GSECL JE

Previous Year Paper Mechanical 2018

GENERAL KNOWLEDGE - GENERAL KNOWLEDGE

Question No.1

Approximately how many kilometres were covered during Dandi March?

- 250 kms (Alternative 3)
- 450 kms (Alternative 2)
- 390 kms (Alternative 1)
- 535 kms (Alternative 4)

Question No.2

GOLD and ICON missions were launched by NASA to explore which among the following options?

- Ionosphere (Alternative 1)
- Exosphere (Alternative 4)
- Thermosphere (Alternative 2)
- Mesosphere (Alternative 3)

Question No.3

Scurvy is caused due to which vitamin deficiency?

- B (Alternative 1)
- K (Alternative 4)
- C (Alternative 2)
- D (Alternative 3)

Question No.4

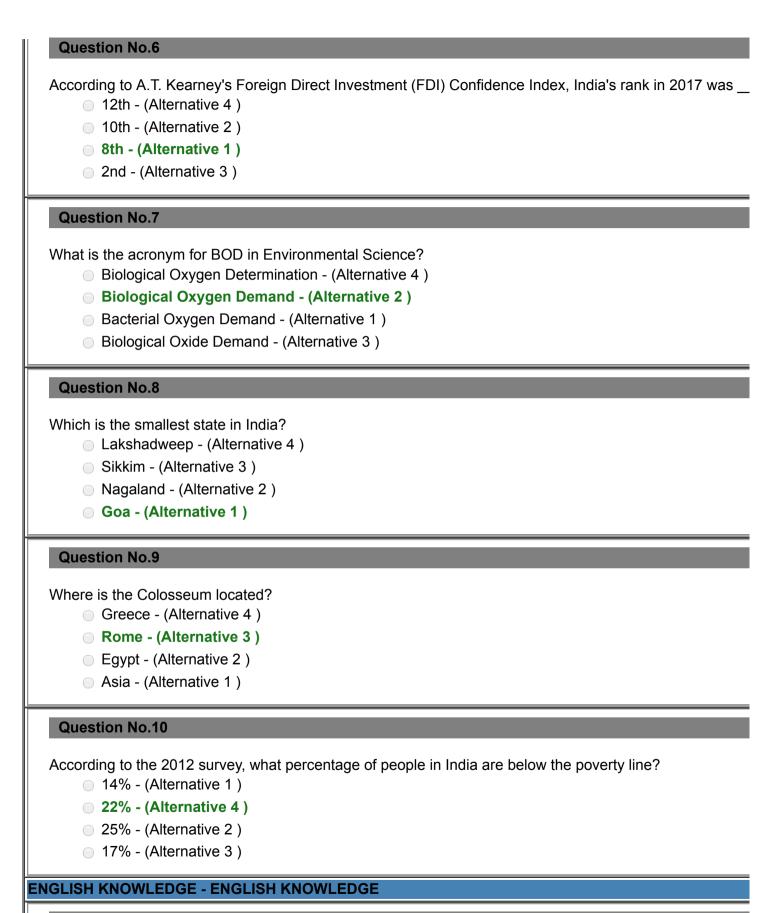
How many times was Mahatma Gandhi nominated for the Nobel Peace Prize?

- 5 (Alternative 3)
- 3 (Alternative 1)
- 4 (Alternative 2)
- He was never nominated (Alternative 4)

Question No.5

The first UID (Unique Identification) number in India was issued on _____.

- 21/11/2011 (Alternative 1)
- 14/05/2011 (Alternative 4)
- 29/09/2010 (Alternative 2)



Choose the appropriate alternative for the italicized words: The opposition leader has presented data on th Page - 2 some bank accounts post the demonetization

- depositing into (Alternative 1)
- deposited on (Alternative 2)
- deposited into (Alternative 3)
- No improvement (Alternative 4)

Question No.2

Fill in the blank with the suitable article:- Our alumni always meet on _____ last month of every year.

No article - (Alternative 4)

an - (Alternative 2)

- the (Alternative 3)
- a (Alternative 1)

Question No.3

Choose the word opposite in meaning to:- CONGENTIAL

- Latent (Alternative 4)
- Complete (Alternative 1)
- Contacted (Alternative 3)
- Inherited (Alternative 2)

Question No.4

Fill in the blank with the suitable preposition:- _____ an hour, I'm meeting him at the park so I will think abc class later.

