

Question Paper

Notations:

- Options shown in green color are correct.
- Options shown in red color are incorrect.

Question Paper Name:	Deputy Engineer Mechanical
Duration:	60

Group 1		
	Group Minimum Duration : 60	

General awareness and RTI		
Section type : Online	Number of Questions to be attempted:25	Mandatory or Optional: Mandatory

Sub-Section : 1	
-----------------	--

Question id : 5605 Question Type : MCQ

If the radius of earth is R, what is the approximate distance between Kashmir and Kanyakumari? (Neglect the earth's equatorial bulge)

Options :

- R/2
- R/3
- R/4
- R/6

Question id : 5606 Question Type : MCQ

.Who is the last Test victim of Sachin Tendulkar?

Options :

- M N Samuels
- D Ramadin
- D J G Sammy
- S Shillingford

Question id : 5607 Question Type : MCQ

Given below the names of four Himalayan peaks-
P- Chowkhamba Q-Everest R-Trishul S-Kancheniunga

1. PQRS
2. PRSQ
3. PRQS
4. RPQS

Question id : 5608 Question Type : MCQ

.Which among the following awards was not conferred upon Nelson Mandela?

Options :

1. Bharat Ratna
2. Nobel Peace Prize
3. The Sasakawa award of UN
4. Lenin Peace prize

Question id : 5609 Question Type : MCQ

Who was the first President of World Peace Council?

Options :

1. Albert Einstein
2. Fredric Jolist-Curie
3. Linus Pauling
4. Robert Oppenheimer

Question id : 5610 Question Type : MCQ

Who is the First person awarded Bharat Ratna posthumously?

Options :

1. Vinoba Bhave
2. Lal Bahadur Shastri
3. Abul Kalam Azad
4. Rajiv Gandhi

Question id : 5611 Question Type : MCQ

Names of four bridges are given in the list below:

P- Howrah Bidge,linking Howrah with Kolkata

Q-Bandra-Worli Sea link

R-Pamban Bridge

S- Coronation Bridge over Teesta River

In which among the following pairs,both are Cantilever bridges.

2. Q,R
3. Q,S
4. P,R

Question id : 5612 Question Type : MCQ

Who was the First President of the Constituent Assembly of India?

Options :

1. Dr. Rajendra Prasad
2. Dr.Sachchidananda Sinha
3. Prof. Harendra Coomar Mookerjee
4. Dr.B.R.Ambedkar

Question id : 5613 Question Type : MCQ

To whom did Jamshedji Tata met in a sea voyage tour who became the guiding force for the establishment of Indian Institute of Science,Bangalore?

Options :

1. Sir C.V.Raman
2. Sir J.C.Bose
3. Mahatma Gandhi
4. Swami Vivekananda

Question id : 5614 Question Type : MCQ

Which house hold gadget was invented after World War- 2 when engineer Percy Spencer noticed that a bar of chocolate in his pocket melted when he stood before a magnetron in a radar?

Options :

1. Electric Kettle
2. Gyser
3. Pressure Cooker
4. Microwave Oven

Question id : 5615 Question Type : MCQ

Who was the first Indian tennis player to win a medal at the Olympics ?

Options :

1. Mahesh Bhupathi
2. Vijay Amritraj

4. Leander Paes

Question id : 5616 Question Type : MCQ

What was the capital of the Kuru kingdom of Ancient India?

Options :

1. Kurukshetra
2. Ujjain
3. Hastinapur
4. Vaishali

Question id : 5617 Question Type : MCQ

Teejan bai is exponent of which traditional performing art?

Options :

1. Kathkali
2. Pandavani
3. Nautanki
4. Theyyams

Question id : 5618 Question Type : MCQ

The number one followed by hundred zero's are known as

Options :

1. Google
2. Googol
3. Googly
4. Gogel

Question id : 5619 Question Type : MCQ

In earlier times,IBM was known as:

Options :

1. Cisco
2. Solaris
3. Zovi
4. CTR

Question id : 5620 Question Type : MCQ

1. $\frac{1}{2}$ hr.
2. 1 hr.
3. 1.5 hr
4. 2 hr.

Question id : 5621 Question Type : MCQ

What is the objective of campaign 'Tears you apart' by ministry of health and family welfare, Govt. of India.

Options :

1. To raise the awareness about disadvantages of the polythene
2. To raise the awareness about ban on smoking at public places
3. To raise the awareness about dangers of smokeless tobacco.
4. To prevent the spread of Malaria, Dengu

Question id : 5622 Question Type : MCQ

After the successful GSLV-D5 launch on 5 january,2014,ISRO joined the _____ club.

