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Participant Name	
Test Center Name	iON Digital Zone iDZ 2 Mathura Road
Test Date	30/11/2019
Test Time	12:00 PM - 1:30 PM
Subject	Senior Engineer (drilling)

Section : General English

Q.1 From the options given below choose the one that gives the meaning of the idiom printed in bold in the given sentence:

He shed only **crocodile tears**.

- Ans
- 1. A weeping sign
 - 2. Mild regret
 - 3. Pretended sadness
 - 4. Very gloomy

Question ID : 5944594021

Status : Answered

Chosen Option : 3

Q.2 Find out the misspelt word.

- Ans
- 1. jealous
 - 2. enhance
 - 3. technique
 - 4. essay

Question ID : 5944594019

Status : Answered

Chosen Option : 1

Q.3 Fill in the blank with the appropriate word from among the four options:

This leather has been processed and produced in the most famous _____.

- Ans
- 1. tannery
 - 2. brewery
 - 3. granary
 - 4. hosiery

Q.4 The sentence below has jumbled up parts. Rearrange these parts, which are labelled P, Q, R, S and T to produce the correct sentence. From the options given below choose the one that gives the proper sequence:

American (P)/ as men (Q)/ earn as much (R)/ it is true that (S)/ working women (T)

- Ans
- 1. QRPTS
 - 2. SPRTQ
 - 3. RTPSQ
 - 4. SPTRQ

Q.5 Choose the correct alternative which can be substituted for the word/ words in bold in the sentence.

She is **young** to go out alone.

- Ans
- 1. younger
 - 2. young enough
 - 3. very young
 - 4. too young

Q.6 From the options given below choose the one that shows error in the given sentence:

If my father will permit, I will go to Chennai tomorrow.

- Ans
- A B C D
- 1. D
 - 2. B
 - 3. C
 - 4. A

Q.7 Choose the correct synonym of the word printed in bold from the given options:

I am always **candid** in my discussion with you.

- Ans
- 1. evasive

- 2. humble
- 3. simple
- 4. frank

Question ID : 5944594017
Status : Answered
Chosen Option : 4

Q.8 The sentence below has jumbled up parts. Rearrange these parts, which are labelled P, Q, R, S and T to produce the correct sentence. From the options given below choose the one that gives the proper sequence:

to the agonies (P)/ people who are (Q)/ serve the society (R)/ of the poor cannot (S)/ indifferent (T)

- Ans**
- 1. RPSTQ
 - 2. QTPSR
 - 3. RSQPT
 - 4. QRPST

Question ID : 5944594016
Status : Answered
Chosen Option : 2

Q.9 From the options given below choose the one word substitute for the expression "Killing of an infant/ newborn baby".

- Ans**
- 1. suicide
 - 2. matricide
 - 3. infanticide
 - 4. homicide

Question ID : 5944594023
Status : Answered
Chosen Option : 3

Q.10 Fill in the blank with the appropriate word from among the four options:

I have known that dogs live in _____.

- Ans**
- 1. burrow
 - 2. byre
 - 3. kennel
 - 4. den

Question ID : 5944594014
Status : Answered
Chosen Option : 1

Q.11 Find out the misspelt word.

- Ans**
- 1. relieve

- 2. believe
- 3. belief
- 4. deceive

Question ID : 5944594020
Status : Answered
Chosen Option : 4

Q.12 Choose the correct alternative which can be substituted for the word/ words in bold in the sentence.

If I **was** you, I would tell them the truth about the incident.

- Ans
- 1. were
 - 2. am
 - 3. be
 - 4. have been

Question ID : 5944594011
Status : Answered
Chosen Option : 1

Q.13 From the options given below choose the one that shows error in the given sentence:

Much water has flown under the bridge, which was constructed in 1945.

- Ans
- A B C D
- 1. B
 - 2. C
 - 3. A
 - 4. D

Question ID : 5944594009
Status : Not Attempted and Marked For Review
Chosen Option : --

Q.14 Choose the correct synonym of the word printed in bold from the given options:

You will be unpopular if you have **overbearing** behavior.

- Ans
- 1. smart
 - 2. arrogant
 - 3. cunning
 - 4. disloyal

Question ID : 5944594018
Status : Answered
Chosen Option : 3

Q.15 From the options given below choose the one that gives the meaning of the idiom printed in bold in the given sentence:

As he **ran into** debt, he decided to sell his house.

- Ans
- 1. Met with
 - 2. incurred
 - 3. Crushed into
 - 4. Had the risk of

Question ID : 5944594022
Status : Answered
Chosen Option : 2

Section : Reasoning

Q.1 There are 200 employees in an office. Out of these, 140 employees like Tea while 120 employees like Coffee. 80 employees like both Tea as well as Coffee. Identify the number of employees who like neither Tea nor Coffee?