- In (Alternative 2)
- At (Alternative 3)
- With (Alternative 4)
- On (Alternative 1)

Question No.5

Choose the correct word in substitution for the phrase given below:-Contradictory terms which are used together

- puzzle (Alternative 3)
- analogy (Alternative 4)
- opposite (Alternative 2)
- oxymoron (Alternative 1)

Question No.6

Choose the correct option similar to the idiom given below:-YELLOW STREAK

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lightning streak - (Alternative 3)
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dull - (Alternative 4)
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Choose the word with the correct spelling:-

- malise (Alternative 2)
- malious (Alternative 4)
- mallice (Alternative 1)
- malice (Alternative 3)

Question No.8

Choose the word similar in meaning to:- LACHRYMOSE

- Terse (Alternative 1)
- Mournful (Alternative 2)
- Lecherous (Alternative 4)
- Indecent (Alternative 3)

Question No.9

Choose the right sequence by rearranging the sentences to form a meaningful passage:-

- 1. Gold is ductile and it can be designed in various shapes and patterns.
- 2. When she is married off by her parents, the gold not only adores her but also helps her in turbulent time

3. The people from ancient Lydia (now Turkey) were the first to make coins about 2700 years ago from ele mixture of gold and silver.

- 4. For ages, there has been one metal which has captivated the human mind and that is Gold.
- 5. In the Indian tradition, it is a practice to give gold to the bride.
- 6. This is the same metal that made King Midas famous though not for his deeds but for his golden touch.
 - 135246 (Alternative 4)
 - 461325 (Alternative 2)
 - 135264 (Alternative 3)
 - 461352 (Alternative 1)

Question No.10

Identify the part of the sentence which contains an error:-

There are a lot of students (1)/ in the class (2)/ but Jim is one of the best (3)/students in the class (4)/No er

- 1 (Alternative 1)
- 2 (Alternative 3)
- 3 (Alternative 2)
- 5 (Alternative 4)

MECHANICAL ENGINEERING - MECHANICAL ENGINEERING

Question No.1

- 0.75 (Alternative 3)
- 1 (Alternative 4)

The annealing process which is useful to increase the machinability of the workpiece is ______.

- Full Annealing (Alternative 2)
- Spheroidising (Alternative 1)
- Process Annealing (Alternative 3)
- Work hardening (Alternative 4)

Question No.3

The Shear angle required for the minimum strain condition to take place is______.

- O degree (Alternative 1)
- 45 degree (Alternative 3)
- 30 degree (Alternative 2)
- 90 degree (Alternative 4)

Question No.4

Which of the following statements is correct for Heat?

- Path function and Inexact differential (Alternative 4)
- Path function and Exact differential (Alternative 2)
- Point function, and Exact differential (Alternative 1)
- Point function, and Inexact differential (Alternative 3)

Question No.5

The fit in which maximum clearance and minimum clearance found out are negative, then the fit is called as______.

- Transition fit (Alternative 3)
- Clearance fit (Alternative 2)
- Wringing fit (Alternative 4)
- Interference fit (Alternative 1)

Question No.6

Which of the following is an inversion of Crossed slider crank chain?

- Reciprocating engine (Alternative 3)
- Whitworth quick return mechanism (Alternative 4)
- Rapson slide (Alternative 1)
- Oldham coupling (Alternative 2)

- Torsional and infinite (Alternative 3)
- Longitudinal and infinite (Alternative 2)
- Longitudinal and permissible (Alternative 4)
- Transverse and infinite (Alternative 1)

The minimum number of teeth required to avoid interference in the gear having pressure angle 20 degree degree respectively are _____.

- 34 and 16 (Alternative 4)
- 16 and 34 (Alternative 3)
- 30 and 16 (Alternative 2)
- 18 and 32 (Alternative 1)

Question No.9

In a steady flow, which of the following statement is correct?

