1021
Q21: Identify the hardest metal
A iron
B platinum
C diamond
D tungsten
Correct Ans: D

Itemcode : WM1022
Q22: Maximum surface hardness is attained by

A Cyaniding
B Flame hardening
C Nitriding
D Carburizing
Correct Ans: C

Itemcode : WM1023
Q23: Aeroplane and certain automobile parts are usually made of
A Aluminium bronze
B Duralumin
C German silver
D Magnalium
Correct Ans: B

Itemcode : WM1024
Q24: Killed steels
A have minimum impurity level
B are produced by Linz-Donawitz (LD) process
C are free from oxygen
D have almost zero percentage of phosphorus and sulfur
Correct Ans: C

Itemcode : WM1025
Q25: The chemical formula for cementite is
A Fe_2C_3
B Fe_3C
C FeC_3
D Fe C
Correct Ans: B

Itemcode : WM1026
Q26: Which of the followings are not the neutral refractory material
A kainite
B graphite
C dolomite
D chromite
Correct Ans: C

Itemcode : WM1027
Q27: An allen bolt is provided with
A find pitch V-threads
B hexagonal depression in the head
C an eye in the head for lifting heavy loads
D self locking mechanism

Correct Ans: **B**

Itemcode : **WM1028**

Q28: The flanges of a flange coupling are coupled together by means of bolts and their number depends upon

- A** Material of the shaft
- B** Diameter of the shaft
- C** Rotational speed of the shaft
- D** Length of the shaft

Correct Ans: **B**

Itemcode : **WM1029**

Q29: A hydrodynamic lubricated bearing is one which

- A** There is a thin film of lubricant between the journal and bearing
- B** There is a thick film of lubricant between the journal and bearing
- C** The oil film is maintained by supplying oil under pressure.
- D** Supports a steady load without any relative motion between the journal and bearing

Correct Ans: **B**

Itemcode : **WM1030**

Q30: A rope has been designated as 6 by 19 wire rope. The numbers 6 and 19 respectively stand for :

- A** Rope diameter and the number of wires
- B** Number of strands and number of wires
- C** Number of wires and number of strands
- D** Rope diameter and the number of strands

Correct Ans: **B**

Itemcode : **WM1031**

Q31: A connecting rod should be

- A** Strong in buckling about y-axis only
- B** Equally strong in buckling about x-axis and y axis
- C** More strong in buckling about x-axis than that about y-axis
- D** Strong in buckling about x-axis only

Correct Ans: **B**

Itemcode : **WM1032**

Q32: The property of a material by which it can be rolled into sheets is called

- A** Plasticity
- B** Ductility
- C** Malleability
- D** Elasticity

Correct Ans: **C**

Itemcode : **WM1033**

Q33: The main constituent of moulding sand is

- A** Clay

B Alumina
C Iron oxide
D Silica
Correct Ans: D

Itemcode : WM1034
Q34: Wax pattern is used in
A Die casting
B Investment casting
C Centrifugal casting
D Shell moulding
Correct Ans: B

Itemcode : WM1035
Q35: Which process of welding is used for car bodies
A Gas welding
B Arc welding
C Thermit welding
D Resistance welding
Correct Ans: A

Itemcode : WM1036
Q36: Tapping is the operation of
A Enlarging hole which has already been drilled
B Making a cone shaped enlargement of the end of a hole
C Enlarging the end of a hole cylindrically
D Cutting internal threads by means of a tap in the already drilled hole
Correct Ans: D

Itemcode : WM1037
Q37: Capillary action is due to
A Cohesion of liquid particles
B Cohesion and adhesion
C Surface tension
D Adhesion of liquid particles to a surface
Correct Ans: B

Itemcode : WM1038
Q38: Steady flow occurs when
A Conditions change steadily with time
B Conditions are the same at adjacent points at any instant
C Only the velocity vector at any point does not change with time i.e. $\frac{\partial \mathbf{v}}{\partial t}$ is constant
D Conditions do not change with time at any point
Correct Ans: D

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Itemcode : WM1039	
Q39: The displacement thickness for a boundary layer	
A	Is the distance from the boundary affected by velocity gradients
B	Represents the mass deficit in flow
C	May be conceived as the transverse distance by which boundary should be displaced to compensate for reduction in momentum on account of boundary layer formation
D	Must be less than the momentum thickness and greater than the boundary layer thickness
Correct Ans: B	

Itemcode : WM1040	
Q40: The wake region	
A	Represents the flow separated from the body
B	Represents the region of high velocity gradient
C	Is the principle cause of skin friction
D	Represents the region of low pressure
Correct Ans: A	

