Andhra Pradesh State Council of Higher Education

Notations :

1.Options shown in green color and with ✔ icon are correct.

2.Options shown in red color and with ✖ icon are incorrect.

Question Paper Name :	Mechanical Engineering 19th Oct 2022 Shift 2
Duration :	120
Total Marks :	140
Display Marks:	No
Share Answer Key With Delivery Engine :	Yes
Calculator :	None
Magnifying Glass Required? :	No
Ruler Required? :	No
Eraser Required? :	No
Scratch Pad Required? :	No
Rough Sketch/Notepad Required? :	No
Protractor Required? :	No
Show Watermark on Console? :	Yes
Highlighter :	No
Auto Save on Console?	Yes
Change Font Color :	No
Change Background Color :	No
Change Theme :	No
Help Button :	No
Show Reports :	No
Show Progress Bar :	No
Is this Group for Examiner? :	No
Examiner permission :	Cant View
Show Progress Bar? :	No

Research Methodology

Section Id :	549470412
Section Number :	1
Mandatory or Optional :	Mandatory
Number of Questions :	59
Section Marks :	70
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Maximum Instruction Time :	0
Is Section Default? :	null

Question Number : 1 Question Id : 54947029324 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The most desirable skill of teacher is to

Options :

1. ✔ make the students understand what the teacher says

2. ✖ cover the prescribed course

3. ✖ keep students relaxed while teaching

4. ✖ keep higher authorities informed about the class activities

Question Number : 2 Question Id : 54947029325 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which of the following orders are the three levels of teaching?

(i) Memory level of teaching

(ii) Understanding level of teaching

(iii) Reflective level of teaching

(iv) Pedagogical level of teaching

Options :

1. ✔ (i), (ii), and (iii)

2. ✖ (ii), (iii), and (iv)

3. ✖ (i), (iii), and (iv)

4. ✖ (i), (ii), and (iv)

Question Number : 3 Question Id : 54947029326 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The best way a teacher can try to inculcate good values among students is

Options :

1. ✖ teaching by way of storytelling

2. ✖ by developing sense of discipline

3. ✔ ideal behaviour of teacher themselves

4. ✖ to take their parents into confidence

Question Number : 4 Question Id : 54947029327 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Morphographs is the term associated with

Options :

1. ✔ Corrective spelling

Corrective teaching

2. ✖

Corrective learning

3. ✖

Corrective behaviour

4. ✖

Question Number : 5 Question Id : 54947029328 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If you get an opportunity to teach a visually challenged student along with normal students, what type of treatment would you like to give him in the class?

Options :

Not giving extra attention because majority may suffer

1. ✖

Take care of him sympathetically in the classroom

2. ✖

You will think that blindness is his destiny and hence you cannot do anything

3. ✖

Arrange a seat in the front row and try to teach at a pace convenient to him

4. ✔

Question Number : 6 Question Id : 54947029329 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

For a teacher, which of the following methods would be correct for writing on the blackboard?

Options :

Writing fast and as clearly as possible

1. ✖

Writing the matter first and then asking students to read it

2. ✖

Asking a question to students and then writing the answer as stated by them

3. ✖

Writing the important points as clearly as possible

4. ✔

Question Number : 7 Question Id : 54947029330 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Who developed the interaction analysis category system in education for increasing the teacher's effectiveness

Options :

1. ✔ Flander

2. ✖ Rayon

3. ✖ Amidon and Simon

4. ✖ Richard Over

Question Number : 8 Question Id : 54947029331 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

What do you consider as the main aim of interdisciplinary research?

Options :

1. ✔ To bring out holistic approach to research

2. ✖ To reduce the emphasis of single subject in research domain

To oversimplify the problem of research

3. ✖

To create a new trend in research methodology

4. ✖

Question Number : 9 Question Id : 54947029332 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The research which is exploring new facts through the study of the past is called

Options :

Philosophical research

1. ✖

Historical research

2. ✔

Mythological research

3. ✖

Content analysis

4. ✖

Question Number : 10 Question Id : 54947029333 Display Question Number : Yes Is Question Mandatory : No Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The government of India conducts census after every 10 years. The method of research used in this process is

Options :

1. Case study ✖

2. Developmental ✖

3. Survey ✔

4. Experimental ✖

Question Number : 11 Question Id : 54947029334 Display Question Number : Yes Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The process not needed in experimental research is

Options :

1. Observation ✖

Manipulation and replication

2. ✖

Controlling

3. ✖

Reference collection

4. ✔

Question Number : 12 Question Id : 54947029335 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Ex post facto research means

Options :

The research is carried out after the incident

1. ✔

The research is carried out prior to the incident

2. ✖

The research is carried out along with the happening of an incident

3. ✖

The research is carried out keeping in mind the possibilities of an incident

4. ✖

Question Number : 13 Question Id : 54947029336 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Arrange the following steps of research in correct sequence:

I. Identification of research problem
II. Listing of research objectives
III. Collection of data
IV. Methodology
V. Data analysis
VI. Results and discussion

Options :

1. ✖ I, II, III, V, IV, and VI

2. ✔ I, II, III, IV, V, and VI

3. ✖ II, I, III, IV, V, and VI

4. ✖ II, I, IV, III, V, and VI

Question Number : 14 Question Id : 54947029337 Display Question Number : Yes Is Question Mandatory : No Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A variable that is presumed to cause a change in another variable is called

Options :

1. ✖ A categorical variable

2. ✖ A dependent variable

3. ✔ An independent variable

4. ✖ An intervening variable

Is Section Default? : null

Question Id : 54947029338 Sub Question Shuffling Allowed : Yes Group Comprehension Questions : No Question Pattern Type : NonMatrix Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Question Numbers : (15 to 21)

Read the following passage carefully and answer the questions from 15 to 21:

The great Acharyas have said that everything discovered has a great goal; surrender yourself to that goal and act towards it by drawing your inspiration from that goal whereby you will get a new column of energy. Do not allow this energy to be dissipated in the futile memory of past regrets or failures, or excitement of the present, and bring that entire energy focused into activity, that is, the highest creative action in the world outside, whereby the individual who is till now considered the most inefficient finds his way to the highest achievement and success.

This can be said very easily in a second. In order to train our mind to this attitude, consider able training is needed because we have already trained our mind wrongly to such an extent that we have become perfect in imperfections. Not knowing the art of action, we have mastered artists in doing wrong things; the totality of activity will bring the country to a wrong end indeed.

If each one is given a car to achieve an ideal socialistic pattern and nobody knows driving, but starts driving, what would be the condition on road? Everybody has equal rights on the public road. Then, each car will necessarily dash against the other and there is bound to be a jumble.

There seems to be a very apt pattern of life that we are heading to. Every one of us is a vehicle. We know how to go forward. The point intellect is very powerful and everybody is driving but nobody knows how to control the mental energy and direct it properly or guide it to the proper destination.

Sub questions

Question Number : 15 Question Id : 54947029339 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

What is the effect of wrong training of our mind?

Options :

1. ✖ Becoming perfect in all aspects of life

2. ✖ Becoming master artists

3. ✖ Taking the country to wrong destination

4. ✔ Carrying on activities without knowing how to control mental energies

Question Number : 16 Question Id : 54947029340 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The source of energy according to the author is

Options :

Highest creative action

1. ✖

Proper training of mind

2. ✖

Inspiration from past events

3. ✖

Stimulation obtained from a set goal

4. ✔

Question Number : 17 Question Id : 54947029341 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The author's main focus in the passage is

Options :

Finding out a worthy goal in life

1. ✖

Regulation of energy in proper channels

2. ✔

Struggle for equal rights

3. ✖

Car accidents due to lack of driving skills

4. ✖

Question Number : 18 Question Id : 54947029342 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The country may perish because of

Options :

Failures in past acts

1. ✖

Wrong deeds performed without proper knowledge

2. ✔

Complete surrender to anyone goal

3. ✖

Directing mental energy to the right destination

4. ✖

Question Number : 19 Question Id : 54947029343 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The author considers everyone to be a vehicle that knows how to go forward

Options :

Without driving energy

1. ✖

With least consideration for others

2. ✖

With no sense of direction

3. ✔

With no control on speed

4. ✖

Question Number : 20 Question Id : 54947029344 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which of the following can be considered as the most suitable title for the passage?

Options :

Human mind versus car

1. ✖

Channelization of mental energy

2. ✔

Mental energy

3. ✖

Life without a goal

4. ✖

Question Number : 21 Question Id : 54947029345 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

How do you interpret that "we have become perfect in imperfections"?

Options :

We have already trained our minds wrongly

1. ✔

We have trained the artists with proper art of action

2. ✖

Right performance with wrong training

3. ✖

Wrong performance with right training

4. ✖

Is Section Default? : null

Question Number : 22 Question Id : 54947029346 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which of the three components are parts of the human communication process?

Options :

1. ✖ Message, recording, and feedback

2. ✖ Noise, feedback, and jargon

3. ✔ Message, noise, and feedback

4. ✖ Feedback, message, and critiquing

Question Number : 23 Question Id : 54947029347 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Communication becomes circular when

Options :

1. ✔ The decoder becomes an encoder

2. ✖ The feedback is absent

3. ✖ The source is credible

The channel is clear

4. ✖

Question Number : 24 Question Id : 54947029348 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which of the following statement(s) is/are true in context of paraphrasing?

(A) It is basically about stating in your own words, your understanding of what has just been said.

(B) It gives speaker opportunity to find out what message s/he is getting across to you.

Options :

Only A

1. ✖

Only B

2. ✖

Both A and B

3. ✔

Neither A nor B

4. ✖

Question Number : 25 Question Id : 54947029349 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

In communication, chatting in internet is

Options :

1. Verbal communication ✔

2. Non-verbal communication ✖

3. Parallel communication ✖

4. Grapevine communication ✖

Question Number : 26 Question Id : 54947029350 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Chinese Cultural Revolution leader Mao Zedong used a type of communication to talk to the masses known as

Options :

1. Mass line communication ✔

Group communication

2. ✖

Participatory communication

3. ✖

Dialogue communication

4. ✖

Question Number : 27 Question Id : 54947029351 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Telephone is an example of

Options :

Linear communication

1. ✔

Non–linear communication

2. ✖

Circular

3. ✖

Mechanized

4. ✖

Question Number : 28 Question Id : 54947029352 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A message beneath a message is labelled as

Options :

Embedded text

1. ✖

Internal text

2. ✖

Intertext

3. ✖

Subtext

4. ✔

Question Number : 29 Question Id : 54947029353 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

0, 3, 8, 15, 24, 35, 48, 63, …

Options :

1. ✔ 80

2. ✖ 82

3. ✖ 83

4. ✖ 84

Question Number : 30 Question Id : 54947029354 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

ABC, CBA, DEF, … , GHI, IHG

Options :

1. ✖ JKL

2. ✔ FED

3. ✖ DFE

IJK

4. ✖

Question Number : 31 Question Id : 54947029355 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If 'PAT' is coded as 'QRBCUV', then how will you code 'GRACE'?

Options :

HISTBCDEFG

1. ✔

HISTBCDEGF

2. ✖

HISBTCDEFG

3. ✖

HISTBCEDFG

4. ✖

Question Number : 32 Question Id : 54947029356 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If B is the only child of C's grandfather's only daughter, then how is C's father related to B?

Options :

1. ✔ Maternal uncle

2. ✖ Father

3. ✖ Paternal uncle

4. ✖ Can't be determined

Question Number : 33 Question Id : 54947029357 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Shalini walked 15 m towards south, took right turn, and walked 3 m. She took a right turn again and walked 15 m before stopping. Which direction did Shalini face after stopping?

Options :

1. ✖ West

2. ✖ South

East

3. ✖

North

4. ✔

Question Number : 34 Question Id : 54947029358 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If A's income is 25% more than B's and B's income is 20% more than C's, by what percent is A's income more than C's?

Options :

15%

1. ✖

25%

2. ✖

33.5%

3. ✖

50%

4. ✔

Question Number : 35 Question Id : 54947029359 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A train whose length is 320 m is running at a speed of 36 kmph. How much time will it take to pass a pole?

Options :

1. ✖ 30 s

2. ✔ 32 s

3. ✖ 36 s

4. ✖ 40 s

Question Number : 36 Question Id : 54947029360 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A deductive argument is valid if

Options :

1. ✖ Premises are false and conclusion is true

Premises are false and conclusion is also false

2. ✖

Premises are true and conclusion is false

3. ✖

Premises are true and conclusion is true

4. ✔

Question Number : 37 Question Id : 54947029361 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The spread of the Internet for higher education is premised on

Options :

Research and development is vital

1. ✖

Browsing encourages critical thinking

2. ✖

Easy management and dissemination of knowledge

3. ✔

India should be second to none in the world

4. ✖

Question Number : 38 Question Id : 54947029362 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Given below are two statements followed by two conclusions I and II. Assuming that the given statements are true even if they are at variance with the commonly known facts, pick up one of the following answer choice which you think is correct.