- Ans
- 1. 10
 - 2. 20
 - 3. 30
 - 4. 40

Question ID : 5944594037
Status : Answered
Chosen Option : 2

Q.2 Shekhar is a baker at a bakery store. He cuts a cake into two equal pieces with same weight. He then takes one of the pieces and further cuts that piece into six smaller pieces of equal size and weight. If each of these 6 smaller pieces weighs 20 grams, then what was the original weight of the full cake?

- Ans
- 1. 120 grams
 - 2. 140 grams
 - 3. 280 grams
 - 4. 240 grams

Question ID : 5944594034
Status : Answered
Chosen Option : 4

Q.3 If Children : Pediatric, then Elderly : ?

- Ans
- 1. Phoniatic
 - 2. Geriatric
 - 3. Bariatric
 - 4. Physiatic

Question ID : 5944594028
Status : Not Answered
Chosen Option : --

Q.4

Pratik was born exactly three years after his parents got married. His mother is five years younger than his father but is 21 years older than him. If present age of Pratik is 9 years, then at what age did Pratik's father get married?

- Ans
- 1. 22 years
 - 2. 23 years
 - 3. 26 years
 - 4. 25 years

Question ID : 5944594035
Status : Answered
Chosen Option : 2

Q.5 In a certain coded language, if "AFTER" is written as "BHWIW" and "ALONE" is written as "BNRRJ", then how is "AGREE" written in that language?

- Ans
- 1. BHVIJ
 - 2. BIUIJ
 - 3. CHVJK
 - 4. CIUIJ

Question ID : 5944594029
Status : Answered
Chosen Option : 2

Q.6 Ramesh purchased a car four years ago and its price depreciates every year at a rate of 20% of the net value of the car at the beginning of the year. If the present price of the car is Rs.4,09,600, then what was the original purchase price of the car?

- Ans
- 1. Rs.10,00,000
 - 2. Rs.8,00,000
 - 3. Rs.11,00,000
 - 4. Rs.12,00,000

Question ID : 5944594036
Status : Not Answered
Chosen Option : --

Q.7 If a 9 letter meaningful word is formed using the 4th, 6th, 8th, 15th, 16th, 18th, 22nd, 29th and 34th letters of "THEGUARDSTOOKTURNSTOKEEP THEBANKSAFE", then what is the fifth letter from the left in the new word?

- Ans
- 1. U
 - 2. G
 - 3. E
 - 4. A

Question ID : 5944594025
Status : Not Answered
Chosen Option : --

Q.8 During morning prayer session at a school, eight students A, B, C, D, E, F, G and H are all standing in a row facing the stage. A is fourth to the right of E and H is fourth to the left of D. C and F are not at the extremes but are neighbors of B and E respectively. H is immediately to the left of A and A is the immediate neighbor of B. Identify which two students are standing at the extreme ends of the row?

- Ans
- 1. E and D

- 2. G and B
- 3. D and F
- 4. C and D

Question ID : 5944594032
Status : Answered
Chosen Option : 1

Q.9 In a certain coded language, if "AMBALA" is written as "ZTSZYZ", "BHOPAL" is written as "SQGXZY" and "DHULIA" is written as "JQRYVZ", then how is "DABHOL" written in that language?

- Ans**
- 1. JRSTQY
 - 2. JRSQTY
 - 3. ZJSQYG
 - 4. JZSQGY

Question ID : 5944594030
Status : Answered
Chosen Option : 4

Q.10 In an examination, students have to obtain 50% of total marks to pass the exam. Despite scoring 120 marks, Harish failed the exam by 30 marks. What is the maximum mark one can score in the exam?

- Ans**
- 1. 150 marks
 - 2. 200 marks
 - 3. 250 marks
 - 4. 300 marks

Question ID : 5944594031
Status : Answered
Chosen Option : 4

Q.11 If all the letters of the standard English alphabet series from A to Z are written in the reverse order starting from Z and ending at A, then which letter will be 5th to the right side of the letter which is immediately to the right side of the letter M?

- Ans**
- 1. G
 - 2. Q
 - 3. S
 - 4. I

Question ID : 5944594024
Status : Answered
Chosen Option : 1

Q.12 Below list of words have some aspect in common. Choose the one which is least like other words and is the odd one out.

Colonel, Major, Brigadier, Admiral, Lieutenant General, Field Marshal, Captain

- Ans**
- 1. Field Marshal
 - 2. Admiral

3. Brigadier

4. Colonel

Question ID : 5944594026
Status : Answered
Chosen Option : 2

Q.13 Read the below statements taking them as true even if they seem to be at variance from the commonly known facts. Then read the conclusions and choose which of these can be definitely drawn from these statements.

Statements:

- 1) Some crows are lions
- 2) No lion barks

Conclusions:

- I) Some crows bark
- II) No crow barks

- Ans**
- 1. Either conclusion I or II follows
 - 2. Neither conclusion I nor II follows
 - 3. Only conclusion II follows
 - 4. Only conclusion I follows

Question ID : 5944594033
Status : Answered
Chosen Option : 2

Q.14 If the directions on the map are changed such that West becomes South East and North becomes South West and so on, then what will East become?