Options :

1. Mars orbiter
2. Solid Fuel
3. GSLV
4. Cryo

Question id : 5623 Question Type : MCQ

Which monument is known as 'Taj of Deccan'.

Options :

1. Gol Gumbaj
2. Charminar
3. Bibi ka Maqbara
4. Golconda fort

Question id : 5624 Question Type : MCQ

The RTE Act enacted by the parliament is targeted towards right to

Options :

1. Free Primary education for every child
2. Free elementary education for every child

4. Free and compulsory education for children in the age group 5 to 10 Years

Question id : 5625 Question Type : MCQ

Under the RTI Act,2005,the information sought involves the life or liberty of a person,then the PIO has to reply within

Options :

1. 24 hr
2. 48 hr
3. 72 hr
4. 5 days

Question id : 5626 Question Type : MCQ

Four categories are mentioned below:

P-BPL, Q-SC, R-ST,S-OBC(Non creamy layer)

Who among the above are exempted from paying the fees while seeking information under RTI Act,2005.

Options :

1. Only P
2. P and S
3. P,Q and R
4. P,Q,R and S

Question id : 5627 Question Type : MCQ

The RTI Act,2005 came fully into force with effect from_____.

Options :

1. 15th June,2005
2. 1st July,2005
3. 1st October,2005
4. 13th October,2005

Question id : 5628 Question Type : MCQ

Before the passing of the Bill on 17th December,2013 to keep political parties outside the ambit of the RTI Act,2005, six political parties were identified by the CIC, a quasi-judicial body,to have the character of public authority.Which among the following was not among the six parties?

Options :

1. NCP
2. SP

Question id : 5629 Question Type : MCQ

Which among the following is not exempted from disclosure under RTI Act,2005?

Options :

1. File Notings
2. ACR's
3. Answer Scripts/Supplements demanded by students
4. Information inclusive of commercial confidence which may affect competitive position of a PSU

Technical		
Section type : Online	Number of Questions to be attempted:75	Mandatory or Optional: Mandatory

Sub-Section : 1	Question Shuffling Allowed : Yes
-----------------	----------------------------------

Question id : 5630 Question Type : MCQ

Cavitation parameter ' σ ' defined in terms of NPSH (net positive suction head) and net head 'H' as

Options :

1. $\sigma = \frac{NPSH}{\sqrt{H}}$
2. $\sigma = \frac{H}{NPSH}$
3. $\sigma = \frac{H}{\sqrt{NPSH}}$
4. $\sigma = \frac{NPSH}{H}$

Question id : 5631 Question Type : MCQ

The diameter of an impeller of a centrifugal pump at inlet and outlet are 0.2m and 0.4m respectively. Determine the minimum starting speed of the pump if it works against a head of 25m.

Options :

1. 1125.57 rpm
2. 1225.57 rpm
3. 1335.57 rpm
4. 1355.57 rpm

Question id : 5632 Question Type : MCQ

In order to avoid cavitation in centrifugal pumps

Options :

1. The suction pressure should be high

4. The delivery pressure should be low

Question id : 5633 Question Type : MCQ

Which of the following pumps is successfully used for lifting water from deep wells?

Options :

1. Reciprocating pump
2. Centrifugal pump
3. Gear pump
4. Air lift pump

Question id : 5634 Question Type : MCQ

Consider the following pumps –

- (a) Centrifugal pump – single stage
- (b) Centrifugal pump – multi stage
- (c) Reciprocating pump
- (d) Jet pump

The pump (s) which could be used to lift water through a suction head of 12m from a well would include –

Options :

1. b only
2. a, c and d
3. d only
4. a and c

Question id : 5635 Question Type : MCQ

The specific speed (N_s) of a centrifugal pump is–

Options :

1. $N\sqrt{Q}/H^{2/3}$
2. $N\sqrt{Q}/H^{3/4}$
3. $N\sqrt{Q}/H^{5/4}$
4. $N\sqrt{Q}/H^{1/4}$

Question id : 5636 Question Type : MCQ

A centrifugal pump operates at its optimal efficiency and delivers 3 cubic meter per second over a height of 22m. The pump has a 36-cm diameter impeller and rotates at 3250 rpm. Compute the specific speed of the pump.

Options :

1. 55.15 rpm
2. 45.15 rpm

4. 35.15 rpm

Question id : 5637 Question Type : MCQ

Consider the following forces to determine hoist capacity required for the operation of hydraulic gates -

- (a) Weight of gate
- (b) Frictional force between roller wheel and track plate
- (c) Frictional force between roller pin and bushing
- (d) Frictional force between rubber seal and seal plates

Which of the following is correct?

Options :

- 1. a and b
- 2. c and d
- 3. a, b and d
- 4. a, b, c and d

Question id : 5638 Question Type : MCQ

For estimating the flood discharge by the use of fanning formula ($Q = C A^{5/6}$), an average value of 'C' is taken as equal to -

Options :

- 1. 2.34
- 2. 2.54
- 3. 3.24
- 4. 3.54

Question id : 5639 Question Type : MCQ

A sluice gate controlling flow in a canal is suddenly lowered by an amount to cause partial closure. This will produce –

Options :

- 1. A negative wave on the upstream
- 2. A positive wave on the upstream
- 3. A positive surge on the downstream
- 4. A standing wave on the downstream

Question id : 5640 Question Type : MCQ

A surge tank is provided in hydropower schemes to –

Options :

- 1. Avoid reversal of flow
- 2. Reduce water hammer pressure

Question id : 5641 Question Type : MCQ

The correct sequence in the direction of flow of water for installation in a hydropower plant is –

Options :

1. Reservoir, surge tank , turbine ,low pressure penstock
2. Reservoir , penstock , surge tank , turbine
3. Surge tank , reservoir , high pressure penstock, turbine
4. Reservoir , turbine , surge tank , high pressure penstock

Question id : 5642 Question Type : MCQ

The maximum practical suction lift for a self –priming centrifugal pump is –

Options :

1. 35 ft
2. 25ft
3. 45 ft
4. 50 ft

Question id : 5643 Question Type : MCQ

A diaphragm pump is classified and operates as which type of pump -

Options :

1. Rotary
2. Centrifugal
3. Positive displacement
4. Multi – stage centrifugal

Question id : 5644 Question Type : MCQ

A suction hose sized larger than the pump size will –

Options :

1. Increase capacity
2. Decrease capacity
3. Early pump failure
4. Cause cavitation

Question id : 5645 Question Type : MCQ

In track type machines, the purpose of front idler and yoke is –

Options :

1. To align track chain
2. To replace track chain

Question id : 5646 Question Type : MCQ

In dozer, track chains serve mounting pad for –

Options :

1. Track frame
2. Sprocket
3. Track shoes
4. Front idler

Question id : 5647 Question Type : MCQ

Match list – I with list –II and select the correct answer using the codes given below –

List – I

List-II

- | | |
|----------------------------|-------------------------------------|
| A. Hydraulic tilt cylinder | 1. 4-way 4 – position control valve |
| B. Pressure control valve | 2. 4-way 3- position control valve |
| C. Blade control valve | 3. Relief valve |
| D. Ripper control valve | 4. Single stage double acting type |

Options :

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

Question id : 5648 Question Type : MCQ

Metallic noise in torque converter is due to –

Options :

1. Seal leakage in torque converter
2. Spring of outlet relief valve being too weak
3. Loose stator blades
4. Screen in scavenge line not open

Question id : 5649 Question Type : MCQ

Check the following about malfunctioning of power transmission in dozer –

- (a) Pressure regulator valve
- (b) Gear shift lever
- (c) Gear pump
- (d) Modulator valve
- (e) Planetary gear

Which of the following is correct?

- 2. b, c and d
- 3. a, c, d and e
- 4. a, b, d and e

Question id : 5650 Question Type : MCQ

In hydraulic hoist, gate lifting and lowering operations are carried out by supplying high pressure oil to -

Options :

- 1. Valve arrangement
- 2. Cylinder and piston arrangement
- 3. Crank case
- 4. Cam and Crank shaft

Question id : 5651 Question Type : MCQ

Consider the following probable causes of sticking injection plunger in a shovel –

- (a). Improper injection adjustment
- (b). Plugged injection spray hole
- (c). Incorrect valve and injection timing
- (d). Water in the fuel

Which of the following is correct?

Options :

- 1. a and b
- 2. a, b and c
- 3. c and d
- 4. d and a

Question id : 5652 Question Type : MCQ

Consider the following components to be checked for malfunctioning of hydrostatic transmission in a shovel -

- (a). Air motor
- (b). Track motor
- (c). Track brake
- (d). Air control valve
- (e). Steering valve

Which of the following is correct?

Options :

- 1. a, b and c
- 2. b, c and d
- 3. a, b and e

Question id : 5653 Question Type : MCQ

Estimate the actual bucket load in bank cubic meter for a loader bucket whose nominal capacity is 3.82 m^3 . The soil's bucket fill factor is 0.90 and its load factor is 0.80

Options :

1. 2.57
2. 2.75
3. 2.85
4. 3.65

Question id : 5654 Question Type : MCQ

The aspect ratio of the tire is defined as the ratio of

Options :

1. Section width to section height
2. Section height to section width
3. Wheel diameter to section height
4. Wheel diameter to section width

Question id : 5655 Question Type : MCQ

In loader, engine cannot reach governed rpm due to -

Options :

1. Air leaks between cleaner and engine
2. Internal leakage from radiator
3. Incorrect injector flow
4. Engine exterior dirty

Question id : 5656 Question Type : MCQ

Rough lever shifting in power -shift transmission of a loader is due to-

Options :

1. Oil leakage at output shaft hub
2. Broken seal ring on centre support hub
3. Dirty oil filter
4. Control and Modulator valve sticking

Question id : 5657 Question Type : MCQ

In heavy earth moving equipment, steering shimmying due to -

Options :

1. Loose steering cylinder mounting pins
2. Parking brakes on
3. Lack of lubricant in steering linkage

Question id : 5658 Question Type : MCQ

Which one of the following is not an application of a dozer?

Options :

1. Pushing over trees
2. Drilling holes
3. Stripping top soil
4. Laying pipes

Question id : 5659 Question Type : MCQ

Hydraulic ripper is used for –

Options :

1. Shifting low specific gravity materials
2. Pushing scrapper from rear
3. Digging up roots
4. Cutting hard packed earth

Question id : 5660 Question Type : MCQ

Which statement is correct?

Options :

1. Rake dozer is used for pushing the earth with maximum efficiency of the tractor
2. Straight dozer is used for digging roots
3. Dozer ripper is used for uprooting large trees
4. Rake dozer is used for digging up roots and boulders

Question id : 5661 Question Type : MCQ

Select the correct statement -

Options :

1. Start switch of the engine of dozer is located on dash board
2. Suction type cooling fan is used to provide cool air in the operator's compartment
3. Start switch has five different positions i.e. OFF/ON/Start/Heat/Cool
4. Key is to be brought to "Cool" position for cooling the engine running

Question id : 5662 Question Type : MCQ

Coefficient of traction for concrete surface for crawler tracks is –

Options :

1. 0.45
2. 0.70
3. 0.55
4. 0.60

A rubber – tired tractor is operating in dry clay, which has a coefficient of traction of 0.6. The total weight of the tractor is 108000 lb., of which 50% is on the drive wheel. What is the maximum possible rim -pull prior to slippage of the tires?

Options :

1. 10800 lb
2. 32400 lb
3. 54000 lb
4. 64800 lb

Question id : 5664 Question Type : MCQ

Generators, Transformers & rectifiers are used for

Options :

1. Erection work
2. Welding work
3. Road work
4. Piling work

Question id : 5665 Question Type : MCQ

A tractor whose weight is 15 tons has a drawbar pull 5485 lb in the sixth gear when operated on a level ground having a rolling resistance of 120 lb/ton. If the tractor is operated on a level ground having a rolling resistance of 190 lb/ton, the drawbar pull be reduced by what amount?

Options :

1. 3485 lb
2. 4635 lb
3. 4435 lb
4. 4585 lb

Question id : 5666 Question Type : MCQ

Tracer and Radiometry are the categories of:

Options :

1. Eddy current testing
2. Isotope techniques
3. Ferrography
4. Laser distance measurement

Question id : 5667 Question Type : MCQ

Stroboscopy is used for:

Options :

1. Monitoring direction of rotation and speed
2. Visual inspection of interior surface in tubes

4. Detection of surface defects and leaks

Question id : 5668 Question Type : MCQ

Technique which is based upon the connection between the deformation of an object or measurement and changes in the electrical resistance of a conductor which is attached to it is known as:

Options :

1. Radiography
2. Ultrasonic leak detection
3. Strain gauge technology
4. Ferrography

Question id : 5669 Question Type : MCQ

Which gas is used for welding steel by GMAW or MIG Process?

Options :

1. CO₂
2. Argon-Helium Mixtures
3. Argon-Oxygen Mixtures
4. Pure Argon Gas

Question id : 5670 Question Type : MCQ

The metal particles expelled during fusion welding that do not form a part of the weld is known as:

Options :

1. