(Papers) SSC Junior Engineer Exam Paper - 2017 "held on 01 March 2017 "Afternoon Shift (General Engineering)

QID : 1001 - If 'L' is the span of a light suspension bridge, whose, each cable carries total weight (w) and the central dip is 'y', the horizontal pull at each support is _____.

Options:

1) wL/4y

2) wL/8y

3) wL/2y

4) wL/y

Correct Answer: wL/8y

QID : 1002 - The vehicle moving on a level circular path will exert pressure such that _____.

Options:

1) the reaction on the outer wheels will be more

2) the reaction on the inner wheels will be more

3) the reaction on the inner wheels as well as on the outer wheels will be equal

4) it depends on the speed

Correct Answer: the reaction on the outer wheels will be more

QID : 1003 - Which one of the following laws is not applicable for a simple pendulum?

Options:

1) the time period does not depend on its magnitude

2) the time period is proportional to its length

3) the time period is proportional to square root of its length

4) the time period is inversely proportional to square root of its acceleration due to gravity

Correct Answer: the time period is proportional to square root of its length

QID : 1004 - In order to double the period of a simple pendulum _____.

Options:

1) the mass of its bob should be doubled

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2) the mass of its bob should be quadrupled

3) its length should be doubled

4) its length should be quadrupled

Correct Answer: its length should be quadrupled

QID : 1005 - A body is vibrating at 10 vibrations/second in Simple Harmonic Motion of 10 cm amplitude. The maximum velocity in cm/sec can be _____.

Options:

1) 100π

2) 50π

3) 200π

4) 100

Correct Answer: 200π

QID : 1006 - The sum of kinetic and potential energy of a falling body _____.

Options:

1) is constant at all points

2) varies from point to point

3) is maximum at starting and goes on increasing

4) is maximum at starting and goes on decreasing

Correct Answer: is constant at all points

QID : 1007 - If two bodies, one light and other heavy, have equal kinetic energy, which one has a greater momentum?

Options:

1) the heavy body

2) the light body

3) both have equal momentum

4) unpredictable

Correct Answer: the heavy body

QID : 1008 - A bucket of water weighing 10 kg is pulled up from a 20 m deep well by a rope weighing 1 kg/m length, then the work done is _____.

Options:

1) 200 kg-m

2) 400 kg-m

3) 500 kg-m

4) 600 kg-m

Correct Answer: 400 kg-m

QID : 1009 - Which of the following is an example of a body undergoing translational equilibrium?

Options:

1) a body at rest on a table

2) a body travelling in a circular path at a constant speed

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3) a body rotating with constant angular speed about an axis

4) a body sliding down a frictionless inclined plane

Correct Answer: a body at rest on a table

QID : 1010 - A boy is swinging on a swing. If another boy sits along with him without disturbing his motion, then the time period of swing will _____.

Options:

1) increase

2) decrease

3) be doubled

4) remain the same

Correct Answer: remain the same

QID : 1011 - The type of motion when the acceleration is proportional to displacement is called _____.

Options:

1) translation

2) rotational

3) gyroscopic

4) simple harmonic

Correct Answer: simple harmonic

QID : 1012 - The escape velocity of a body on earth _____.

Options:

1) increases with the increase of its mass

2) decreases with the increase of its mass

3) remains unchanged with variation of mass

4) varies as the square of the change in mass

Correct Answer: remains unchanged with variation of mass

QID : 1013 - The velocity of the satellite in an orbit close to earth's surface depends on _____.

Options:

1) radius of the orbit only

2) acceleration due to gravity only

3) square root of product of radius of the orbit and acceleration due to gravity

4) product of radius of the orbit and gravitational constant

Correct Answer: square root of product of radius of the orbit and acceleration due to gravity

QID : 1014 - A circular disc rolls down an inclined plane, the fraction of its total energy associated with its rotation is _____.

Options:

1) 1/2

2) 1/3

3) 1/4

4) 2/3

Correct Answer: 1/3

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QID : 1015 - An object weighs 60 gm in air, 50 gm in water and 40 gm in oil. Then the specific gravity of the oil will be _____.

Options:

1) 0.25

2) 1

3) 1.5

4) 2

Correct Answer: 2

QID : 1016 - The value of coefficient of velocity compared to coefficient of discharge _____.

Options:

1) is less

2) is more

3) has no relation

4) is the same

Correct Answer: is more

QID : 1017 - Property of a fluid by which molecules of different kinds of fluids are attracted to each other is called _____.

Options:

1) adhesion

2) cohesion

3) viscosity

4) compressibility

Correct Answer: adhesion

QID : 1018 - The depth of water below the spillway and after hydraulic jump are 1 m and 6 m respectively. The head loss will be _____.

Options:

1) 1.04 m

2) 5 m

3) 1.7 m

4) 2.05 m

Correct Answer: 1.04 m

QID : 1019 - If no resistance is encountered by displacement, such a substance is known as _____.

Options:

1) fluid

2) water

3) gas

4) ideal fluid

Correct Answer: ideal fluid

QID : 1020 - Head loss in turbulent flow in a pipe _____.

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Options:

1) varies directly as velocity

2) varies inversely as square of velocity

3) varies approximately as square of velocity

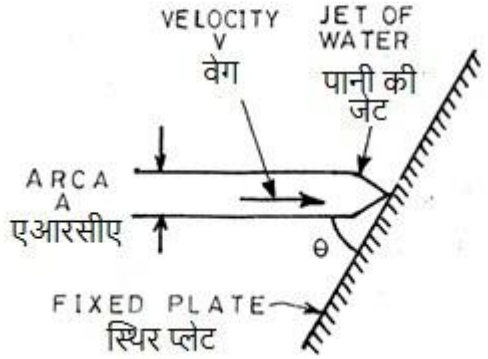
4) depends upon orientation of pipe

Correct Answer: varies approximately as square of velocity

QID : 1021 -

The force exerted by the jet on fixed plate shown in the figure below is equal to :

नीचे दी आकृति में स्थिर प्लेट में जेट द्वारा लगाया गया बल कितना होगा?



Options:

1) AV2 sin θ

2) ρAV2 sin θ

3) ρAV2 cos θ

4) AV2 tan θ

Correct Answer: ρAV2 sin θ

QID : 1022 - A weir system in which the downstream water level of the weir nappe is higher than the crest is called _____.

Options:

1) submerged

2) overflowing

3) broad-crested

4) cipoletti

Correct Answer: submerged

QID : 1023 - For starting an axial flow pump, its delivery valve should be _____.

Options:

1) closed

2) open

3) depends on starting condition and flow desired

4) could be either open or closed

Correct Answer: open

QID : 1024 - Equation of continuity results from the principal of conservation of _____.

Options:

1) energy

2) flow

3) mass

4) momentum

Correct Answer: mass

QID : 1025 - When a piping system is made up primarily of friction head and very little of vertical lift, then pipe characteristics should be _____.

Options:

1) horizontal

2) nearly horizontal

3) very steep

4) first rise and then fall

Correct Answer: nearly horizontal

QID : 1026 - The hydraulic mean depth for a circular pipe of diameter 'd' running full is equal to _____.

Options:

1) d

2) d/3

3) d/2

4) d/4

Correct Answer: d/4

QID : 1027 - In a centrifugal pump, the liquid enters the pump from _____.

Options:

1) the top

2) the bottom

3) the centre

4) from sides

Correct Answer: the centre

QID : 1028 -

Head loss in a flowing fluid is experienced due to _____.

A. friction at surface

B. change of direction

C. change of section of passage

D. obstruction in passage

Options:

1) only A

2) only B

3) only B and C

4) A, B, C and D

Correct Answer: A, B, C and D

QID : 1029 - High specific speed of turbine implies that it is _____.

Options:

1) propeller turbine

2) Francis turbine

3) Impulse turbine

4) Francis turbine or impulse turbine

Correct Answer: propeller turbine

QID : 1030 - One dimensional flow is _____.

Options:

1) restricted to flow in a straight line

2) uniform flow

3) one which neglects changes in a transverse direction

4) the most general flow

Correct Answer: one which neglects changes in a transverse direction

QID : 1031 - Specific speed of a turbine depends upon _____.

Options:

1) speed, power and discharge

2) discharge and power

3) speed and head

4) speed, power and head

Correct Answer: speed, power and head

QID : 1032 - If a mouthpiece is running full at the outlet, the vacuum at vena-contracta _____.

Options:

1) increases velocity of jet.

2) decreases velocity of jet

3) decreases the discharge

4) decreases the value of coefficient of contraction

Correct Answer: increases velocity of jet.

QID : 1033 - When a fluid flows in concentric circles, it is known as _____.

Options:

1) free circular motion

2) free rotational motion

3) free spiral vortex flow

4) free cylindrical vortex flow

Correct Answer: free cylindrical vortex flow

QID : 1034 - Maximum impulse will be developed in hydraulic ram when _____.

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Options:

1) when valve closes suddenly

2) supply pipe is long

3) supply pipe is short

4) ram chamber is large

Correct Answer: when valve closes suddenly

QID : 1035 - Critical-depth meter is used to measure _____.

Options:

1) discharge in an open channel

2) hydraulic jump

3) depth of flow in channel

4) depth of channel

Correct Answer: discharge in an open channel

QID : 1036 - Medium specific speed of a pump implies that it is _____.

Options:

1) centrifugal pump

2) mixed flow pump

3) axial flow pump

4) axial flow pump or centrifugal pump

Correct Answer: mixed flow pump

QID : 1037 - The hydraulic grade line is _____.

Options:

1) always moving up

2) always moving down

3) always above the energy grade line

4) the velocity head below the energy grade line

Correct Answer: the velocity head below the energy grade line

QID : 1038 - The ratio of depth of bucket for a Pelton wheel to the diameter of jet is of the order of _____.

Options:

1) 1

2) 1.2

3) 1.5

4) 1.8

Correct Answer: 1.2

QID : 1039 - The contraction of area for flow through orifice in tank depends on _____.

A. shape of orifice

B. size of orifice

C. head in tank

Options:

1) only A

2) only A and B

3) only A and C

4) A, B and C

Correct Answer: A, B and C

QID : 1040 - The flow at critical depth in an open channel is _____.

Options:

1) maximum

2) minimum

3) zero

4) half of normal flow

Correct Answer: maximum

QID : 1041 - In Kaplan turbine runner, the number of blades is generally of the order _____.

Options:

1) 2 – 4

2) 4 – 8

3) 8 – 16

4) 16 – 24

Correct Answer: 4 – 8

QID : 1042 - Air vessels in reciprocating pump are used to _____.

Options:

1) smoothen flow

2) reduce acceleration to minimum

3) increase pump efficiency

4) save pump from cavitation

Correct Answer: reduce acceleration to minimum

QID : 1043 - A hydraulic intensifier normally consists of _____.

Options:

1) two cylinders, two rams and a storage device

2) a cylinder and a ram

3) two co-axial rams and two cylinders

4) a cylinder, a piston, storage tank and control valve

Correct Answer: two co-axial rams and two cylinders

QID : 1044 - Cavitation is caused by _____.

Options:

1) high velocity

2) high pressure

3) weak material

4) low pressure

Correct Answer: low pressure

QID : 1045 - Which of the following pumps is used for pumping viscous fluids?

Options:

1) centrifugal pump

2) screw pump

3) reciprocating pump

4) jet pump

Correct Answer: screw pump

QID : 1046 - Steel whose elements are used for the purpose of modifying the mechanical properties of plain carbon steel is called _____.

Options:

1) Alloy steel

2) Invar

3) Stainless steel

4) High speed steel

Correct Answer: Alloy steel

QID : 1047 - Alloy steel containing 36% nickel is called _____.

Options:

1) Invar

2) Stainless steel

3) High speed steel

4) None of these

Correct Answer: Invar

QID : 1048 - Carbon steel is _____.

Options:

1) produced by adding carbon in steel

2) an alloy of iron and carbon with varying quantities of phosphorus and sulphur

3) purer than the cast iron

4) None of these

Correct Answer: an alloy of iron and carbon with varying quantities of phosphorus and sulphur

QID : 1049 - Percentage of carbon in steel is _____.

Options:

1) 0.1% to 0.8%

2) 0.35% to 0.45%

3) 1.8% to 4.2%

4) 0.1% to 1.5%

Correct Answer: 0.1% to 1.5%

QID : 1050 - Hardness of steel depends on _____.

Options:

1) amount of cementite it contains

2) amount of carbon it contains

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3) contents of alloying elements

4) method of manufacture of steel

Correct Answer: amount of carbon it contains

QID : 1051 - _____ is added to raise the yeild point of low carbon steel.

Options:

1) Silicon

2) Carbon

3) Phosphorous

4) Sulphur

Correct Answer: Phosphorous

QID : 1052 - An alloy steel contains _____.

Options:

1) more than 0.5% Mn and 0.5% Si

2) less than 0.5% Mn and 0.5% Si

3) more than 0.35% Mn and 0.5% Si

4) less than 0.35% Mn and 0.5% Si

Correct Answer: more than 0.5% Mn and 0.5% Si

QID : 1053 - Alloy steel as compared to carbon steel is more _____.

A. tough

B. b

C. fatigue resistance

Options:

1) only A

2) only B

3) only C

4) None of these

Correct Answer: None of these

QID : 1054 - Steel which destroys by burning is called _____.

Options:

1) Alloy steel

2) Carbon steel

3) Silicon steel

4) Killed steel

Correct Answer: Killed steel

QID : 1055 - In steel, main alloy causing corrosion resistance is _____.

Options:

1) Manganese

2) Vanadium

3) Chromium

4) Cobalt

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Correct Answer: Chromium

QID : 1056 - The crest diameter of a screw thread is same as _____.

Options:

1) major diameter

2) minor diameter

3) pitch diameter

4) core diameter

Correct Answer: major diameter

QID : 1057 - The function of a washer is to _____.

Options:

1) provide cushioning effect

2) provide bearing area

3) absorb shocks and vibrations

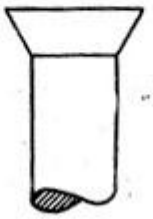
4) provide smooth surface in place of rough surface

Correct Answer: provide bearing area

QID : 1058 -

The rivet head for general purpose shown in the figure below is :

नीचे दर्शाई गई आकृति में सामान्य उद्देश्यों के लिए प्रयोग होने वाली कीलक शीर्ष (रिवेट हैड) :



Options:

1) snap

2) pan

3) counter sunk

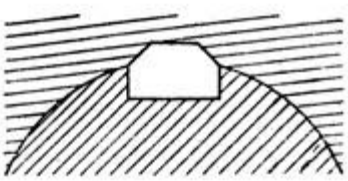
4) flat

Correct Answer: counter sunk

QID : 1059 -

The key shown in the figure below is :

नीचे दर्शाई गई आकृति में कुंजी कौन सी है?



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Options:

1) Lewis key

2) Kennedy key

3) Pin key

4) Barth key

Correct Answer: Barth key

QID : 1060 - Fibrous fracture occurs in _____.

Options:

1) ductile material

2) brittle material

3) elastic material

4) hard material

Correct Answer: ductile material

QID : 1061 - For tight leakage joints, following type of thread is best suited _____.

Options:

1) metric

2) buttress

3) NPT (National Pipe Threads)

4) acme

Correct Answer: NPT (National Pipe Threads)

QID : 1062 - A backing ring is used inside the pipe joint when making a _____.

Options:

1) butt weld

2) fillet weld

3) sleeve weld

4) socket weld

Correct Answer: butt weld

QID : 1063 - Which of the following pipe joints would be suitable for pipes carrying steam?

Options:

1) flanged

2) threaded

3) bell and spigot

4) expansion

Correct Answer: expansion

QID : 1064 - Antifriction bearings are:-

A. Sleeve bearings

B. Hydrodynamic bearings

C.Thin lubricated bearings

D. Ball and roller bearings

Options:

1) only A

2) only B and C

3) only C

4) None of these

Correct Answer: None of these

QID : 1065 - In V-belt drive, belt touches _____.

Options:

1) at bottom

2) at sides only

3) both at bottom and sides

4) could touch anywhere

Correct Answer: at sides only

QID : 1066 - In standard taper roller bearings, the angle of taper of outer raceway is _____.

Options:

1) 5°

2) 8°

3) 15°

4) 25°

Correct Answer: 25°

QID : 1067 - Basic shaft is one _____.

Options:

1) whose upper deviation is zero

2) whose lower deviation is zero

3) whose lower as well as upper deviations are zero

4) does not exist

Correct Answer: whose upper deviation is zero

QID : 1068 - Allen bolts are _____.

Options:

1) self-locking bolts

2) designed for shock load

3) used in aircraft application

4) provided with hexagonal depression in head

Correct Answer: provided with hexagonal depression in head

QID : 1069 - If the tearing efficiency of a riveted joint is 60%, then ratio of rivet hole diameter to the pitch of rivets is _____.

Options:

1) 0.2

2) 0.33

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3) 0.4

4) 0.5

Correct Answer: 0.4

QID : 1070 - A riveted joint may fail due to:-

A. Shearing of the rivet

B. Shearing off the plate at an edge

C. Crushing of the rivet

Options:

1) only A

2) only B

3) only C

4) Any of A or B or C

Correct Answer: Any of A or B or C

QID : 1071 - The same volume of all gases would represent their _____.

Options:

1) densities

2) specific weights

3) molecular weights

4) gas characteristics constants

Correct Answer: molecular weights

QID : 1072 - Extensive property of a system is one whose value _____.

Options:

1) depends on the mass of the system, like volume

2) does not depend on the mass of the system, like temperature, pressure etc.

3) is not dependent on the path followed but on the state

4) is dependent on the path followed and not on the state

Correct Answer: depends on the mass of the system, like volume

QID : 1073 - In an isothermal process, the internal energy of gas molecules _____.

Options:

1) increases

2) decreases

3) remains constant

4) may increase/decrease depending on the properties of gas

Correct Answer: remains constant

QID : 1074 - The more effective way of increasing efficiency of Carnot engine is to _____.

Options:

1) increase higher temperature

2) decrease higher temperature

3) increase lower temperature

4) decrease lower temperature

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Correct Answer: decrease lower temperature

QID : 1075 - Under ideal conditions, isothermal, isobaric, isochoric and adiabatic processes are _____.

Options:

1) static processes

2) dynamic processes

3) quasi-static processes

4) stable processes

Correct Answer: quasi-static processes

QID : 1076 - Total heat of a substance is also known as _____.

Options:

1) internal energy

2) entropy

3) thermal capacity

4) enthalpy

Correct Answer: enthalpy

QID : 1077 - In a Carnot cycle, heat is transferred at _____.

Options:

1) constant pressure

2) constant volume

3) constant temperature

4) constant enthalpy

Correct Answer: constant temperature

QID : 1078 - Change of entropy depends upon _____.

Options:

1) change of mass

2) change of temperature

3) change of specific heats

4) change of heat

Correct Answer: change of heat

QID : 1079 - Compressed air coming out from a punctured football _____.

Options:

1) becomes hotter

2) becomes cooler

3) remains at the same temperature

4) may become hotter or cooler depending upon the humidity of the surrounding air

Correct Answer: becomes cooler

QID : 1080 - The ratio of actual cycle efficiency to that of ideal cycle efficiency is called _____.

Options:

1) effectiveness

2) work ratio

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3) efficiency ratio

4) isentropic efficiency

Correct Answer: efficiency ratio

QID : 1081 - Which of the following cycles is not a reversible cycle?

A. Carnot

B. Ericsson

C. Stirling

D. Joule

Options:

1) only A

2) only A and B

3) only C

4) None of these

Correct Answer: None of these

QID : 1082 - A system will be thermodynamic equilibrium only if it is in _____.

A. Thermal equilibrium

B. Mechanical equilibrium

C. Chemical equilibrium

Options:

1) only A

2) only B

3) only C

4) A, B and C

Correct Answer: A, B and C

QID : 1083 - Two gases A and B with their molecular weights 28 and 44 respectivelly, expand at constant pressures through the same temperature range. The ratio of quantity of work done by the two gases (A:B) is _____.

Options:

1) 7:11

2) 11:7

3) 4:11

4) 7:4

Correct Answer: 11:7

QID : 1084 - Davis steering gear consists of _____.

Options:

1) Sliding pairs

2) Turning pairs

3) Rolling pairs

4) Higher pairs

Correct Answer: Sliding pairs

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QID : 1085 - Properties of substances like pressure, temperature and density, in thermodynamic co-ordinates are _____.

Options:

1) path functions

2) point functions

3) cyclic functions

4) real functions

Correct Answer: point functions

QID : 1086 - The refrigeration plants are charged by refrigerants from the cylinder at the _____.

Options:

1) suction of compressor

2) crank case of compressor

3) evaporator

4) receiver

Correct Answer: receiver

QID : 1087 - Which of the following refrigerant characteristics change constantly during the cooling cycle?

Options:

1) pressure and phase

2) temperature and pressure

3) phase and flow

4) flow and pressure

Correct Answer: temperature and pressure

QID : 1088 - Moisture in a refrigerant system is removed by _____.

A. Driers

B. Filter driers

C. Desiccants

Options:

1) only A

2) only B

3) only C

4) A, B and C

Correct Answer: A, B and C

QID : 1089 - The most suitable refrigerant for a commercial ice plant is _____.

Options:

1) Brine

2) NH3

3) Freon

4) Air

Correct Answer: NH3

QID : 1090 - Fittings in ammonia absorption refrigeration system are made of _____.

Options:

1) Cast steel or forgings

2) Copper

3) Brass

4) Aluminium

Correct Answer: Cast steel or forgings

QID : 1091 - Lithium bromide in vapour absorption refrigeration system is used as _____.

Options:

1) refrigerant

2) cooling substance

3) auxiliary refrigerant

4) absorbent

Correct Answer: absorbent

QID : 1092 - The condenser and evaporator tubes in a Freon refrigeration plant are made of _____.

Options:

1) steel

2) copper

3) brass

4) aluminium

Correct Answer: copper

QID : 1093 - Vertical lines on pressure-enthalpy chart show constant _____.

Options:

1) pressure lines

2) temperature lines

3) total heat lines

4) entropy lines

Correct Answer: total heat lines

QID : 1094 - The coefficient of performance is the ratio of the refrigerant effect to the _____.

A. Heat of compression

B. Work done by compressor

C. Enthalpy increase in compressor

Options:

1) only A

2) only B

3) only C

4) A, B and C

Correct Answer: A, B and C

QID : 1095 - Moisture in Freon refrigeration system causes _____.

Options:

1) ineffective refrigeration

2) high power consumption

3) freezing automatic regulating valve

4) corrosion of whole system

Correct Answer: freezing automatic regulating valve

QID : 1096 - Efficiency of the Carnot engine is given as 80%. If the cycle direction be reversed, what will be the value of coefficient of performance of reversed Carnot cycle?

Options:

1) 1.25

2) 0.8

3) 0.5

4) 0.25

Correct Answer: 0.25

QID : 1097 - During the sensible cooling process _____.

Options:

1) specific humidity remains constant

2) specific humidity increases

3) specific humidity decreases

4) specific humidity is unpredictable

Correct Answer: specific humidity remains constant

QID : 1098 - On psychrometric chart, wet bulb temperature lines are _____.

Options:

1) horizontal

2) vertical

3) straight inclined sloping downward to the right

4) curved

Correct Answer: straight inclined sloping downward to the right

QID : 1099 - If air is heated without changing its moisture content, the dew point will _____.

Options:

1) increase

2) decrease

3) remain the same

4) unpredictable

Correct Answer: remain the same

QID : 1100 - Air is normally dehumidified by _____.

Options:

1) injecting water

2) passing steam

3) heating

4) cooling

Correct Answer: cooling

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