- Ans**
- 1. South
 - 2. North East
 - 3. North West
 - 4. North

Question ID : 5944594038
Status : Answered
Chosen Option : 3

Q.15 If Train : Driver and Helicopter : Pilot, then Ship : ?

- Ans**
- 1. Marshal
 - 2. Life Guard
 - 3. Guard
 - 4. Captain

Question ID : 5944594027
Status : Answered
Chosen Option : 4

Q.1 A train passes two bridges of length 450 m and 225 m in 110 seconds and 60 seconds respectively. The length of the train (in m) is:

- Ans**
- 1. 50
 - 2. 45
 - 3. 75
 - 4. 60

Question ID : 5944594047
Status : Answered
Chosen Option : 2

Q.2 A shopkeeper earns a profit of 30% after selling a book at 20% discount on the printed price. The ratio of the cost price to that of selling price of the book is:

- Ans**
- 1. 10 : 13
 - 2. 9 : 13
 - 3. 13 : 10
 - 4. 13 : 9

Question ID : 5944594043
Status : Answered
Chosen Option : 1

Q.3 If the nine digit number $9x83176y5$, such that $y < 7$, is divisible by 275, then what is the value of $(2x-y)$?

- Ans**
- 1. 12
 - 2. 10
 - 3. 17
 - 4. 15

Question ID : 5944594040
Status : Not Answered
Chosen Option : --

Q.4 A sum of Rs.42490 is lent partly at 7.5% and remaining at 11% per annum. If the yearly interest on the average is 8.5% then the sum (in Rs.) which is lent at 11% is:

- Ans**
- 1. 30350
 - 2. 27535
 - 3. 12140
 - 4. 15275

Question ID : 5944594046
Status : Answered
Chosen Option : 3

Q.5 The mean proportional between 108 and 32 is x, and the fourth proportional of 2, 6, 15.... is y what is the ratio of x : y?

- Ans**
- 1. $15 : 8\sqrt{6}$
 - 2. $3\sqrt{6} : 5$
 - 3. $4\sqrt{6} : 15$

✓ 4. $8\sqrt{6} : 15$

Question ID : 5944594044
Status : Answered
Chosen Option : 4

Q.6 The value of $\frac{1}{5 \times 7} + \frac{1}{9 \times 7} + \frac{1}{11 \times 9} + \dots + \frac{1}{45 \times 47}$ is:

- Ans
- ✗ 1. $\frac{31}{235}$
 - ✗ 2. $\frac{18}{235}$
 - ✗ 3. $\frac{19}{235}$
 - ✓ 4. $\frac{21}{235}$

Question ID : 5944594039
Status : Answered
Chosen Option : 4

Q.7 If 3 men or 4 women can plough a field in 86 days, then in how many days will 7 men and 5 women plough two-third of the field?

- Ans
- ✗ 1. 15
 - ✗ 2. 24
 - ✗ 3. 18
 - ✓ 4. 16

Question ID : 5944594048
Status : Not Answered
Chosen Option : --

Q.8 If a discount of 38% on the marked price of a shirt saves Rs. 456, then how much did he pay (in Rs.) for the shirt?

- Ans
- ✗ 1. 1120
 - ✗ 2. 1200
 - ✗ 3. 836
 - ✓ 4. 744

Question ID : 5944594041
Status : Answered
Chosen Option : 4

Q.9 When 21% of number is subtracted from 57% of itself, the result is 57.6.

35% of the number is (Approximately) equal to:

- Ans
- ✗ 1. 65
 - ✓ 2. 56

3. 160

4. 100

Question ID : 5944594042

Status : Answered

Chosen Option : 2

Q.10 The three numbers are in the ratio 1/5 : 2/5 : 4/5. The difference between greatest and smallest numbers is 39. The sum of all the numbers is:

Ans 1. 105

2. 91

3. 87

4. 65

Question ID : 5944594045

Status : Answered

Chosen Option : 2

Section : Subject/Discipline

Q.1 If S is a surface bounded by a simple closed curve C and if \vec{F} is any continuously differentiable vector function, then

$\oint_C \vec{F} \cdot d\vec{r} = \iint_S \text{curl } \vec{F} \cdot \hat{n} ds = \iint_S \nabla \times \vec{F} \cdot \hat{n} ds$, is the statement of:

Ans 1. Stoke's theorem

2. Green's theorem

3. Gauss divergence theorem

4. Line integral theorem

Question ID : 5944594054

Status : Answered

Chosen Option : 1

Q.2 Which of the following is incorrect with respect to PERT?

Ans 1. PERT is said to be event oriented

2. PERT is a probabilistic model

3. PERT is used for non repetitive works

4. PERT is employed in business and construction problem

Question ID : 5944594103

Status : Answered

Chosen Option : 4

Q.3 If x and y are two independent Poisson's random variables such that $p(x = 1) = p(x = 2)$ and $p(y = 2) = p(y = 3)$ then variance of $(3x - 4y)$ is:

Ans 1. 56

2. 36

3. 66

4. 46

Question ID : 5944594061

Status : **Not Attempted and Marked For Review**

Chosen Option : --

Q.4 The mean value of C for the function $f(x) = e^x [\sin x - \cos x]$ in $[\pi/4, 5\pi/4]$ is:

- Ans
- 1. π
 - 2. $\pi/2$
 - 3. 0
 - 4. $2\pi/4$

Question ID : 5944594060

Status : **Answered**

Chosen Option : 3

Q.5 Carburettor is used in:

- Ans
- 1. Gas engines
 - 2. Steam engines
 - 3. C.I engines
 - 4. S. I. engines

Question ID : 5944594094

Status : **Answered**

Chosen Option : 4

Q.6 The expression in its standard notations $\mu = \left(\frac{\partial T}{\partial p}\right)_h$ is defined by:

- Ans
- 1. Clausius –claperyon equation
 - 2. Energy equation
 - 3. Joule-Thomson coefficient
 - 4. True specific heat equation

Question ID : 5944594086

Status : **Answered**

Chosen Option : 3

Q.7 In a 6 cylinder petrol engine, the standard firing order is:

- Ans
- 1. 1-6-2-5-4-3
 - 2. 1-2-3-4-5-6
 - 3. 1-5-3-6-2-4
 - 4. 1-3-6-5-4-2

Question ID : 5944594093

Status : **Answered**

Chosen Option : 3

Q.8 The temperature variation in lumped parameter model is:

- Ans
- 1. Linear with time
 - 2. Exponential with time
 - 3. Cubic with time
 - 4. Constant with time

Question ID : 5944594082
Status : Answered
Chosen Option : 2

Q.9 The phase angle (ϕ) for all values of damping ratio (ζ) greater than zero when the excitation frequency (ω) equals the undamped natural frequency (ω_n) of the system is always equal to:

- Ans
- 1. 180°
 - 2. 90°
 - 3. 45°
 - 4. 0°

Question ID : 5944594064
Status : Not Attempted and Marked For Review
Chosen Option : --

Q.10 'Not Go' limit refers to:

- Ans
- 1. The lower limit of a shaft and upper limit of a hole
 - 2. The lower limit of a hole and upper limit of a shaft
 - 3. Hole whose lower deviation is zero
 - 4. Maximum material condition

Question ID : 5944594097
Status : Answered
Chosen Option : 1

Q.11 The energy dissipated during a full cycle of motion by dry friction damping in terms of maximum amplitude (A) and friction force (μN) is:

- Ans
- 1. $1\mu NA$
 - 2. $2\mu NA$
 - 3. $4\mu NA$
 - 4. $3\mu NA$

Question ID : 5944594066
Status : Not Attempted and Marked For Review
Chosen Option : --

Q.12 $\lim_{x \rightarrow 0} \frac{x e^x - \log(1+x)}{x^2}$ is equal to:

Ans

- 1. 3/5
- 2. 3
- 3. 2
- 4. 3/2

Question ID : 5944594050
Status : Answered
Chosen Option : 4

Q.13 A gear train in which each shaft carries more than one gear except input and output shafts is known as:

- Ans
- 1. Compound
 - 2. Reverted
 - 3. Planetary
 - 4. Simple

Question ID : 5944594074
Status : Answered
Chosen Option : 1

Q.14 Which of the following option best describes a Computer Aided Manufacturing (CAM) technology?

- Ans
- 1. Scheduling
 - 2. Drafting
 - 3. Documenting
 - 4. Numerical control

Question ID : 5944594100
Status : Answered
Chosen Option : 4

Q.15 The function of graphic software is:

- Ans
- 1. To design and manufacture application
 - 2. To control the computers work flow, organize and process the data
 - 3. To modify the system for specific application
 - 4. To provide users various functions of geometric modeling and construction

Question ID : 5944594098
Status : Answered
Chosen Option : 4

Q.16 The heat flow across a plane wall (area $2m^2$ and thickness $0.1m$) with a constant thermal conductivity of $5W/mK$ and steady state temperatures at 100° and 50° is:

- Ans
- 1. 5KW
 - 2. 50KW

3. 60KW

4. 6KW

Question ID : 5944594079

Status : Answered

Chosen Option : 1

Q.17 A point in a structural member is subjected to normal stresses (σ_x and σ_y) along two mutually perpendicular directions and shear stress (τ_{xy}) in xy plane. The orientation of first principal plane (θ_{p_1}) is expressed as:

