Subject Code : $104 \vee$

| Subject Code | Exam Date | $\begin{aligned} & \mathbf{Q} \\ & \text { Id } \end{aligned}$ | Questions | Answer Key |
| :---: | :---: | :---: | :---: | :---: |
| 104 | 21-01-2021 | 241 | World consumer rights day is on <br> (A) March 10 <br> (B) March 15 <br> (C) May 10 <br> (D) May 15 | (B) |
| 104 | 21-01-2021 | 242 | Who among the following is NOT a recepient of Mother Teresa Memorial Awards for Social Justice 2020 (by Harmony Foundation, an international NGO) with the theme for the year being "Celebrating Compassion in times of Covid"? <br> (A) Father Fabio Stevenazzi, Milan, Italy <br> (B) Shri Sanjay Pandey IPS, DG Home Guards, Maharashtra <br> (C) Smt KK Shailaja, Minister of Health, Kerala <br> (D) Shri Vinod Kumar Yadav, Chairman \& CEO of Railway Board | (D) |
| 104 | 21-01-2021 | 243 | India's first indigenous 9 mm Machine Pistol named "Asmi" has been jointly developed by and Indian Army, recently, in a record time of four months. <br> (A) DRDO <br> (B) SAIL <br> (C) HAL <br> (D) NTPC | (A) |
| 104 | 21-01-2021 | 244 | Which country has recently launched Toycathon2021 and the Toycathon Portal, the project is being organized to develop the country as the global Toy manufacturing hub? | (C) |


|  |  |  | (A) China <br> (B) USA <br> (C) India <br> (D) Japan |  |
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| 104 | 21-01-2021 | 245 | COVAXIN, India's indigenous COVID-19 vaccine is developed by $\qquad$ in collaboration with the Indian Council of Medical Research (ICMR) - National Institute of Virology (NIV). <br> (A) CanSino Biologics <br> (B) Bharat Biotech <br> (C) Pfizer <br> (D) Zydus Cadila | (B) |
| 104 | 21-01-2021 | 246 | Look carefully for the pattern, and then choose which pair of numbers comes next. $2444416388$ <br> (A) 1012 <br> (B) 3532 <br> (C) 349 <br> (D) 3510 | (D) |
| 104 | 21-01-2021 | 247 | Five friends A, B, C, D and E travelled from Tamil Nadu to five different states Uttar Pradesh, Maharashtra, Rajasthan, Karnataka and Punjab by 5 different modes of transport: Cycle, Bus, Train, Truck, and Bike. The one who travelled to Rajasthan did not travel by Bike. C went to Karnataka by Truck and B went to Maharashtra by Train. D travelled by Bike and E travelled by Bus. Tamil Nadu is not connected by Cycle to Uttar Pradesh and Rajasthan. Which state did E travel to? <br> (A) Punjab <br> (B) Uttar Pradesh <br> (C) Rajasthan | (C) |

(D) None of the options

Grain : Stock : : Stick : ?
(A) Bundle
(B) String
(C) Collection
(D) Heap

Read the following instructions:
P \$ Q means P is the brother of Q ;
$\mathrm{P} \# \mathrm{Q}$ means P is the mother of Q ;
$\mathrm{P}^{*} \mathrm{Q}$ means P is the daughter of Q
If the code of family is A \# B \$ C * D, who is the father among them?
(A) D
(B) B
(C) C
(D) A

In a row of persons, the position of Sakshi from the left side of the row is 26 th and position of Sakshi from the right side of the row is 35 th. Find the total number of students in the row?
(A) 67
(B) 32
(C) 46
(D) 60

Arrange in proper sequence to form a meaningful

## Since the advent of smartphones

A. they are only licensed to use it
B. to accept that they do not control
C. the software in their devices;
D. consumers have been forced
(A) ABCD
(B) DABC
(C) DBCA
(D) CBAD

Choose the synonym of the word "Incur"
(A) Misunderstand
(B) Push
(C) Gain
(D) Discourage

Find out whether there is any Grammatical error in the underlined part of the below sentence. If yes, indicate the correct answer among the given options, else indicate "No correction":

They were all shocked at his failure in the competition.
(A) were shocked at all
(B) had all shocked
(C) had been all shocked on
(D) No correction

Fill up with the correct preposition:
When we get ready for dinner, I have to take my books $\qquad$ the table.
(A) Off
(B) From
(C) Out
(D) Of

## "The employer appeared to be in such an affable mood that Rohit ......

(A) decided to ask for a raise in his salary
(B) was scared to talk to him about his leave
(C) felt very guilty for his inadvertent slip
(D) promised him that he would not commit mistake again

What is the correct meaning of the underlined phrase in the following sentence:

I met him for help, but he sent me away to a place that provides refuge.
(A) Sanatorium
(B) Shelter
(C) Orphanage
(D) Asylum

Antonym of crestfallen
(A) cheerful
(B) disturbed
(C) indignant
(D) dismayed
(C) I have my M.Sc. degree in 1988.
(D) I get my M.Sc. degree in 1988.