Itemcode : WM1041	
Q41: Dynamic similarity between model and prototype implies that	
A	The forces acting at corresponding locations are same
B	There is point to point correspondence between the two systems
C	Both the systems undergo similar rates of change of motion
D	The flow pattern is similar
Correct Ans: A	

Itemcode : WM1042	
Q42: A Kaplan turbine blade is suitable for	
A	Low head and low discharge
B	High head and low discharge
C	High head and high discharge
D	Low head and high discharge
Correct Ans: D	

Itemcode : WM1043	
Q43: Which one of the following characteristic does not change during a reversible adiabatic process	
A	Enthalpy
B	Internal energy
C	Entropy
D	Rate of heat exchange
Correct Ans: C	

Itemcode : WM1044	
Q44: Orsat apparatus is meant for	
A	Volumetric analysis of the flue gas
B	Direct determination of nitrogen in the flue gas
C	Determining the calorific value of gaseous fuels

D Finding out the combustion efficiency
Correct Ans: A

Itemcode : WM1045
Q45: Which air standard cycle consists of two isothermals connected by two constant volume processes
A Ericsson cycle
B Stirling cycle
C Atkainson cycle
D Brayton cycle
Correct Ans: B

Itemcode : WM1046
Q46: A particular firing order is necessary in a multi-cylinder engine so as to
A Have better balance of the engine
B Obtain uniform toque
C Operate the ignition system smoothly
D Give good distribution of fuel to all the cylinders
Correct Ans: B

Itemcode : WM1047
Q47: When a petrol engine is supplied with diesel fuel
A The engine will consume more fuel
B The engine will operate with reduced output
C The exhaust will have dense black smoke
D The engine will not run
Correct Ans: D

Itemcode : WM1048
Q48: The clutch is located between the engine and
A Differential gear
B Rear axle
C Universal joint
D Gear box
Correct Ans: D

Itemcode : WM1049
Q49: The function of a shackle with a leaf spring is to
A Allow pivoting of spring end
B Provide good traction
C Prevent squeaking sound
D Allow the spring length of change
Correct Ans: D

Itemcode : WM1050
Q50: What material is a brake lining usually made of

A	Leather
B	Cork
C	Fabric
D	Asbestos
Correct Ans: D	

Itemcode : WM1051	
Q51: In a sample of wet steam, m_s and m_w are mass of steam and water respectively, then the dryness fraction of a steam is given by	
A	$\frac{m_s}{m_s + m_w}$
B	$\frac{m_w}{m_s + m_w}$
C	$\frac{m_w}{m_s}$
D	$\frac{m_s}{m_w}$
Correct Ans: A	

Itemcode : WM1052	
Q52: Mollier diagram is a plot of	
A	temperature and enthalpy
B	pressure and enthalpy
C	enthalpy and entropy
D	temperature and entropy
Correct Ans: C	

Itemcode : WM1053	
Q53: Which of the following fitting is a boiler mounting	
A	economizer
B	feed check valve
C	air preheater
D	superheater
Correct Ans: B	

Itemcode : WM1054	
Q54: What is the function of steam trap	
A	To drain off water resulting from partial condensation of steam in pipes
B	To prevent steam from leaking out from the boiler
C	To regulate the steam flow rate from the boiler
D	To arrest water particles going along with steam
Correct Ans: A	

Itemcode : **WM1055**

Q55: Which one of the following statement is incorrect statement

- A** The wet vapour can be completely specified by its pressure and temperature
- B** Specific heat at constant pressure for superheated steam lies between 0.5-0.6 kcal/kg⁰K
- C** The values of enthalpy and entropy tabulated in steam tables have been reckoned from 0⁰C
- D** The saturation temperature increases with increase in temperature

Correct Ans: **A**

Itemcode : **WM1056**

Q56: As steam glides over the moving blades of a reaction turbine

- A** Both pressure and absolute velocity increase
- B** Pressure drops and absolute velocity increases
- C** Absolute velocity decreases and pressure remains constant
- D** Both pressure and absolute velocity decrease

Correct Ans: **D**

Itemcode : **WM1057**

Q57: The overall efficiency η_0 , in term of stage efficiency η_s and reheat factor R is

- A** $\eta_0 = \eta_s \times 1/R$
- B** $\eta_0 = \eta_s \times R$
- C** $\eta_0 = \eta_s \times \sqrt{R}$
- D** $\eta_0 = \eta_s \times R^2$

Correct Ans: **B**

Itemcode : **WM1058**

Q58: An ideal Brayton cycle consists of

- A** Two adiabatics, one isobaric and one isochoric
- B** Two adiabatics and two isothermals
- C** Two adiabatics and two isochoric
- D** Two adiabatics and two isobarics