Ans

1. $\tan^{-1}\left(\frac{2\tau_{xy}}{\sigma_x - \sigma_y}\right)$

2. $\frac{1}{2} \tan^{-1}\left(\frac{2\tau_{xy}}{\sigma_x - \sigma_y}\right)$

3. $2\tan^{-1}\left(\frac{\sigma_x - \sigma_y}{2\tau_{xy}}\right)$

4. $\frac{1}{2} \tan^{-1}\left(\frac{\sigma_x - \sigma_y}{2\tau_{xy}}\right)$

Question ID : 5944594070

Status : Answered

Chosen Option : 2

Q.18 The function $f(x) = x^7 + x + 10$ has:

Ans

1. 2 real and 5 complex roots

2. All complex roots

3. All real roots

4. 1 real and 6 complex roots

Question ID : 5944594063

Status : Not Attempted and Marked For Review

Chosen Option : --

Q.19 A harmonic motion is given by the equation $x = 6\sin(10t - \frac{\pi}{4})$ cm where phase angle is in radian. The maximum acceleration is given by:

Ans

1. 1200 cm/sec²

2. 900 cm/sec²

3. 60 cm/sec²

4. 600 cm/sec²

Question ID : 5944594065

Status : Answered

Chosen Option : 4

Q.20 If γ is ratio of specific heats, W = work done and n is index constant, the heat transfer (Q) during polytropic process is:

Ans

1. $Q = \left(\frac{\gamma - 1}{\gamma - n}\right) W$

2. $Q = \left(\frac{\gamma - 1}{\gamma - n}\right)^2 W$

3. $Q = \left(\frac{\gamma - n}{\gamma - 1}\right) W$

4. $Q = \left(\frac{\gamma - n}{\gamma - 1}\right)^2 W$

Question ID : 5944594089

Status : Answered

Chosen Option : 3

Q.21 The sum and the product of Eigen values of the matrix $\begin{bmatrix} 2 & 1 \\ 4 & 5 \end{bmatrix}$ are respectively equal to:

Ans

1. 4, 3

2. 7, 6

3. 5, 4

4. 6, 5

Question ID : 5944594049

Status : Answered

Chosen Option : 2

Q.22 In a bolt manufacturing company, machines A, B and C produces 25%, 35% and 40% of the total, of that 5%, 4% and 2% are the defective bolts. A bolt is drawn at random from the product and is found to be defective. What is the probability that it was manufactured by machine B?

Ans

1. 35/69

2. 28/69

3. 25/69

4. 16/69

Question ID : 5944594059

Status : Answered

Chosen Option : 2

Q.23 Kelvin- Planck's law of second law of thermodynamics deals with:

Ans

1. Conservation of energy

2. Conversion of heat into work

3. Conversion of work into heat

4. Conservation of mass

Question ID : 5944594088

Status : Answered

Chosen Option : 2

Q.24 The angle between side cutting edge and side of the tool shank is known as:

- Ans
- 1. Lead angle
 - 2. Rake angle
 - 3. Nose angle
 - 4. Clearance angle

Question ID : 5944594107
Status : Answered
Chosen Option : 1

Q.25 The pressure at a point in a liquid, if density of water is 1000 kg/m^3 and vertical height from free surface of fluid is 0.5m.

- Ans
- 1. 6000 N/m^2
 - 2. 500 N/m^2
 - 3. 4025 N/m^2
 - 4. 4905 N/m^2

Question ID : 5944594084
Status : Answered
Chosen Option : 4

Q.26 If $x_{n+1} = \frac{x_n}{2} + \frac{9}{8x_n}$ and $x_0 = 0.5$, then Newton Raphson formula will be:

- Ans
- 1. -1.5
 - 2. 1.5
 - 3. 3
 - 4. 3.5

Question ID : 5944594062
Status : Not Attempted and Marked For Review
Chosen Option : --

Q.27 When a body is acted upon by three nonparallel forces, then the condition of equilibrium is:

- Ans
- 1. That the forces should be coplanar and non concurrent
 - 2. That the forces should be non coplanar and non concurrent
 - 3. That the forces should be coplanar and concurrent
 - 4. That the forces should be non coplanar and concurrent

Question ID : 5944594077
Status : Answered
Chosen Option : 4

Q.28 Air at 30°C flows over a surface at 80°C . The local heat flow was measured at a point as 500 W/m^2 . The local value of convective heat transfer coefficient is

Ans

- 1. $45.4 \text{ W/m}^2 \text{ K}$
- 2. $10.0 \text{ W/m}^2 \text{ K}$
- 3. $4.54 \text{ W/m}^2 \text{ K}$
- 4. $25.68 \text{ W/m}^2 \text{ K}$

Question ID : 5944594083
Status : Answered
Chosen Option : 2

Q.29 Which of the following law of thermodynamics is also known as law of degradation of energy?