Choose the option that completes the sentence most

They were $\qquad$ amazed at the turn of events.
(A) quiet
(B) quite
(C) solemn
(D) rightful

Choose the correct alternative which can be substituted for the below given sentence:
'A person of good understanding knowledge and reasoning power'
(A) Expert
(B) Snob
(C) Literate
(D) Intellectual

39 persons can repair a road in 12 days, working 5 hours a day. In how many days will 30 persons, working 6 hours a day, complete the work?
(A) 10
(B) 13
(C) 16
(D) 18

A person walking at 4 Kmph reaches his office 8 minutes late. If he walks at 6 Kmph , he reaches there 8 minutes earlier. How far is the office from his house?
(A) $41 / 5 \mathrm{Km}$
(B) $21 / 5 \mathrm{Km}$
(C) $31 / 5 \mathrm{Km}$
(D) $51 / 5 \mathrm{Km}$

| 104 | 21-01-2021 | 263 | The length of a rectangular plot is 20 metres more than its breadth. If the cost of fencing the plot @ 26.50 per metre is Rs. 5300 , what is the length of the plot in metres? <br> (A) 60 <br> (B) 50 <br> (C) 40 <br> (D) 30 | (A) |
| :---: | :---: | :---: | :---: | :---: |
| 104 | 21-01-2021 | 264 | A is twice as good as workman B and together they finish a piece of work in 18 days. In how many days will B alone finish the work? <br> (A) 27 days <br> (B) 68 days <br> (C) 56 days <br> (D) 54 days | (D) |


| 104 | 21-01-2021 | 265 | The least number, which when divided by $12,15,20$ and 54 leaves in each case a remainder of 8 is: <br> (A) 544 <br> (B) 548 <br> (C) 504 <br> (D) 536 | (B) |
| :---: | :---: | :---: | :---: | :---: |
| 104 | 21-01-2021 | 266 | Find the number which when multiplied by 15 is increased by 196 . <br> (A) 10 <br> (B) 12 <br> (C) 14 <br> (D) 16 | (C) |
| 104 | 21-01-2021 | 267 | If the length of a rectangle is halved and its breadth is tripled, what is the percentage change in its area? | (A) |

(A) $50 \%$ increase
(B) $25 \%$ increase
(C) $25 \%$ decrease
(D) $50 \%$ decrease

A man takes twice as long to row a distance against the stream as to row the same distance in favour of the stream. The ratio of the speed of the boat (in still water) and the stream is:
(A) $3: 1$
(B) $3: 2$
(C) $4: 3$
(D) $2: 1$
(A)
$\square$

Average of 10 matches is 32 . How many runs one should score to increase his average by 4 runs?
(A) 70
(B) 78
(C) 80
(D) 76
(B) 40
(C) 35
(D) 30

271 Arc length in arc welding should be equal to
(A) half the diameter of electrode rod
(B) electrode rod diameter
(C) twice the electrode rod diameter
(D) 2.5 times the electrode rod diameter

The number of helical groves which are present in a standard twist drill is usually
(A) one
(B) two
(C) three
(D) four

If the temperature of intake air in IC engines is lowered, then its efficiency will
(A) increase
(B) decrease
(C) remain same
(D) increase up to a certain limit and then decrease

Work done in a free expansion process is
(A) positive
(B) negative
(C) zero
(D) can be positive or negative

104
21-01-2021
274

In an isothermal process, the internal energy
(A) increase
(B) decrease
(C) remains constant
(D) first increase and then decrease

The property of a material which allows it to be
(B) ductility
(C) elasticity
(D) malleability

The point of contraflexure is a point where
(A) shear force is zero
(B) shear force changes sign
(C) bending moment changes sign
(D) bending moment is maximum

Which of the following instruments is most accurate?
(A) micrometer screw gauge
(B) vernier calliper
(C) vernier dial gauge
(D) optical projector

For supplying intermittent small quantity of air a high pressure, following compressor is best suited
(A) centrifugal
(B) reciprocating
(C) axial
(D) screw
(C) axial flow pump
(D) reciprocating flow pump
(A) horizontal fire tube boiler
(B) horizontal water tube boiler
(C) vertical water tube boiler
(D) vertical fire tube boiler

One ton of refrigeration is equal to the refrigeration effect corresponding to melting of 1000 kg of ice in
(A) 1 hour
(B) 1 minute
(C) 1 sec
(D) 24 hours
(D)

A systematic approach for maintenance is
(A) Problem - Cause - Diagnosis - Rectification
(B) Problem- Diagnosis - Cause - Rectification
(C) Problem - Measure - Diagnosis - Rectification
(D) Problem- Diagnosis - Measure - Rectification

ABC analysis is related to
(A) inventory management
(B) maintenance management
(C) Design analysis
(D) None of the options

In machine tools, chatter is due to
(A) free vibrations
(B) random vibrations
(C) forced vibrations
(D) self excited vibrations

|  |  |  |  |
| :---: | :---: | :---: | :---: |

(D)
(A)
(A) creep
(B) fatigue
(C) endurance
(D) plastic deformation

From design 'point of view' spherical pressure vessels are preferred over cylindrical pressure vessels because they
(A) are cost effective in fabrication
(B) have uniform higher circumferential stress
(C) uniform lower circumferential stress
(D) have a larger volume for the same quantity of material used

The capacity of an air compressor is specified as $10 \mathrm{~m}^{3} / \mathrm{min}$. It means the compressor is capable of
(A) supplying $3 \mathrm{~m}^{3}$ of compressed air per minute
(B) compressing $3 \mathrm{~m}^{3}$ of free air per minute
(C) supplying $3 \mathrm{~m}^{3}$ of compressed air at NTP
(D) compressing $3 \mathrm{~m}^{3}$ of standard air per minute

In a gas turbine cycle, the turbine output is 600 $\mathrm{KJ} / \mathrm{kg}$, the compressor work is $400 \mathrm{KJ} / \mathrm{kg}$ and heat supplied is $1000 \mathrm{KJ} / \mathrm{kg}$. The thermal efficiency of this cycle is
(A) $80 \%$
(B) $60 \%$
(C) $40 \%$
(D) $20 \%$

290 In the rolling process, roll separating force can be
(A) reducing the roll diameter
(B) increasing the roll diameter
(C) providing back-up rolls
(D) increasing the friction between the rolls and the metals

Which one of the following sets of tools or tools and process are normally employed for making large diameter holes?
(A) Boring Tool
(B) BTA tool(Boring and Trepanning Association)
(B) and gun drill
(C) Gun drill and boring Tool
(D) Boring tool and trepanning

For a given material, the modulus of rigidity is 100 GPa and Poisson's ratio is 0.25 . The value of modulus of elasticity in GPa is
(A) 12.5
(B) 15
(C) 20
(D) 25
a summer day, a scooter rider feels more comfortable while on the move than while at a stop light because
(A) an object in motion captures less solar radiation
(B) air is transparent to radiation and hence it is cooler than the body
(C) more heat is lost by convection while in motion
(D) air has a low specific heat and hence it is cooler

Welding is difficult in aluminium than on steel

|  |  |  | (A) Oxide layer on aluminium has higher melting point than pure aluminium <br> (B) high thermal conductivity <br> (C) more reactive than steel <br> (D) All of the options |  |
| :---: | :---: | :---: | :---: | :---: |
| 104 | 21-01-2021 | 295 | Misrun is a casting defect which occurs due to <br> (A) very high pouring temperature of the metal <br> (B) insufficient fluidity of the molten metal <br> (C) absorption of gases by the liquid metal <br> (D) improper alignment of the mould flasks | (B) |
| 104 | 21-01-2021 | 296 | Tin base white metals are used where the bearings are subjected to <br> (A) large surface wear <br> (B) elevated temperatures <br> (C) light load and pressure <br> (D) high pressure and load | (A) |
| 104 | 21-01-2021 | 297 | Small amount of which one of the following elements/ pairs is added to steel to increase machinabilty <br> (A) Nickel <br> (B) Sulphur and Phosporous <br> (C) Silicon <br> (D) Manganese and Copper | (B) |
| 104 | 21-01-2021 | 298 | In Welding electrode E7018 which digit denotes type of coating? <br> (A) 7 <br> (B) 0 | (D) |


|  |  |  | (C) 1 <br> (D) 8 |  |
| :---: | :---: | :---: | :---: | :---: |
| 104 | 21-01-2021 | 299 | Which weld defect is called delayed cracking? <br> (A) Cracks due to residual stresses <br> (B) Hydrogen induced cracks <br> (C) Undercuts <br> (D) Stress corrosion cracks | (B) |
| 104 | 21-01-2021 | 300 | Welding groove is designed based on <br> (A) The thickness of the base-metal <br> (B) Position of the weld <br> (C) Load carrying capacity of the weld <br> (D) All of the options | (D) |
| 104 | 21-01-2021 | 301 | When a shaft transmits power through gears, the shaft experiences <br> (A) torsional stresses alone <br> (B) bending stress alone <br> (C) constant bending and varying torsional stresses <br> (D) varying bending and constant torsional stress | (D) |
| 104 | 21-01-2021 | 302 | The sequence of markings "S $14 \mathrm{~K} \mathrm{S"} \mathrm{on} \mathrm{a} \mathrm{grinding}$ wheel represents $\qquad$ respectively <br> (A) bond type, structure, grade, grain size and abrassive type <br> (B) abrassive type, grain size, grade, structure and bond type <br> (C) bond type, grade, structure, grain size and abrassive type <br> (D) abrassive type, structure, grade, grain size and bond type | (B) |


| 104 | 21-01-2021 | 303 | Shaping of metal by squeezing them in between two or more dies in order to obtain desired shape is done by? <br> (A) Forming <br> (B) Forging <br> (C) Welding <br> (D) Grinding | (B) |
| :---: | :---: | :---: | :---: | :---: |
| 104 | 21-01-2021 | 304 | Forging is carried out at which temperature? <br> (A) Below recrystallization temperature <br> (B) Above recrystallization temperature <br> (C) Below or above recrystallization temperature <br> (D) Above melting point | (C) |
| 104 | 21-01-2021 | 305 | A round billet made of 70-30 brass is extruded at a temperature of $675^{\circ} \mathrm{C}$. The billet diameter is 125 mm , and the diameter of the extrusion is 50 mm . Calculate the extrusion force required. <br> (A) 4 MN <br> (B) 5 MN <br> (C) 5.6 MN <br> (D) None of the options | (C) |
| 104 | 21-01-2021 | 306 | Forging of a plain carbon steel is carried out...... <br> (A) $750 \operatorname{deg} \mathrm{C}$ <br> (B) $900 \operatorname{deg} \mathrm{C}$ <br> (C) 1100 deg C <br> (D) 1300 degC | (D) |
| 104 | 21-01-2021 | 307 | What is the process of penetrating excessively in a localised metal area? <br> (A) Under-cutting | (B) |


|  |  |  | (B) Burn-through <br> (C) Slope <br> (D) None of the options |  |
| :---: | :---: | :---: | :---: | :---: |
| 104 | 21-01-2021 | 308 | In carbon arc welding processes, which of the following gases is used as protection? <br> (A) Methane <br> (B) Carbon dioxide <br> (C) Carbon monoxide <br> (D) Nitrogen dioxide | (C) |
| 104 | 21-01-2021 | 309 | The combustion in compression ignition engine is <br> (A) homogeneous <br> (B) heterogeneous <br> (C) laminar <br> (D) None of the options | (B) |
| 104 | 21-01-2021 | 310 | The degree of reaction is defined as the ratio <br> (A) Heat drop in the fixed blades to the heat drop in the moving blades <br> (B) Heat drop in the moving blades to the heat drop in the fixed blades <br> (C) Heat drop in the moving blades to the total heat drop in the fixed blades <br> (D) Heat drop in the fixed blades to the total heat drop in the moving blades | (C) |
| 104 | 21-01-2021 | 311 | In heat treatment process annealing is done to <br> (A) Increase the toughness <br> (B) Increase the softness <br> (C) Increase the hardness <br> (D) Increase the brittleness | (B) |


| 104 | 21-01-2021 | 312 | Hardenability of steel is assessed by <br> (A) impact test <br> (B) Jominy end-quench test <br> (C) hardness test <br> (D) non-destructive test | (B) |
| :---: | :---: | :---: | :---: | :---: |
| 104 | 21-01-2021 | 313 | The vertical distance between the axis of the beam before and after loading at a point is called as <br> (A) deformation <br> (B) deflection <br> (C) slope <br> (D) None of the options | (B) |
| 104 | 21-01-2021 | 314 | The least count of vernier caliper is <br> (A) 0.1 mm <br> (B) 0.01 mm <br> (C) 0.05 mm <br> (D) 0.02 mm | (D) |
| 104 | 21-01-2021 | 315 | In which of the following layout type, materials are fed into the first machine and finished products come out of the last machine? <br> (A) product layout <br> (B) process layout <br> (C) fixed position layout <br> (D) cellular manufacturing layout | (A) |
| 104 | 21-01-2021 | 316 | A device used for lifting or lowering objects suspended from a hook at the end of retractable chains or cable is called <br> (A) hoist | (A) |

(B) jib crane
(C) portable elevator
(D) chain conveyor

Which of the following is not a type of industrial crane?
(A) Boom
(B) Jib
(C) Barrel
(D) Overhead
(C) scheduled maintenance
(D) preventive maintenance

Slip of reciprocating pump is defined as
(A) Sum of actual discharge and theoretical discharge
(B) Difference between actual discharge and theoretical discharge
(C) Ratio of actual discharge to theoretical discharge
(D) Product of actual discharge and theoretical discharge

The coefficient of performance of heat pump is always
(A) equal to one
(B) less than one
(C) greater than one
(D) None of the options