- Streamline coincide with streakline but not with path line (Alternative 2)
- Pathline is coincide with streakline but not with stream line (Alternative 3)
- Streamline, Pathline and Streakline are coincide with each other (Alternative 4)
- Streamline coincide with pathline but not streak line (Alternative 1)

Question No.10

Grinding wheel used in machining soft material should be _

- Fine Grain, High Grade, Open Structure (Alternative 1)
- Coarse Grain, High Grade, Closed Structure (Alternative 4)
- Fine Grain, Low Grade, Open Structure (Alternative 3)
- Coarse Grain, High Grade, Open structure (Alternative 2)

Question No.11

In Taylor Tool Life Equation VT^0.33 = Constant, the tool life is increased by 27 times, then the velocity is _

- decreased by 9 times (Alternative 4)
- increased by 9 times (Alternative 3)
- increased by 3 times (Alternative 1)
- decreased by 3 times (Alternative 2)

Question No.12

In rolling operation for constant draft, when the diameter of the roller increases by 4 times, then what happ coefficient of friction?

- Increases by 2 times (Alternative 1)
- Decreases by 2 times (Alternative 2)

The sum of the Fourier series for the function $f(x) = \begin{cases} -\pi , 0 < x < \pi \\ x - 2\pi, \pi < x < 2\pi \end{cases}$ at $x = \pi$ is given by

$$\pi$$
 - (Alternative 1)
 $-\pi$ - (Alternative 2)
 $\frac{\pi}{2}$ - (Alternative 3)

$$-\frac{\pi}{2}$$
 - (Alternative 4)

Question No.14

The radius of curvature of a curve $x^2 = 2c(y - c)$ at the point where it crosses y - axis is

c - (Alternative 2)

$$2\sqrt{2}c$$
 - (Alternative 3)
 $\sqrt{2}c$ - (Alternative 4)
 $2\sqrt{c}$ - (Alternative 1)

In the boundary layer, which of the statement is incorrect?

- Friction and shear stress is more (Alternative 1)
- Viscous and rotational flow occur (Alternative 3)
- Inviscid and irrotational flow occurs (Alternative 4)
- The velocity gradient is more (Alternative 2)

Question No.16

The work ratio in the gas turbine is 0.8, the work done by turbine is 500 kJ, then work done by the compres

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100 kJ - (Alternative 4)
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- 200 kJ (Alternative 3)
- 300 kJ (Alternative 2)
- 400 kJ (Alternative 1)

Question No.17

In a subsonic nozzle what happens to the Velocity, Pressure and Mach number?`

- velocity increases, pressure decreases, M>1 (Alternative 4)
- velocity increases, pressure decreases, M<1 (Alternative 1)</p>
- velocity increases, pressure increases, M<1 (Alternative 3)</p>
- velocity decreases, pressure decreases, M<1 (Alternative 2)</p>

Question No.18

The indicated specific fuel consumption is 2 kg/kW Hr and brake specific fuel consumption is 3 kg/kW Hr, t mechanical efficiency is _____.

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33% - (Alternative 3)
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- 25% (Alternative 4)
- 66% (Alternative 2)
- 50% (Alternative 1)

Question No.19

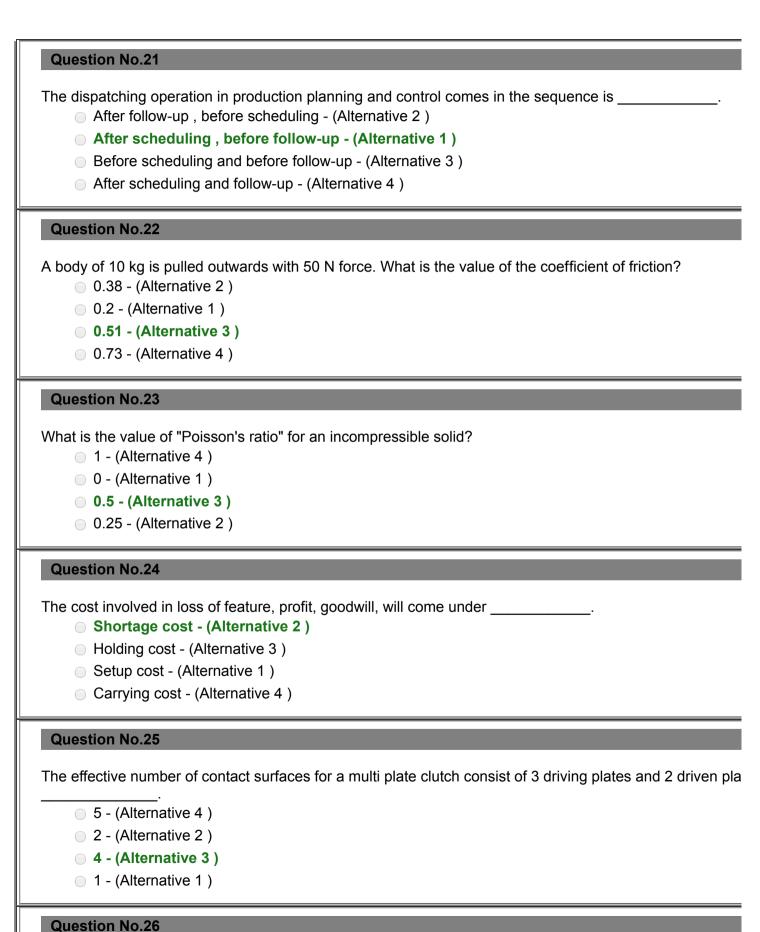
What is the ratio of maximum velocity to the average velocity of a flowing fluid in a pipe?