- Ans
- 1. First
 - 2. Third
 - 3. Second
 - 4. Zeroth

Question ID : 5944594087
Status : Answered
Chosen Option : 3

Q.30 A toy company produces type A and type B dolls. Type A doll requires labour time twice that of type B doll. The company can produce 600 dolls a day, if all the dolls are of type B only. The sale limit in the market is 200 for type A and 250 for type B dolls daily. Assuming that the profits per doll are Rs. 10 for type A and Rs. 6 for type B. Which of the following statement best describes the given LPP problem with constraints?

- Ans
- Find x_1 and x_2 such that profit
 $P = 10x_1 + 6x_2$ subjected to the constraint
- 1. $2x_1 + x_2 = 600$
 $x_1 \geq 200,$
 $x_2 \geq 250$
 $x_1, x_2 \geq 0$
- Find x_1 and x_2 such that profit
 $P = 10x_1 + 6x_2$ subjected to the constraint
- 2. $2x_1 + x_2 \geq 600$
 $x_1 \geq 200,$
 $x_2 \geq 250$
 $x_1, x_2 \geq 0$
- Find x_1 and x_2 such that profit
 $P = 10x_1 + 6x_2$ subjected to the constraint
- 3. $2x_1 + x_2 \leq 600$
 $x_1 \geq 200,$
 $x_2 \geq 250$
 $x_1, x_2 \geq 0$

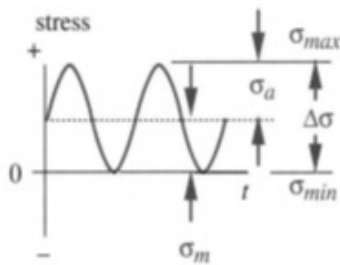
Find x_1 and x_2 such that profit

$P = 10x_1 + 6x_2$ subjected to the constraint

- ✓ 4. $2x_1 + x_2 \leq 600$
- $x_1 \leq 200,$
- $x_2 \leq 250$
- $x_1, x_2 \geq 0$

Question ID : 5944594101
Status : Not Attempted and Marked For Review
Chosen Option : --

Q.31 Name the type of fatigue load shown in figure.



- Ans
- ✓ 1. Repeated
 - ✗ 2. Reversed
 - ✗ 3. Fully reversed
 - ✗ 4. Fluctuating

Question ID : 5944594078
Status : Answered
Chosen Option : 1

Q.32 Which of the following is not the arrangement of supply ducts used in air conditioning?

- Ans
- ✗ 1. Extended plenum duct system
 - ✓ 2. Axial perimeter duct system
 - ✗ 3. Loop perimeter duct system
 - ✗ 4. Radial perimeter duct system

Question ID : 5944594091
Status : Not Answered
Chosen Option : --

Q.33 If annual usage = 1000 pieces, expediting cost = Rs. 4 per order, Cost per piece = Rs. 250 inventory holding cost is 20% of average inventory cost of ordering = Rs. 6 per order, then the Economic Ordering Quantity (EOQ) is:

- Ans
- ✗ 1. 40
 - ✗ 2. 35

✗ 3. 30

✓ 4. 20

Question ID : 5944594104

Status : Answered

Chosen Option : 4

Q.34 The general solution of the differential equation:

$$\left(\frac{dy}{dx}\right)^2 - 9\left(\frac{dy}{dx}\right) + 20 = 0 \text{ is given by:}$$

Ans ✗ 1. $(y+3x-c)(y+4x-c)=0$

✓ 2. $(y-4x-c)(y-5x-c)=0$

✗ 3. $(y+4x-c)(y+5x-c)=0$

✗ 4. $(y-3x-c)(y-4x-c)=0$

Question ID : 5944594055

Status : Answered

Chosen Option : 2

Q.35 Which of the following is the correct expression for the relationship between Young modulus (E), Rigidity modulus (G) and Bulk modulus (K)?

Ans ✗ 1. $E = \frac{9GK}{K + 3G}$

✗ 2. $E = \frac{6GK}{3K + G}$

✓ 3. $E = \frac{9GK}{3K + G}$

✗ 4. $E = \frac{3GK}{3K + G}$

Question ID : 5944594069

Status : Answered

Chosen Option : 3

Q.36 During the process of sensible cooling:

Ans ✗ 1. The specific humidity increases and dry bulb temperature decreases

✓ 2. The specific humidity remains constant and dry bulb temperature decreases

✗ 3. The specific humidity decreases and dry bulb temperature increases

✗ 4. The specific humidity remains constant and dry bulb temperature increases

Question ID : 5944594092

Q.37 If $F = xi + yj + zk$, over the sphere $x^2 + y^2 + z^2 = a^2$ then the value of $\iint_S \vec{F} \cdot \vec{n} ds$ is equal to:

- Ans
- 1. $4\pi a^3$
 - 2. 4π
 - 3. πa^3
 - 4. $12\pi a^3$

Question ID : 5944594052

Status : Answered

Chosen Option : 1

Q.38 The general solution of the differential equation $\frac{d^4x}{dt^4} - 2\frac{d^2x}{dt^2} + \frac{d^2x}{dt^2} = 0$ is given by:

- Ans
- 1. $x = (c_1t + c_2t^2) + (c_3 + c_4t) e^t$
 - 2. $x = (c_1 + c_2t) + (c_3 + c_4t)e^t$
 - 3. $x = (c_1t + c_2t^2) + (c_3 + c_4t)$
 - 4. $x = (c_1 + c_2t) + (c_3 + c_4t)$

Question ID : 5944594056

Status : Answered

Chosen Option : 2

Q.39 Dijkstra's algorithm is used to determine the shortest path between:

- Ans
- 1. Any two nodes of the network
 - 2. Any node to last node of the network
 - 3. Starting node to any other node in the network
 - 4. Any two nodes of unidirectional network

Question ID : 5944594102

Status : Not Answered

Chosen Option : --

Q.40 The process of raising a design or form above the surface of a component by means of pressing or squeezing action is called:

- Ans
- 1. Drawing
 - 2. Embossing
 - 3. Spinning
 - 4. Blanking

Question ID : 5944594105

Status : Answered

Chosen Option : 2

Q.41 The statement "Total effect of several loads applied on a body is the sum of effects of individual loads applied separately" is known as:

- Ans
- 1. Generalized Hooke's law
 - 2. St. Venant's principle
 - 3. Principle of superposition
 - 4. Uniqueness theorem

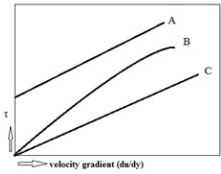
Question ID : 5944594068
Status : Answered
Chosen Option : 3

Q.42 A function $f(z)$ which is a single-valued and possesses a unique derivative with respect to z at all points of a region R is known as:

- Ans
- 1. Complex function
 - 2. Entire function
 - 3. Analytic solution
 - 4. Ordinary function

Question ID : 5944594058
Status : Answered
Chosen Option : 3

Q.43 Figure shows a plot of shear stress (τ) versus velocity gradient (du/dy). Name the type of fluids corresponding to A, B and C.



- Ans
- 1. A= idea plastic fluid, B = Newtonian fluid and C = Non-Newtonian fluid
 - 2. A= idea plastic fluid, B = Non-Newtonian fluid and C = Newtonian fluid
 - 3. A= idea fluid, B = Non-Newtonian fluid and C = Newtonian fluid
 - 4. A= idea fluid, B = Newtonian fluid and C = Non-Newtonian fluid

Question ID : 5944594085
Status : Answered
Chosen Option : 2

Q.44 A simply supported beam of length L is subjected to uniformly distributed load w /unit length for its entire span. Taking E as Young's modulus and I as moment of inertia, the deflection at the mid span is given by:

- Ans
- 1. $y = \frac{-5wL^3}{384EI}$

2. $y = \frac{-wL^3}{384EI}$

3. $y = \frac{-wL^4}{384EI}$

4. $y = \frac{-5wL^4}{384EI}$

Question ID : 5944594072
Status : Answered
Chosen Option : 4

Q.45 Which of the following is not the grade of slip gauge specified by IS 2984-1966?

- Ans
- 1. Grade 0
 - 2. Grade III
 - 3. Grade I
 - 4. Grade II

Question ID : 5944594096
Status : Not Answered
Chosen Option : --

Q.46 If $f(x)$ is continuous in the closed interval $[a, b]$ and $f'(x)$ exists in the open interval (a, b) , then there is at least one value c of x in (a, b) , such that $\frac{f(b)-f(a)}{b-a} = f'(c)$, is the statement of which of the following theorem?

- Ans
- 1. Cauchy's mean value theorem
 - 2. Lagrange's mean value theorem
 - 3. Generalized mean value theorem
 - 4. Rolles theorem

Question ID : 5944594051
Status : Answered
Chosen Option : 2

Q.47 The entropy of 1 kg water (s_f) at any temperature T °k in terms of specific heat of water (c_{pw}) can be expressed as:

- Ans
- 1. $s_f = c_{pw} \log_e \frac{T}{273}$
 - 2. $s_f = c_{pw} \log_{10} \frac{273}{T}$
 - 3. $s_f = c_{pw} \log_{10} \frac{T}{273}$
 - 4. $s_f = c_{pw} \log_e \frac{273}{T}$

Question ID : 5944594090
Status : Answered
Chosen Option : 1

Q.48 Which of the following statement is correct with respect to critical radius of insulation?

Ans 1.

The radius up to which heat flow decreases and after which heat flow increases is known as critical radius of insulation.

2.

The radius up to which heat flow increases and after which heat flow remains constant is known as critical radius of insulation.

3.

The radius up to which heat flow increases and after which heat flow decreases is known as critical radius of insulation.

4.

The radius up to which heat flow is constant and after which heat flow decreases is known as critical radius of insulation.

Question ID : 5944594080
Status : Answered
Chosen Option : 3

Q.49 A powder metallurgy part in comparison with cast part has:

Ans 1. Low in strength, ductility and density

2. Low strength, high ductility and density

3. High in strength, ductility and density

4. High strength, lower density and ductility

Question ID : 5944594106
Status : Answered
Chosen Option : 1

Q.50 Metal removal in Abrasive Jet Machining (AJM) is due to:

Ans 1. Erosion

2. Machining

3. Melting

4. Grinding

Question ID : 5944594108
Status : Answered
Chosen Option : 1

Q.51 The major objective of Material Requirement Planning (MRP) is to:

Ans 1.

Get the right material to the right place at the right time minimizing the inventory cost

2.

Make the best use of resources available in terms of equipment, material and labour.

3.

Maintain the finished goods delivery as per the expectation of the customer.

4.

Make the best use of resources available to maximize the inventory cost

Question ID : 5944594099

Q.52 The propeller of the aeroplane is rotating clockwise when viewed from the rear end and aeroplane takes a left turn, the gyroscopic effect will:

- Ans
- 1. Tend to raise the tail and depress the nose
 - 2. Tend to raise the tail and tilt the nose
 - 3. Tend to raise the nose and depress the tail
 - 4. Tend to raise the nose and tilt the tail

Question ID : 5944594076
Status : Answered
Chosen Option : 3

Q.53 For a given set of parameters, which of the following cross section of the fin has highest fin efficiency?

- Ans
- 1. Convex parabolic
 - 2. Concave parabolic
 - 3. Trapezoidal
 - 4. Rectangular

Question ID : 5944594081
Status : Answered
Chosen Option : 4

Q.54 If each ball of a porter governor has a mass of m , mass of sleeve is M and percentage change in speed is C then governor power for different inclinations of upper and lower arms is given by:

- Ans
- 1. $\left[m + \frac{M}{2}(1+k) \right] gh \left(\frac{C^2}{1+2C} \right)$
 - 2. $\left[m + \frac{M}{2}(1+k) \right] gh \left(\frac{4C^2}{1+2C} \right)$
 - 3. $\left[m + \frac{M}{2}(1+k) \right] gh \left(\frac{C^2}{1+C} \right)$
 - 4. $\left[m + \frac{M}{2}(1+k) \right] gh \left(\frac{4C^2}{1+C} \right)$

Question ID : 5944594075
Status : Answered
Chosen Option : 2

Q.55 If $I = \int_0^{\sqrt{1-x^2}} \int_0^1 xy^3 dx dy$, then the integral value is:

- Ans
- 1. 24
 - 2. 5/24
 - 3. 1/24

Question ID : 5944594053
Status : Answered
Chosen Option : 3

Q.56 The value of yield stress obtained by offset method is known as:

- Ans
- 1. True stress
 - 2. Elastic stress
 - 3. Proof stress
 - 4. Breaking stress

Question ID : 5944594067
Status : Answered
Chosen Option : 3

Q.57 A beam with rectangular cross section (10 mm X 20 mm) is subjected to maximum shear force of 5KN. The maximum shear stress induced is:

- Ans
- 1. 54.5 MPa
 - 2. 25 MPa
 - 3. 37.5 MPa
 - 4. 50 MPa

Question ID : 5944594071
Status : Answered
Chosen Option : 3

Q.58 The primary unbalanced force of a reciprocating mass m at radius r and angular velocity ω is:

- Ans
- 1. $mr\omega^2$
 - 2. $mr\omega^2 \sin\theta$
 - 3. $mr\omega^2 \cos\theta$
 - 4. $mr\omega^2 \cos\left(\frac{2\theta}{n}\right)$

Question ID : 5944594073
Status : Answered
Chosen Option : 3

Q.59 Rank of the matrix $A = \begin{bmatrix} 1 & -2 & -1 \\ -3 & 3 & 0 \\ 2 & 2 & 4 \end{bmatrix}$ is:

- Ans
- 1. 2
 - 2. 3
 - 3. 0
 - 4. 1

Question ID : 5944594057

Q.60 A point in a structural member with allowable yield strength of 300MPa is subjected to Principal stresses $\sigma_1 = 200$ MPa, $\sigma_2 = 50$ MPa and $\sigma_3 = -100$ MPa. What is the calculated value of yield stress (σ_0) and does yielding occurs?

- Ans**
- 1. $\sigma_0 = 150$ MPa and yielding occurs
 - 2. $\sigma_0 = 300$ MPa and yielding occurs
 - 3. $\sigma_0 = 300$ MPa and yielding does not occurs
 - 4. $\sigma_0 = 150$ MPa and yielding does not occurs

Question ID : 5944594095
Status : Answered
Chosen Option : 2