Correct Ans: **D**

Itemcode : **WM1059**

Q59: Propulsion efficiency of a jet engine is given by

A $\frac{V + u}{2u}$

B $\frac{2u}{V + u}$

C $\frac{V - u}{2u}$

D

$$\frac{2u}{V - u}$$

Correct Ans: **B**

Itemcode : **WM1060**

Q60: Upto the critical radius of insulation

- A** Heat loss increases with addition of insulation
- B** There occurs a decrease in heat flux
- C** Conduction heat loss is make than convection heat loss
- D** Heat loss decreases with addition of insulation

Correct Ans: **A**

Itemcode : **WM1061**

Q61: If the temperature of a hot body is increased by 50%, the amount of radiation emitted by it would increase by nearly

- A** 500%
- B** 200%
- C** 100%
- D** 50%

Correct Ans: **A**

Itemcode : **WM1062**

Q62: The normal automobile radiator is a heat exchanger of the type

- A** Parallel flow
- B** Counter flow
- C** Cross flow
- D** Direct contact

Correct Ans: **C**

Itemcode : **WM1063**

Q63: During refrigeration cycle based on vapour compression system, the heat is rejected by the refrigerant in

- A** Expansion valve
- B** Evaporator
- C** Compressor
- D** Condenser

Correct Ans: **D**

Itemcode : **WM1064**

Q64: The chemical formula of Freon-12 is

- A** $CCl_2 F_3$
- B** $CCl_2 F_2$
- C** $CClF$
- D** $CClF_2$

Correct Ans: **B**

Itemcode : **WM1065**

Q65: When the temperature of air is reduced by continuous cooling at constant pressure, the condensation of water starts at a particular temperature known as

- A** Dew point temperature
- B** Adiabatic saturation temperature
- C** Critical temperature
- D** Wet bulb temperature

Correct Ans: **A**

Itemcode : **WM1066**

Q66: Desert coolers are suitable for hot and dry outside conditions because

- A** Heat is neither added to or removed from water
- B** Large quantity of air can be conditioned
- C** Wet bulb depression is very large
- D** Water is recirculated in the spray

Correct Ans: **C**

Itemcode : **WM1067**

Q67: In ABC analysis, _____ class of elements are generally large in number

- A** A
- B** B
- C** C
- D** D

Correct Ans: **C**

Itemcode : **WM1068**

Q68: At the break-even point

- A** Total cost equals the sales revenue
- B** Sales revenue is more than total cost
- C** Sales revenue is less than total cost
- D** Fixed cost equals the variable cost

Correct Ans: **A**

Itemcode : **WM1069**

Q69: Gantt charts are associated with

- A** Material handling
- B** Production schedule
- C** Sales forecast
- D** Inventory control

Correct Ans: **S** (**S Denotes question scrapped and no credit to Candidates.**)

Itemcode : **WM1070**

Q70: Quasi-equilibrium process is defined as:

- A** Process proceeds in such a way that system remains infinitesimally close to equilibrium at all the time
- B** Isothermal process only
- C** process proceeds in such a way that system remains in perfect equilibrium at all the time

D Process which proceeds very fast
Correct Ans: A

Itemcode : WM1071
Q71: Which of the following parameter is a path function ?
A Enthalpy
B Pressure
C Entropy generation
D Entropy
Correct Ans: C

Itemcode : WM1072
Q72: Viscosity in fluid is predominantly due to:
A Adhesive force
B Cohesive force
C Viscous force
D Momentum exchange
Correct Ans: B,D

Itemcode : WM1073
Q73: In power plants, Deaerator is placed at a <i>height</i> above the feed water pump because it
A Reduces corrosion caused by oxygen
B Provides necessary NPSH for feed pump
C Reduces heat transfer in the boiler
D improves heat transfer in the boiler
Correct Ans: B

Itemcode : WM1074
Q74: Surface plate is usually made of grey cast iron because it provides
A non wearing plate
B Very hard plate
C Easy to cast plate
D Lubrication due to graphite flakes
Correct Ans: D

Itemcode : WM1075
Q75: In a damped vibration system, the damping force is proportional to
A Displacement
B Velocity
C Acceleration
D Applied force
Correct Ans: B

Itemcode : WM1076
Q76: The cooling of water in the wet cooling tower takes place with the following mechanism:

A Only by sensible cooling
B Only by evaporative cooling
C By radiation cooling
D Combination of sensible and evaporative cooling
Correct Ans: D

Itemcode : WM1077
Q77: The ratio of work done by first and second row of 2 row Curtis turbine is:
A 3:1
B 1:3
C 4:1
D 1:4
Correct Ans: A

Itemcode : WM1078
Q78: A long blade of steam turbine is twisted to ensure
A Maximum efficiency
B Maximum work done
C Maximum pressure drop
D Shockless entry of working fluid at inlet
Correct Ans: D

Itemcode : WM1079
Q79: When the heat is transferred by molecular movement and the movement is caused due to density difference, the mode of heat transfer is called
A Forced convection
B Natural convection
C Conduction
D Radiation
Correct Ans: B

Itemcode : WM1080
Q80: The ratio of heat flow Q_1/Q_2 from two walls of same thickness and temperature difference having their thermal conductivities as $K_1=3K_2$ will be
A 1
B 2
C 3
D 4
Correct Ans: C

Itemcode : WM1081
Q81: According to 2011 census what is the density of population in Lahaul-Spiti district of H.P.?
A Two
B Five
C Seven

D Nine
Correct Ans: A

Itemcode : WM1082
Q82: According to 2010-11 agriculture census in which district of H.P. the average size of operational holdings is largest?
A Lahaul-Spiti
B Solan
C Sirmour
D Una
Correct Ans: C

Itemcode : WM1083
Q83: According to 2011 census which district of H.P. had the lowest rural literacy rate?
A Chamba
B Solan
C Kangra
D Kinnaur
Correct Ans: A

Itemcode : WM1084
Q84: Which district of H.P. had the highest Scheduled Tribe population in the State (2011 census)?
A Chamba
B Una
C Kinnaur
D Kangra
Correct Ans: A

Itemcode : WM1085
Q85: Who was the leader of opposition in the H.P. Territorial Council during 1957?
A Bhagmal Sautha
B Anand Chand
C Hira Singh Pal
D None of these
Correct Ans: A

Itemcode : WM1086
Q86: In which district of H.P. is Sukhsar lake?
A Kangra
B Kullu
C Mandi
D Chamba
Correct Ans: C

Itemcode : WM1087
Q87: In which district of H.P. is Kais sanctuary?

A Kinnaur
B Kangra
C Kullu
D Una
Correct Ans: C

Itemcode : WM1088
Q88: Which is the highest hockey ground in H.P.?
A Chail
B Sarchu
C Sangla
D Shilaroo
Correct Ans: D

Itemcode : WM1089
Q89: Which of the following was once the capital of Kehlur (Bilaspur) princely State?
A Bahadurpur
B Ajmerpur
C Sunhani
D Swaharghat
Correct Ans: C

Itemcode : WM1090
Q90: Who is author of the book 'Shimla Past and Present'?
A James Fraser
B E.J. Buck
C H.H. Goetz
D Collin Rosser
Correct Ans: B

Itemcode : WM1091
Q91: There are two Rashtriya Military Schools in Rajasthan. One is at Ajmer. Where is the other?
A Udaipur
B Jaipur
C Jodhpur
D Dholpur
Correct Ans: D

Itemcode : WM1092
Q92: Aam Aadmi Bima Yojna is being implemented by _____.
A RBI
B SBI
C LIC
D All the above

Correct Ans: C

Itemcode : WM1093
Q93: Rajiv Gandhi National Aviation University is situated at _____.
A Hazaratganj
B Fursatganj
C Paharganj
D Hayatganj
Correct Ans: B

Itemcode : WM1094
Q94: In which year was sugar sector de-regulated in India?
A 2008-09
B 2009-10
C 2011-12
D 2013-14
Correct Ans: D

Itemcode : WM1095
Q95: The father of Homeopathy was a physician who belonged to _____.
A England
B France
C U.S.A.
D Germany
Correct Ans: D

Itemcode : WM1096
Q96: What is the capital of Indonesia?
A Tehran
B Baghdad
C Jakarta
D Kuala Lumpur
Correct Ans: C

Itemcode : WM1097
Q97: When was Magna Carta signed by the king of England?
A 1215
B 1688
C 1832
D 1865
Correct Ans: A

Itemcode : WM1098
Q98: In which year did Lincoln deliver his famous Gettysburg speech?
A 1776

B	1815
C	1863
D	1885
Correct Ans: C	

Itemcode : WM1099	
Q99: Which is the hottest planet?	
A	Mars
B	Venus
C	Jupiter
D	Naptune
Correct Ans: B	

Itemcode : WM1100	
Q100: Which is the largest continent in the World?	
A	Africa
B	Australia
C	Europe
D	Asia
Correct Ans: D	