Statements:

All boys are men.

All men are fathers.

Conclusions:

I. Some men are boys.

II. All boys are fathers.

Options :

If only conclusion I follows

1. ✖

If only conclusion II follows

2. ✖

If both I and II follow

3. ✔

If neither I nor II follows

4. ✖

Question Number : 39 Question Id : 54947029363 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Given below are two statements followed by two conclusions I and II. Assuming that the given statements are true even if they are at variance with the commonly known facts, pick up one of the following answer choice which you think is correct.

Statements:

Some benches are chairs.

Hammer is a bench.

Conclusions:

I. Some chairs are benches.

II. Hammer is not a chair.

Options :

If only conclusion I follows

1. ✔

If only conclusion II follows

2. ✖

If both I and II follow

3. ✖

If neither I nor II follows

4. ✖

Question Number : 40 Question Id : 54947029364 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which one of the following is not an argument?

Options :

Devadutt does not eat in the day so he must be eating at night.

1. ✖

If Devadutt is growing fat and if he does not eat during the day, then he will be eating at night.

2. ✔

Devadutt eats in the night so he does not eat during the day.

3. ✖

Since Devadutt does not eat in the day, he must be eating in the night.

4. ✖

Question Number : 41 Question Id : 54947029365 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which of the following are Central Universities?
(i) Pondicherry University
(ii) Vishwa Bharati
(iii) H.N.B. Garhwal University
(iv) Kurukshetra University
Select the correct answer from the codes given below:

Options :

(i), (ii), and (iii)

1. ✔

(i), (iii), and (iv)

2. ✖

(ii), (iii), and (iv)

3. ✖

(i), (ii), and (iv)

4. ✖

Question Number : 42 Question Id : 54947029366 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The first virtual University of India came up in

Options :

1. ✖ Andhra Pradesh

2. ✔ Maharashtra

3. ✖ Uttar Pradesh

4. ✖ Tamil Nadu

Is Section Default? : null

Question Id : 54947029367 Sub Question Shuffling Allowed : Yes Group Comprehension Questions : No Question Pattern Type : NonMatrix Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Question Numbers : (43 to 45)

Note:

Study the following table carefully and answer questions 43 - 45. It consists of breakup of expenses of a company over different years.

Year	Items of expenditure rupees in lakhs				
	Salary	Fuel & Transport	Bonus	Interest on loans	Taxes
1998	288	98	3.00	23.4	83
1999	342	112	2.52	32.5	108
2000	324	101	3.84	41.6	74
2001	336	133	3.68	36.4	88
2002	420	142	3.96	49.4	98

Sub questions

Question Number : 43 Question Id : 54947029368 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

What is the average amount of interest per year which the company had to pay during this period?

Options :

1. ✖ 32.43 lakhs

33.72 lakhs

2. ✖

34.18 lakhs

3. ✖

36.66 lakhs

4. ✔

Question Number : 44 Question Id : 54947029369 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Total expenditure on all these items in 1998 was approximately what percent of the total expenditure in 2002?

Options :

62%

1. ✖

66%

2. ✖

69%

3. ✔

71%

4. ✖

Question Number : 45 Question Id : 54947029370 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The ratio between the total expenditure on taxes for all the years and the total expenditure on fuel and transport for all the years, respectively, is approximately

Options :

1. ✖ 4 : 7

2. ✔ 10 : 13

3. ✖ 15 : 18

4. ✖ 5 : 8

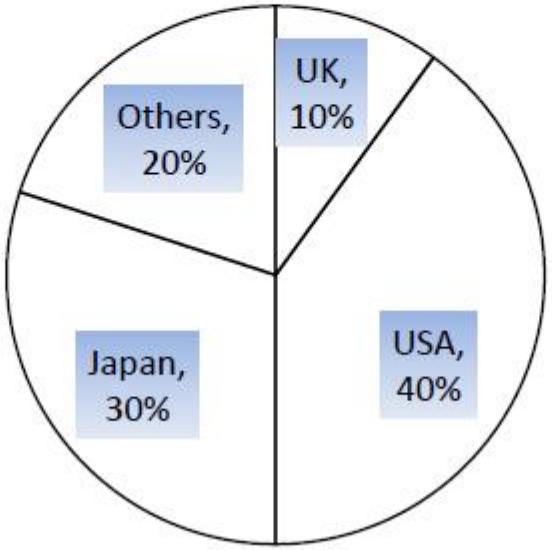
Is Section Default? : null

Question Id : 54947029371 Sub Question Shuffling Allowed : Yes Group Comprehension Questions : No Question Pattern Type : NonMatrix Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Question Numbers : (46 to 49)

Note:

Study the following pie chart care fully and answer questions 46–49. It consists of data on tourist arrival from different countries. Total tourist traffic is 20 lakhs.



Sub questions

Question Number : 46 Question Id : 54947029372 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The difference between tourist numbers from USA and Japan is

Options :

2 lakhs

1. ✔

3 lakhs

2. ✖

4 lakhs

3. ✖

5 lakhs

4. ✖

Question Number : 47 Question Id : 54947029373 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If the number of tourists from UK doubles up while the total remains the same, then the new angle extended by tourists from UK will be

Options :

60°

1. ✖

72°

2. ✔

90°

3. ✖

120°

4. ✖

Question Number : 48 Question Id : 54947029374 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The angle extended at the centre by sector of tourists from USA is

Options :

108°

1. ✖

118°

2. ✖

144°

3. ✔

165°

4. ✖

Question Number : 49 Question Id : 54947029375 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If the tourist traffic from USA shows a growth of 50% while the total number of tourists remains the same, then the new percentage from USA is

Options :

1. ✖ 40%

2. ✖ 45%

3. ✔ 50%

4. ✖ 60%

Is Section Default? : null

Question Number : 50 Question Id : 54947029376 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The institution promoted by the Department of IT to provide communication infrastructure and services to academic research institutions in India is

Options :

1. ✖ INFLIBNET

2. ✖ UGC

ERNET

3. ✔

No Option

4. ✖

Question Number : 51 Question Id : 54947029377 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

MICR stands for

Options :

Magnetic Ink Character Reader

1. ✔

Magnetic Ink Code Reader

2. ✖

Magnetic Ink Cases Reader

3. ✖

No Option

4. ✖

Question Number : 52 Question Id : 54947029378 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which of the following is not related to information security on the Internet?

Options :

1. ✖ Data encryption

2. ✖ Water marking

3. ✖ Data hiding

4. ✔ Information retrieval

Question Number : 53 Question Id : 54947029379 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

World Wide Web was proposed by

Options :

1. ✖ Bill Gates

ARPANET

2. ✖

Tim Berners-Lee

3. ✖

Bill Rogers

4. ✔

Question Number : 54 Question Id : 54947029380 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Name of the protocol that supports linking from one web page to another page

Options :

HTML

1. ✖

IP

2. ✖

HTTP

3. ✔

FTP

4. ✖

Question Number : 55 Question Id : 54947029381 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

ISDN stands for

Options :

1. ✔ Integrated Services Digital Network

2. ✖ Intelligent Services Digital Network

3. ✖ Individual Services Digital Network

4. ✖ Image Services Digital Network

Question Number : 56 Question Id : 54947029382 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Exclusive educational channel of IGNOU is known as

Options :

1. ✔ Gyan Darshan

Gyan Vani

2. ✖

Doordarshan

3. ✖

Prasar Bharati

4. ✖

Question Number : 57 Question Id : 54947029383 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Ozone depletion is caused due to increase in the level of

Options :

Water vapour

1. ✖

Chlorofluorocarbo

2. ✔

Oxygen

3. ✖

Carbon monoxide

4. ✖

Question Number : 58 Question Id : 54947029384 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which of the following is the most dangerous and long-lasting?

Options :

Nuclear waste

1. ✔

Volcano ash

2. ✖

Mining waste

3. ✖

Biomedical waste

4. ✖

Question Number : 59 Question Id : 54947029385 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Petrol engines release gaseous oxides of

Options :

1. Sulphur ✖

2. Nitrogen ✔

3. Phosphorous ✖

4. Carbon ✖

Question Number : 60 Question Id : 54947029386 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which of the following causes the least pollution when burnt?

Options :

1. Petrol ✖

2. Diesel ✖

3. Coal ✖

Natural gas

4. ✔

Question Number : 61 Question Id : 54947029387 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The increased water demand in the cities can be better met by

Options :

Larger desalination plants

1. ✖

Adoption of conservation measures

2. ✔

Drilling more tube wells

3. ✖

By sewerage treatment plants

4. ✖

Question Number : 62 Question Id : 54947029388 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which one of the following is a renewable resource?

Options :

1. ✖ Natural gas

2. ✖ Petroleum

3. ✔ Ground water

4. ✖ Coal

Question Number : 63 Question Id : 54947029389 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which National Park is situated at the highest altitude in the country?

Options :

1. ✖ Corbett National Park

2. ✔ Hemis National Park

Silent Valley National Park

3. ✖

Dachigam National Park

4. ✖

Question Number : 64 Question Id : 54947029390 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The National Knowledge Commission, a high level advisory body to Prime Minister of India, with the objective of transforming India into a knowledge society was set up in the year

Options :

2005

1. ✔

2006

2. ✖

2007

3. ✖

2008

4. ✖

Question Number : 65 Question Id : 54947029391 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Who was the chairman of University Education Commission set up in 1948?

Options :

1. ✔ Dr S. Radhakrishnan

2. ✖ Dr D. S. Kothari

3. ✖ Maulana Abul Kalam Azad

4. ✖ C. D. Deshmukh

Question Number : 66 Question Id : 54947029392 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The Constitution of India (originally) is divided into

Options :

1. ✖ 20 parts

22 parts

2. ✔

24 parts

3. ✖

42 parts

4. ✖

Question Number : 67 Question Id : 54947029393 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which Fundamental Right is concerned with the abolition of social distinctions?

Options :

Right to equality

1. ✔

Right against exploitation

2. ✖

Right to life and liberty

3. ✖

Cultural and educational rights

4. ✖

Question Number : 68 Question Id : 54947029394 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

An ordinance can be promulgated in case

Options :

1. ✖ of conflict between two Houses on a bill

2. ✔ both Houses of Parliament are not in session

3. ✖ the Lok Sabha has been dissolved

4. ✖ of elections

Question Number : 69 Question Id : 54947029395 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A Money Bill passed by the Lok Sabha has to be passed by Rajya Sabha within

Options :

Three months

1. ✖

Fourteen days

2. ✔

Twenty-one days

3. ✖

One month

4. ✖

Question Number : 70 Question Id : 54947029396 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

By which of the following measures NITI Aayog was established?

Options :

Cabinet resolution

1. ✔

Parliament resolution

2. ✖

President

3. ✖

Prime Minister

4. ✖

Mechanical Engineering

Section Id :	549470413
Section Number :	2
Mandatory or Optional :	Mandatory
Number of Questions :	70
Section Marks :	70
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Maximum Instruction Time :	0
Is Section Default? :	null

Question Number : 71 Question Id : 54947029397 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The Vector $\begin{bmatrix} 1 \\ 2 \\ -1 \end{bmatrix}$ is an eigen vector of $A = \begin{bmatrix} -2 & 2 & -3 \\ 2 & 1 & -6 \\ -1 & -2 & 0 \end{bmatrix}$. One of the eigen value of A is _____.

Options :

1

1. ✖

2. ✖ 2

3. ✔ 5

4. ✖ -1

Question Number : 72 Question Id : 54947029398 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Consider the function $f(x)=\left(x^2-4\right)^2$, where x is a real number. Then the function $f(x)$ has _____.

Options :

1. ✖ only one minimum

2. ✔ only two minima

3. ✖ three minima

three maxima

4. ✖

Question Number : 73 Question Id : 54947029399 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If the probability density function of a random variable X is

$$f(x)=\begin{cases}\frac{1}{2}\sin x, & \text{for } 0\le x\le \pi\\ 0, & \text{elsewhere}\end{cases}$$ then the mode of the distribution is____.

Options :

1. ✖ $\frac{1}{2}$

2. ✖ $-\frac{1}{2}$

3. ✔ $\frac{\pi}{2}$

4. ✖ $-\frac{\pi}{2}$

Question Number : 74 Question Id : 54947029400 Display Question Number : Yes Is Question Mandatory : No Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The equation $\frac{\partial u}{\partial t} = C^2 \frac{\partial^2 u}{\partial x^2}$ represents _____

Options :

1. ✖ One dimensional wave equation

2. ✔ One dimensional heat equation

3. ✖ Two dimensional heat equation

4. ✖ Radio equation

Question Number : 75 Question Id : 54947029401 Display Question Number : Yes Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If $y' = 3x, y(1) = 2, h = 0.1$ then $y(0.1)$ by Euler's method is _____

Options :

1. ✖ 2.1

2. ✖ 2.2

3. ✔ 2.3

4. ✖ 2.4

Question Number : 76 Question Id : 54947029402 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The complex numbers $z = x + iy$ which satisfy the equation $\left|\frac{z-5i}{z+5i}\right| = 1$, lie on ____.

Options :

1. ✖ the straight line $y = 5$

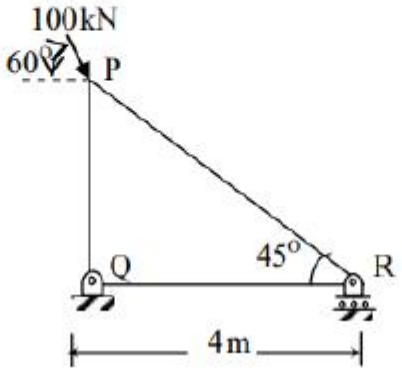
2. ✔ the X-axis

3. ✖ a circle passing through the origin

4. ✖ a circle having center at $(5, -5)$

Question Number : 77 Question Id : 54947029403 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

For the truss (PQ=QR=4m) shown in figure, the magnitude of the force in member PR and the support reaction at R are respectively



Options :

1. 122.47 kN and 50 kN ✖

2. 70.71 kN and 100 kN ✖

3. 70.71 kN and 50 KN ✔

4. 81.65 kN and 100 kN ✖

Question Number : 78 Question Id : 54947029404 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A small ball of mass 1kg moving with a velocity of 12m/s undergoes a direct central impact with a stationary ball of mass 2 kg. The impact is perfectly elastic. The speed (in m/s) of 2 kg mass ball after the impact will be _____

Options :

1. ✖ 2

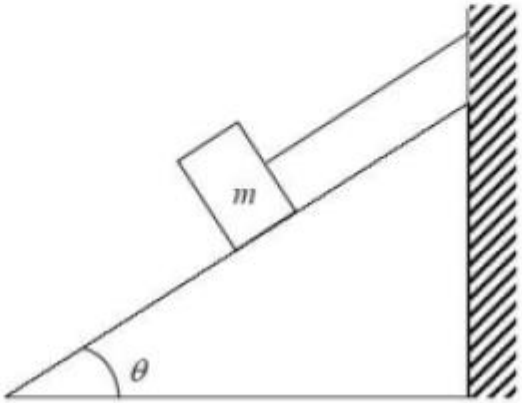
2. ✖ 4

3. ✖ 6

4. ✔ 8

Question Number : 79 Question Id : 54947029405 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A block of mass m rests on an inclined plane and is attached by a string to the wall as shown in the figure. The coefficient of static friction between the plane and the block is 0.25. The string can withstand a maximum force of 20 N. The maximum value of the mass (m) for which the string will not break and the block will be in static equilibrium. Take $\cos\theta = 0.8$ and $\sin\theta = 0.6$. Acceleration due to gravity $g = 10$ m/s^2



Options :

1. ✖ 10 kg

2. ✔ 5 kg

3. ✖ 15 kg

30 kg

4. ✖

Question Number : 80 Question Id : 54947029406 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A train starts at rest from a station with constant acceleration for 2 min and attains a constant speed. If it runs for 11min at this speed and retards uniformly during the next 3min and stops at the next station which is 9 km off, the maximum speed (in km/hr) attained by the train is

Options :

30

1. ✖

35

2. ✖

40

3. ✔

45

4. ✖

Question Number : 81 Question Id : 54947029407 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A bar is subjected to fluctuating tensile load from 20 kN to 100 kN. The material has yield strength of 240 MPa and endurance limit in reversed bending is 160 MPa. According to the Soderberg principle, the area of cross-section in mm^2 of the bar for a factor of safety of 2 is

Options :

1. ✖ 400

2. ✖ 600

3. ✖ 750

4. ✔ 1000

Question Number : 82 Question Id : 54947029408 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Consider a steel (Young"s modulus E = 200 GPa) column hinged on both sides. Its height is 1.0 m and cross-section is 10 mm × 20 mm. The lowest Euler critical buckling load (in N) is _____.

Options :

328.9

1. ✖

32.8

2. ✖

3289.86

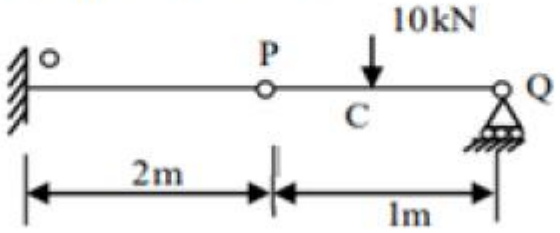
3. ✔

32898.6

4. ✖

Question Number : 83 Question Id : 54947029409 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A cantilever beam OP is connected to another beam PQ with a pin joint as shown in the figure. A load of 10kN is applied at the mid-point of PQ. The magnitude of bending moment (in kN-m) at fixed end O is



Options :

2.5

1. ✖

2. ✔ 5

3. ✖ 10

4. ✖ 25

Question Number : 84 Question Id : 54947029410 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A long thin walled cylindrical shell, closed at both ends, is subjected to an internal pressure. The ratio of the hoop stress (circumferential stress) to longitudinal stress developed in the shell is

Options :

1. ✖ 0.5

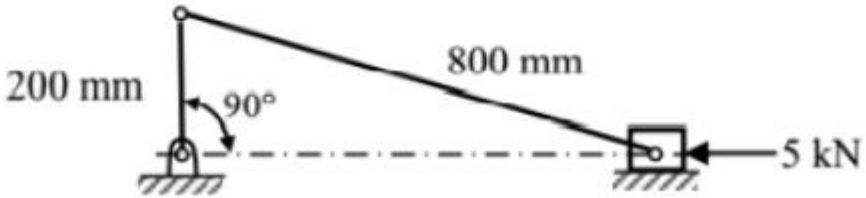
2. ✖ 1.0

3. ✔ 2.0

4. ✖ 4.0

Question Number : 85 Question Id : 54947029411 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A slider crank mechanism with crank radius 200 mm and connecting rod length 800 mm is shown. The crank is rotating at 600 rpm in the counter clockwise direction. In the configuration shown, the crank makes an angle of 90° with the sliding direction of the slider, and a force of 5 kN is acting on the slider. Neglecting the inertia forces, the turning moment on the crank (in kN-m) is _____



Options :

1. ✖ 2

2. ✖ 20

3. ✖ 10

4. ✔ 1

Question Number : 86 Question Id : 54947029412 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

In a mechanism, the number of Instantaneous centres (I-centres) N is

Options :

1. ✔ $\frac{n(n-1)}{2}$

2. ✖ $\frac{n(2n-1)}{2}$

3. ✖ $\frac{2n(n-1)}{3}$

4. ✖ $\frac{n(2n-1)}{3}$

Question Number : 87 Question Id : 54947029413 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Cam with knife edge follower is an example of _____

Options :

1. ✖ Screw Pair

Lower Pair

2. ✖

Higher Pair

3. ✔

Spherical Pair

4. ✖

Question Number : 88 Question Id : 54947029414 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

In which of the following, flywheel is generally employed?

Options :

Electric Motor

1. ✖

Lathe Machine

2. ✖

Punching Machine

3. ✔

Spherical Pair

4. ✖

Question Number : 89 Question Id : 54947029415 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If two nodes are observed at a frequency of 1800 rpm during whirling of a simply supported long slender rotating shaft, the first critical speed of the shaft in rpm is

Options :

1. ✖ 200

2. ✖ 450

3. ✖ 600

4. ✔ 900

Question Number : 90 Question Id : 54947029416 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

When there is a reduction in the amplitude for every cycle of vibration then the body is said to be in _____

Options :

1. ✖ Forced Vibration

Un- damped Vibration

2. ✖

Damped Vibration

3. ✔

Free Vibration

4. ✖

Question Number : 91 Question Id : 54947029417 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A cantilever beam of negligible mass is having a point mass m at its free end. The mass m is also supported by an elastic support of stiffness k_1. If K_2 is the bending stiffness of the cantilever, then the natural frequency of the mass m would be:

Options :

1. ✖ $\sqrt{\frac{K_1 K_2}{m(K_1 + K_2)}}$

2. ✔ $\sqrt{\frac{(K_1 + K_2)}{m}}$

3. ✖ $\sqrt{\frac{K_1 - K_2}{m}}$

4. ✖ $\sqrt{\frac{K_1}{m}} + \sqrt{\frac{K_2}{m}}$

Question Number : 92 Question Id : 54947029418 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which one of the following theories gives satisfactory results for brittle materials?

Options :

1. ✔ Maximum principal stress theory

2. ✖ Maximum shear stress theory

3. ✖ Distortion energy theory

4. ✖ Shear stress energy theory

Question Number : 93 Question Id : 54947029419 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

In which one of the following tooth profiles, does the pressure angle remain constant throughout the engagement of teeth?

Options :

1. Cycloidal ✖

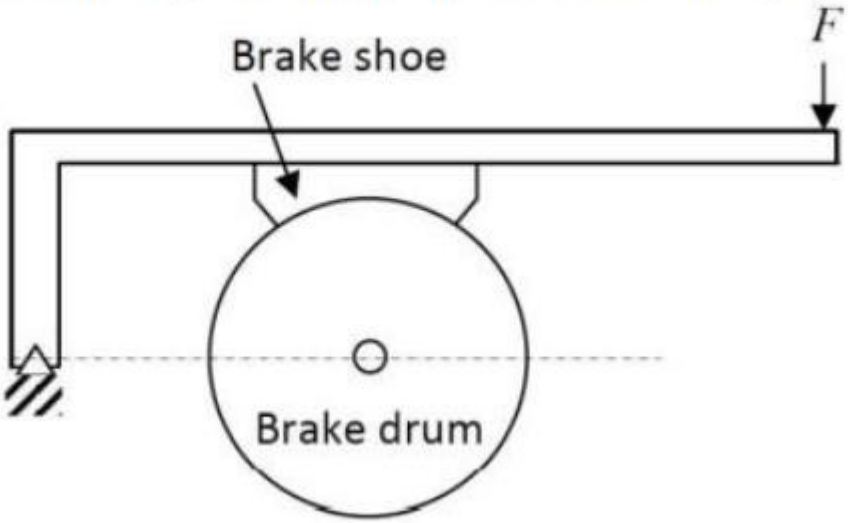
2. Involute ✔

3. Conjugate ✖

4. Epicycloid ✖

Question Number : 94 Question Id : 54947029420 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

For the brake shown in the figure, which one of the following is TRUE?



Options :

1. Self energizing for clockwise rotation of the drum ✔

2. Self energizing for anti-clockwise rotation of the drum ✖

3. Self energizing for rotation in either direction of the drum ✖

4. Not of the self-energizing type ✖

Question Number : 95 Question Id : 54947029421 Display Question Number : Yes Is Question Mandatory : No Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If a body is subjected to stresses in xy plane with stresses of 60 N/mm^2 and 80 N/mm^2 acting along x and y axes respectively. Also shear stress acting is 20 N/mm^2. The maximum normal stress is _____ N/mm^2.

Options :

1. ✖ 90

2. ✔ 92.4

3. ✖ 94.2

4. ✖ 96

Question Number : 96 Question Id : 54947029422 Display Question Number : Yes Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The threaded bolts A and B of same material and length are subjected to identical tensile load. If the elastic strain energy stored in bolt A is 4 times that of the bolt B and the mean diameter of bolt A is 12mm, the mean diameter of bolt B in mm is

Options :

1. ✖ 16

2. ✔ 24

3. ✖ 36

4. ✖ 48

Question Number : 97 Question Id : 54947029423 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Surface tension _____

Options :

1. ✔ Acts in the plane of the interface normal to any line in the surface

2. ✖ Is also known as capillarity

3. ✖ Is a function of the curvature of the interface

4. ✖ Decreases with fall in temperature

Question Number : 98 Question Id : 54947029424 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The line of action of the buoyant force acts through the Centroid of the

Options :

1. ✖ Submerged body

2. ✖ Volume of the floating body

3. ✖ Volume of the fluid vertically above the body

4. ✔ Displaced volume of the fluid

Question Number : 99 Question Id : 54947029425 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Calculate the hydrostatic pressure for water moving with the constant velocity at a depth of 5 m from the surface.

Options :

1. ✖ $98kN/m^2$

2. ✔ $49kN/m^2$

3. ✖ since the fluid is in motion, we cannot analyse

4. ✖ None of the mentioned

Question Number : 100 Question Id : 54947029426 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The pressure of water in a pipe when water is not flowing is $3x10^5$ Pa and when the water flows the pressure falls to $2.5x10^5$ Pa. Find the speed of flow of water.

Options :

1. ✖ 5m/s

2. ✔ 10m/s

3. ✖ 15m/s

4. ✖ 20m/s

Question Number : 101 Question Id : 54947029427 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Two pipes of lengths 2500 m each and diameters 80 cm and 60 cm respectively, are connected in parallel. The coefficient of friction for each pipe is 0.006 and the total flow is 250 litres/s. The rates of flow in the pipes are nearly

Options :

1. ✔ $0.17\ m^3/s$ and $0.1\ m^3/s$

2. ✖ $0.23\ m^3/s$ and $0.1\ m^3/s$

3. ✖ $0.17\ m^3/s$ and $0.4\ m^3/s$

4. ✖ $0.23\ m^3/s$ and $0.4\ m^3/s$

Question Number : 102 Question Id : 54947029428 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Heat transfer takes place according to which of the following law?

Options :

Newton's second law of motion

1. ✖

First law of thermodynamics

2. ✖

Newton's law of cooling

3. ✖

Second law of thermodynamics

4. ✔

Question Number : 103 Question Id : 54947029429 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A gray body is one whose absorptivity

Options :

varies with temperature

1. ✖

varies with wavelength of the incident ray

2. ✖

is equal to its emissivity

3. ✔

does not vary with temperature

4. ✖

Question Number : 104 Question Id : 54947029430 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which law states that the wavelength corresponding to the maximum energy is inversely proportional to the absolute temperature?

Options :

Stefan's

1. ✖

Dalton's

2. ✖

Wien's

3. ✔

Kirchoff's

4. ✖

Question Number : 105 Question Id : 54947029431 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Prandtl number is the reciprocal of

Options :

1. ✔ $\frac{\text{Thermal diffusivity}}{\text{Momentum diffusivity}}$

2. ✖ Thermal diffusivity x Momentum diffusivity

3. ✖ Thermal diffusivity x Mass diffusivity

4. ✖ Mass diffusivity x Momentum diffusivity

Question Number : 106 Question Id : 54947029432 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

In a counter flow heat exchanger, for the hot fluid: the heat capacity = 2 kJ/kg°K, mass flow rate = 5 kg/s, inlet temperature = 150°C, outlet temperature = 100°C. For the cold fluid: heat capacity = 4 kJ/kg°K, mass flow rate = 10kg/s, inlet temperature = 20°C. Neglecting heat transfer to the surroundings, the outlet temperature of the cold fluid in °C is

Options :

1. ✖ 7.5

2. ✔ 32.5

3. ✖ 45.5

4. ✖ 70.0

Question Number : 107 Question Id : 54947029433 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The emissive power of a block body is P. If its absolute temperature is doubled. The emissive power becomes

Options :

1. ✖ 2P

2. ✖ 4P

3. ✖ 8P

4. ✔ 16P

Question Number : 108 Question Id : 54947029434 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

In which of the following systems does mass transfer occur across the system boundary?

Options :

1. ✖ isolated system

2. ✖ closed system

3. ✔ open system

4. ✖ none of the mentioned

Question Number : 109 Question Id : 54947029435 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Irreversibility of a process may be due to

Options :

1. ✖ lack of equilibrium during the process

2. ✖ involvement of dissipative effects

3. ✔ both lack of equilibrium during the process and involvement of dissipative effects

4. ✖ No Option

Question Number : 110 Question Id : 54947029436 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

110J of heat is added to a gaseous system, whose internal energy is 40J. Then the amount of external work done is

Options :

1. ✖ 150J

2. ✔ 70J

3. ✖ 110J

4. ✖ 40J

Question Number : 111 Question Id : 54947029437 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The actual and theoretical COP of rolling piston compressor are 3.6 and 4.7 respectively. What is the relative COP?

Options :

1. ✖ 8.30

2. ✖ 16.92

3. ✖ 1.30

4. ✔ 0.76

Question Number : 112 Question Id : 54947029438 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The efficiency of any cycle increases with

Options :

1. ✖ the decrease of maximum pressure and the constant of exhaust pressure.

2. ✖ the decrease of maximum pressure and the decrease of exhaust pressure.

3. ✔ the increase of maximum pressure and the decrease of exhaust pressure

4. ✖ the increase of maximum pressure and the constant of exhaust pressure.

Question Number : 113 Question Id : 54947029439 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If the Coefficient of performance of a heat pump is 5, then what is the value of the Coefficient of performance of the refrigerator operating under the same conditions?

Options :

1. ✖ 0.2

2. ✖ 3

3. ✔ 4

4. ✖ 6

Question Number : 114 Question Id : 54947029440 Display Question Number : Yes Is Question Mandatory : No Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A four stroke single cylinder SI engine of 0.06 m diameter and 0.1 m stroke runs at 4000 rpm developing power at mean effective pressure of 10 bar. The power developed by the engine is

Options :

1. ✔ 9.45 kW

2. ✖ 5.54 kW

3. ✖ 4.92 kW

4. ✖ 2.94 kW

Question Number : 115 Question Id : 54947029441 Display Question Number : Yes Is Question Mandatory : No Calculator : None
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

In a gas turbine cycle, the turbine output is 600kJ/kg, the compressor work is 400kJ/kg and the heat supplied is 1000kJ/kg. What is the thermal efficiency of the cycle?

Options :

1. ✔ 20%

2. ✖ 40%

3. ✖ 30%

4. ✖ 50%

Question Number : 116 Question Id : 54947029442 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A refrigerator operates on Reversed Carnot cycle. What is the power required to drive the refrigerator between temperatures of 42°C and 4°C, if heat at the rate of 2 kJ/s is extracted from the low temperature region ?

Options :

1. ✖ 0.174 kW

2. ✖ 0.374 kW

3. ✔ 0.274 kW

0.474 kW

4. ✖

Question Number : 117 Question Id : 54947029443 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which one of the following statements regarding screw dislocation is correct?

Options :

It lies parallel to its Burgers vector.

1. ✔

It moves in the direction parallel to its Burgers vector.

2. ✖

It initially requires very less force to move

3. ✖

It moves very fast as compared to edge dislocation

4. ✖

Question Number : 118 Question Id : 54947029444 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Group I lists phases of steel and Group II lists crystal structures in the table below

Group I	Group II
P. Ferrite	1. Hexagonal Close Packed (HCP)
Q. Austenite	2. Body Centered Cubic (BCC)
R. Martensite	3. Body Centered Tetragonal (BCT)
	4. Face Centered Cubic (FCC)

Match the phase with the corresponding crystal structure.

Options :

1. ✖ P-4, Q-2, R-3

2. ✖ P-2, Q-4, R-1

3. ✔ P-2, Q-4, R-3

4. ✖ P-4, Q-2, R-1

Question Number : 119 Question Id : 54947029445 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Copper has the FCC crystal structure and a unit cell with a lattice constant of 0.361 nm. What is the interplanar spacing 'd_{220}'?

Options :

1. ✖ 0.085 nm

2. ✖ 0.174 nm

3. ✖ 0.206 nm

4. ✔ 0.128 nm

Question Number : 120 Question Id : 54947029446 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A cube shaped casting solidifies in 5 minutes. The solidification time in minutes for a cube of the same material, which is 8 times heavier than the original casting will be

Options :

1. ✖ 10

20

2. ✔

24

3. ✖

40

4. ✖

Question Number : 121 Question Id : 54947029447 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

In a single pass rolling process using 410 mm diameter steel rollers, a strip of width 140 mm and thickness 8 mm undergoes 10% reduction of thickness. The angle of bite in radians is

Options :

0.006

1. ✖

0.031

2. ✖

0.062

3. ✔

0.60

4. ✖

Question Number : 122 Question Id : 54947029448 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

In a laminar arc welding process, the heat input per unit length is inversely proportional to

Options :

Welding Current

1. ✖

Welding Voltage

2. ✖

Welding Speed

3. ✔

Duty cycle of the power source

4. ✖

Question Number : 123 Question Id : 54947029449 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The Non-Destructive Inspection (NDI) technique employed during inspection for castings of tubes and pipes to check the overall strength of a casting in resistance to bursting under hydraulic pressure is

Options :

1. ✖ Radiographic inspection

2. ✖ Magnetic particle inspection

3. ✖ Fluorescent penetrant

4. ✔ Pressure testing

Question Number : 124 Question Id : 54947029450 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A steel bar 200 mm in diameter is turned at a feed of 0.25 mm/rev with a depth of cut of 4 mm. The rotational speed of the workpiece is 160 rpm. The material removal rate in mm^3 /s is

Options :

1. ✖ 160

167.6

2. ✔

1600

3. ✖

1675.5

4. ✖

Question Number : 125 Question Id : 54947029451 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

End mill cutters are mounted on the spindle of a vertical milling machine using

Options :

Vice

1. ✖

Face plate

2. ✖

Driver plate

3. ✖

Collet

4. ✔

Question Number : 126 Question Id : 54947029452 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

For a particular tool-workpiece combination, the value of exponent n in the Taylor's tool life equation is 0.5. If the cutting speed is reduced by 50% keeping all the other machining conditions same, the increase in tool life in % is _____.

Options :

1. ✖ 100

2. ✖ 200

3. ✔ 300

4. ✖ 400

Question Number : 127 Question Id : 54947029453 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A non-traditional machining process which utilizes mechanical energy as the principal energy source for removing the material is

Options :

1. ✖ Laser beam machining

2. ✖ Electric discharge machining

3. ✖ Plasma arc machining

4. ✔ Ultrasonic machining

Question Number : 128 Question Id : 54947029454 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

In abrasive jet machining, as the distance between the nozzle tip and the work surface increases, the material removal rate

Options :

1. ✖ Increases continuously

2. ✖ Decreases continuously

Decreases, becomes stable and then increases

3. ✖

Increases, becomes stable and then decreases

4. ✔

Question Number : 129 Question Id : 54947029455 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The statement that best describes the function of a GO gauge in the context of Taylor's principle of gauging is

Options :

GO gauge checks the Maximum Material Condition and is designed to check only one dimension.

1. ✖

GO gauge checks the Maximum Material Condition and is designed to check as many dimensions as possible.

2. ✔

GO gauge checks the Least Material Condition and is designed to check only one dimension

3. ✖

GO gauge checks that Least Material Condition and is designed to check as many dimensions as possible.

4. ✖

Question Number : 130 Question Id : 54947029456 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Auto collimator is used to cheek:

Options :

1. ✖ Roughness

2. ✔ Flatness

3. ✖ Angle

4. ✖ Automobile balance

Question Number : 131 Question Id : 54947029457 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

In what direction the parallelism of the main spindle to saddle movement is checked?

Options :

1. ✖ Vertical direction

Horizontal direction

2. ✖

Both vertical and horizontal direction

3. ✔

At an angle

4. ✖

Question Number : 132 Question Id : 54947029458 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Hard automation is also called

Options :

Selective automation

1. ✖

Total automation

2. ✖

Group technology

3. ✖

Fixed position automation

4. ✔

Question Number : 133 Question Id : 54947029459 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

During the execution of a CNC part program block NO20 GO2 X45.0 Y25.0 R5.0 the type of tool motion will be

Options :

1. ✔ Circular Interpolation – clockwise

2. ✖ Circular Interpolation – counter clockwise

3. ✖ Linear Interpolation

4. ✖ Rapid feed

Question Number : 134 Question Id : 54947029460 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

CAD/CAM is used for the manufacture of

Options :

1. ✖ Aircrafts, missiles & satellites

Digitization of dental structure and oral cavity

2. ✖

Mass production in fashion companies

3. ✖

4. ✔ All options

Question Number : 135 Question Id : 54947029461 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Gantt Charts are used for

Options :

Forecasting sales

1. ✖

Production Schedule

2. ✔

Scheduling and routing

3. ✖

Linear Programming

4. ✖

Question Number : 136 Question Id : 54947029462 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

An MRP system that provides feedback to the capacity plane, master production schedule, and production planes is called

Options :

1. ✖ Lot- sizing

2. ✔ Closed loop MRP

3. ✖ Load report

4. ✖ System nervousness

Question Number : 137 Question Id : 54947029463 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which one of the following is the most appropriate control chart for measuring the variability of individual readings within a sample?

Options :

1. ✖ X -chart

R-chart

2. ✔

p-chart

3. ✖

c-chart

4. ✖

Question Number : 138 Question Id : 54947029464 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A manufacturer can produce 12000 bearings per day. The manufacturer received an order of 8000 bearings per day from a customer. The cost of holding a bearing in stock is Rs.0.20 per month. Setup cost per production run is Rs.500. Assuming 300 working days in a year, the frequency of production run should be

Options :

4.5 days

1. ✖

4.5 months

2. ✖

6.8 days

3. ✔

6.8 months

4. ✖

Question Number : 139 Question Id : 54947029465 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If the average arrival rate in a queue is 6/ hr and the average service rate is 10/hr, which one of the following is the average number of customers in the line, including the customer being served?

Options :

0.3

1. ✖

0.6

2. ✖

1.2

3. ✖

1.5

4. ✔

Question Number : 140 Question Id : 54947029466 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

In PERT chart, the activity time distribution is

Options :

1. Normal ✖
2. Binomial ✖
3. Poisson ✖
4. Beta ✔