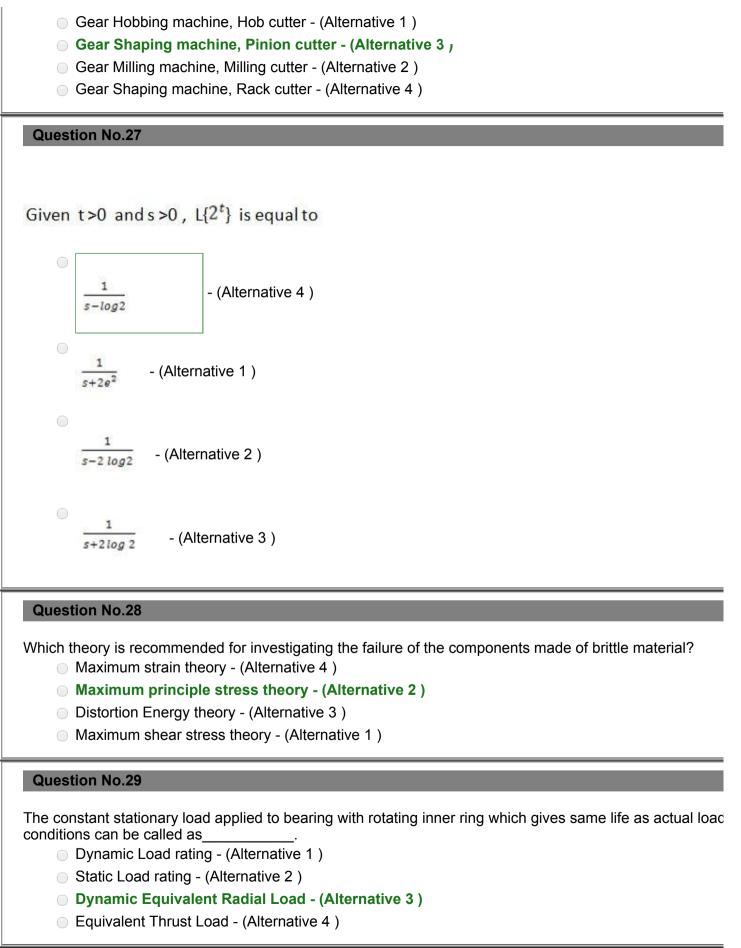
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0.5 - (Alternative 1)
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- 1.5 (Alternative 3)
- 1 (Alternative 2)
- 2 (Alternative 4)

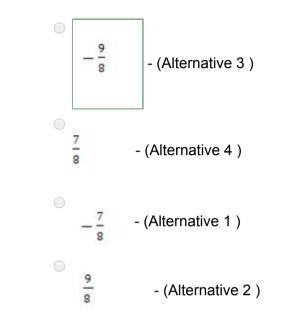
Question No.20

Which of the following is an assumption in the Poisson heat conduction equation? Steady state and with internal heat generation - (Alternative 2)





The value of the integral $\int_0^1 \int_1^2 \int_2^{-1} x y z dx dy dz$ is equal to



Question No.31

The line which represents an infinite number of solutions all of which yield the same profit is ______.

- isoconstraint line (Alternative 4)
- iso-profit line (Alternative 2)
- isovariable line (Alternative 3)
- isodecision line (Alternative 1)

Question No.32

The shaft is subjected to both twisting moment and bending moment. The bending moment subjected to th 4kNm.

What is the amount of twisting moment required for producing equivalent bending moment of 4.5 kNm?

- 2 kNm (Alternative 2)
- 1 kNm (Alternative 1)
- 4 kNm (Alternative 4)
- 3 kNm (Alternative 3)

Question No.33

The maximum wavelength of the monochromatic radiation is discussed in _____

- Fourier laws (Alternative 4)
- Kirchoff's laws (Alternative 3)
- Stefan Boltzmann law (Alternative 1)
- Wien's displacement law (Alternative 2)

In a thermodynamic process, the surrounding is heated due to the heat interaction and work is supplied to then it is inferred that Heat is positive, work is positive - (Alternative 2) Heat is positive, work is negative - (Alternative 3) Heat is negative, work is positive - (Alternative 1) Heat is negative, work is negative - (Alternative 4) **Question No.35** The flatness and angular measurement are measured by respectively. Optical projector and Clinometer - (Alternative 3) Autocollimator and Optical projector - (Alternative 2) Autocollimator and Clinometer - (Alternative 4) Clinometer and Autocollimator - (Alternative 1) **Question No.36** In a forced vibrating system, the force generated is 500 N and the force transmitted is 250 N, then the tran ratio and the frequency ratio are _____ respectively. 0.5 and lesser than 1.414 - (Alternative 3) 0.5 and greater than 1.414 - (Alternative 1) 0.25 and lesser than 1.414 - (Alternative 4) 0.25 and greater than 1.414 - (Alternative 2) **Question No.37** What is the sensitiveness of an isochronous governor? 0.5 sensitivity - (Alternative 4) Infinite sensitivity - (Alternative 2) 2 sensitivity - (Alternative 3) O sensitivity - (Alternative 1) **Question No.38** The LMTD of the counter flow heat exchanger and parallel flow heat exchanger remain same for which one following heat exchanger? Cross flow heat exchanger - (Alternative 1)

- Radiator (Alternative 2)
- Economiser (Alternative 4)
- Evaporator (Alternative 3)

Question No.39

Forge welding is classified under_____

- Diffusion welding (Alternative 3)
- Friction welding (Alternative 4)

The complex function $w = f(z) = (x^2 - \beta y^2) + i(2\alpha xy)$ is analytic everywhere only when α and are respectively equal to

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-1, -1 - (Alternative 4)
-1, 1 - (Alternative 3)
1, -1 - (Alternative 2)
1, 1 - (Alternative 1)
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Question No.41

The moment of inertia of a wheel is 100 kg m², the angular velocity of the wheel about spin axis is 20 rac angular velocity about precessional axis is 10 rad / sec, then the angular acceleration is _____.

- 400 rad /sec^2 (Alternative 4)
- 100 rad /sec^2 (Alternative 1)
- 200 rad /sec^2 (Alternative 2)
- 300 rad /sec^2 (Alternative 3)

Question No.42

The stress acting in two mutually perpendicular planes is two equal stress with opposite direction, then the subjected to_____.

- pure tension (Alternative 2)
- Hydrostatic pressure (Alternative 4)
- pure compression (Alternative 3)
- pure shear (Alternative 1)

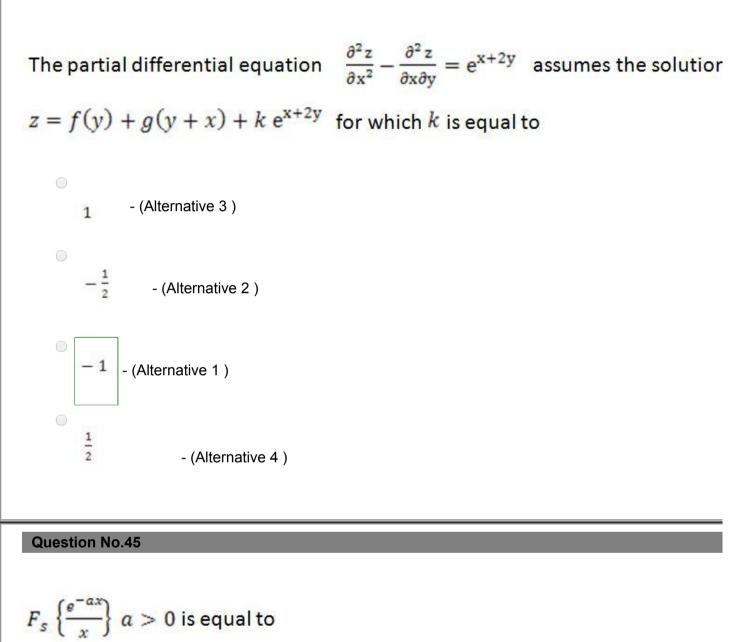
Question No.43

In a CAD / CAM system, which key hardware item communicates system together?

Plotter - (Alternative 4)

Digitizer - (Alternative 3)

Question No.44



$$\sqrt{\frac{2}{\pi}} \tan^{-1}\left\{\frac{a}{s}\right\} - (\text{Alternative 4})$$

$$\sqrt{\pi} \tan^{-1}(as)$$

$$\sqrt{\frac{2}{\pi}} \tan^{-1}\left\{\frac{s}{a}\right\} - (\text{Alternative 3})$$

$$\sqrt{\frac{2}{\pi}} \cot^{-1}\left\{as\right\} - (\text{Alternative 2})$$
Question No.46
If a 2x2 matrix A = $\begin{bmatrix} 1 & 3+k \\ 2 & 3 \end{bmatrix}$ has its characteristic roots 5 and -1, then the value of k is equal to
$$3 - (\text{Alternative 2})$$

$$0 - (\text{Alternative 3})$$

$$1 - (\text{Alternative 4})$$

$$-1 - (\text{Alternative 1})$$
Question No.47
A 5 gm bullet moving at 100 m/s strikes a 10 kg block of ice located on a frictionless surface and comes at speed of the block after the collision is ______.

10 m/s - (Alternative 4)

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0.214 - (Alternative 4)
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- 0.866 (Alternative 1)
- 0.433 (Alternative 2)
- 0.5 (Alternative 3)

In a flow, the viscous force can be calculated as 50 N and the inertia force can be calculated as 5000 N, th Reynolds number is _____.

100 - (Alternative 3)

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4 x 10<sup>-6</sup> - (Alternative 4)
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- 0.01 (Alternative 1)
- 25 x 10⁴ (Alternative 2)

Question No.50

If the efficiency of the heat engine is 0.25 then the coefficient of performance of refrigerator is _____

1 - (Alternative 4)

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3 - (Alternative 2)
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- 4 (Alternative 1)
- 2 (Alternative 3)

Question No.51

The number of instantaneous centre in a mechanism is 10, then the number of inversions produced by the mechanism is _____.

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● 5 - (Alternative 3 )
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- 6 (Alternative 4)
- 3 (Alternative 1)
- 4 (Alternative 2)

Question No.52

For the same material, the load is increased by 2 times, diameter is increased by 2 times, length is increase then the strain energy stored in a body due to axial loading is increased by _____.

- 4 times (Alternative 3)
- 16 times (Alternative 1)
- 3 times (Alternative 4)
- 12 times (Alternative 2)

Question No.53

According to Chvorinov's rule, solidification time is directly proportional to ______.

- Surface Area)^2 (Alternative 2)
- Always Constant (Alternative 4)

The most conservative theory and the most accurate theory of a ductile material are ______ respect

- Tresca theory and Von Mises theory (Alternative 2)
- Rankine Theory and Guest Theory (Alternative 3)
- Rankine Theory and Von Mises Theory (Alternative 1)
- Haigh's Theory and Von Mises Theory (Alternative 4)

Question No.55

If
$$\tan u = \frac{x^3 + y^3}{x - y}$$
, then $x \frac{\partial u}{\partial x} + y \frac{\partial u}{\partial y}$ equals

sin 2u - (Alternative 3)

2 sinu - (Alternative 2)

 $2 \sec^2 u$ - (Alternative 4)

Question No.56

The differential equation with complete solution $y(x)=Ae^{2x}+Be^{4x}$ is given by

$$\frac{d^2y}{dx^2} + 6\frac{dy}{dx} + 12y = 0 \qquad - (\text{Alternative 4})$$

$$\overline{dx^2} - 6 \, \overline{dx} + 9y = 0 \qquad - \text{(Alternative 3)}$$

$$\frac{d^2y}{dx^2} - 6 \frac{dy}{dx} + 12y = 0 \qquad - \text{(Alternative 1)}$$

$$\frac{d^2y}{dx^2} - 6 \frac{dy}{dx} + 8y = 0 \qquad - \text{(Alternative 2)}$$

What is the inference obtained about the Biot number and effectiveness of the fin for an effective heat tran

- Biot number greater than one and Effectiveness lesser than one (Alternative 2)
- Both Biot number and Effectiveness are greater than 1 (Alternative 1)
- Both Biot number and Effectiveness are less than one (Alternative 4)
- Biot number less than one and Effectiveness greater than one (Alternative 3)

Question No.58

For the dynamic loading condition, Gerber criterion and Goodman criterion are used for ______ a

- outline and ductile (Alternative 1)
- brittle and ductile (Alternative 3)
- ductile and brittle (Alternative 2)
- brittle and brittle (Alternative 4)

Question No.59

In a constrained body, the thermal coefficient of expansion is 0.05 / degree Celsius, the rise in temperature Celsius, the length of the body is 100 mm, then the deformation produced in the constrained body due to the second s

- 50 mm (Alternative 2)
- 0 (Alternative 4)
- 10 mm (Alternative 1)
- 25 mm (Alternative 3)

Question No.60

The 40 mm diameter shaft transmits 1 kW. What is the diameter of the shaft made of same material to be s meet out 700% increase in power transmission capacity?

- 20 mm (Alternative 1)
- 10 mm (Alternative 3)
- 80 mm (Alternative 2)
- 160 mm (Alternative 4)

Paging increases _____.

- Waiting time (Alternative 1)
- Context switch time (Alternative 2)
- Execution time (Alternative 3)
- All the above (Alternative 4)

Question No.2

What was the period of the 3rd generation computer?

- 1960-1972 (Alternative 3)
- 1960-1982 (Alternative 4)
- 1965-1971 (Alternative 1)
- 1950-1962 (Alternative 2)

Question No.3

Before actual production, engineers design cars by using a multimedia application called _____.

- Computer-Aided Coding (Alternative 2)
- Computer-Aided Development (Alternative 3)
- Computer-Aided Documentation (Alternative 4)
- Computer-Aided Design (Alternative 1)

Question No.4

RAID level 1 is popular for applications such as storage of _____ in a database system since it offers the t performance.

- binary files (Alternative 1)
- log files (Alternative 4)
- compiled files (Alternative 2)
- ocument files (Alternative 3)

Question No.5

A program that automatically submits your search request to several search engines simultaneously is call

- Spiders (Alternative 1)
- WebCrawler (Alternative 2)
- Meta search engines (Alternative 3)
- Viruses (Alternative 4)

Question No.6

Which of the following is not a service that uses TCP?

SNMP - (Alternative 4)

- HTTP (Alternative 2)
- FTP (Alternative 3)

Question No.7

Statistical calculations and preparation of tables and graphs can be done using _____.

- Word (Alternative 3)
- Excel (Alternative 2)
- Outlook (Alternative 4)
- PowerPoint (Alternative 1)

Question No.8

Thesaurus is found under which option in the menu bar in MS-Excel?

- View (Alternative 2)
- Mailings (Alternative 4)
- References (Alternative 3)
- Review (Alternative 1)

Question No.9

_____ is a computer program that monitors user's online activities or installs programs without user's cons or theft of personal information.

- Virus threats (Alternative 3)
- Malware (Alternative 4)
- Spyware threats (Alternative 2)
- Phishing threats (Alternative 1)

Question No.10

Which among the following is the full-form of POST?

- Physical Operating system Test (Alternative 4)
- Post Operating System Test (Alternative 3)
- Pre Operating System Test (Alternative 2)
- Power On Self Test (Alternative 1)

GUJARATI LANGUAGE & GRAMMAR - GUJARATI LANGUAGE AND GRAMMAR

Question No.1

નીચેના પૈકી કચો શબ્દ 'દરિદ્ર'નો વિરુદ્ધાર્થી શબ્દ છે?

- ગરીબ (Alternative 1)
- ອ່ວແທ (Alternative 2)

આળસુ - (Alternative 3)

Question No.2

નીચેના પૈકી કયું વાક્ય ઉપમા અલંકારનું છે?

- ગાંદની પૃથ્વી પર આશીર્વાદની જેમ પથરાય છે. (Alternative 2)
- દીવા નથી દરબારમાં; છે અંધારું ધોર! (Alternative 4)
- જેઓ વૃક્ષને પ્રેમ નથી કરતા, એમનામાં જીવન પ્રત્યે પ્રેમ હોતો જ નથી. (Alternative 1)
- જો હોય સંપ કુટુંબમાં, શત્રુથી શું થાય? (Alternative 3)

Question No.3

ટાઢે પાણીએ ખસ જવી' કહેવતનો અર્થ દર્શાવો.

- વગર મહેનતે મુશ્કેલી ટળવી. (Alternative 1)
- 🔍 ન બોલવાનું બોલીને સંબંધ બગાડવો. (Alternative 3)
- ંડા પાણીએ સ્નાન કરીને શરદી મટાડવી. (Alternative 2)
- આંખ મીંચીને અંધારું કરવું. (Alternative 4)

Question No.4

પાણીમાં લીટા તાણવા'ની સમાનાર્થી કહેવત કઈ છે?

- 🔍 જળ મુકવું (Alternative 1)
- 🔍 પત્તાનો મહેલ ચણવો (Alternative 4)
- એક સાથે બે ધોડે ચડવું (Alternative 3)
- હજાર ધંટીનો લોટ ખાવો (Alternative 2)

Question No.5

નીચેના પૈકી કયું વાક્ય આજ્ઞાર્થ દર્શાવે છે?

- 🔍 કુંભાર માટલા ઘડે છે. (Alternative 3)
- સૌને મારી યાદ આપજો. (Alternative 1)
- મિત્રો, હવે તો ચા-કોફી લેશોને? (Alternative 4)
- મહેશ ગઈકાલ સુધી શહેરમાં હતો. (Alternative 2)

રોજ સવારે મંદિરે જઈ હાથ જોડી નમન કરી આરતી કરાવી એ એનો નિત્યક્રમ હતો.

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💿 નમન કરી આરતી કરાવી. - (Alternative 4 )
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- રોજ સવારે મંદિરે (Alternative 2)
- જઈ હાથ જોડી (Alternative 3)
- એ એનો નિત્યક્રમ હતો (Alternative 1)

Question No.7

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નીચેમાંથી કયો વિકલ્પ 'ચર્ચા' શબ્દનો સમાર્નાથી નથી?
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ચરણ - (Alternative 3 )
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- 🔍 વર્તન (Alternative 1)
- 🔍 પાલન (Alternative 4)
- આચરણ (Alternative 2)

Question No.8

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સારું: નરસું :: શુક્લ: ?
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- 🔍 અયોગ્ય (Alternative 3)
- 🔍 અજવાળિયું (Alternative 4)
- 🤍 કૃષ્ણ (Alternative 2)
- 🔍 સત્ચ (Alternative 1)

Question No.9

જોડણીશુદ્ધિની દ્રષ્ટીએ નીચેમાંથી કયા જોડકાં/જોડકાંઓની જોડણી ખોટી છે?

- 1. માનવીય-માનનીય
- 2. આત્મીય-ભારતીય
- ૩. માલવીયા-રજનિશ
- 4. માનસીક-પ્રાથમીક
 - 🔍 2 અને 4 (Alternative 4)
 - 🔍 1 અને 4 (Alternative 2)
 - 3 (Alternative 1)

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ભારવાચક નિપાતનાં નીચે આપેલ ઉદાહરણમાંથી કયું અયોગ્ય છે?

- તમે અમારી સાથે બહાર આવશો ને? (Alternative 2)
- મને તો કંઈ જ સંભળાયું નથી. (Alternative 3)
- 🔍 અમે તો આજે બહાર જવાના જ. (Alternative 1)
- મૂર્ખ લોકો સાથે ચર્ચા ન કરવી એ જ ઉત્તમ. (Alternative 4)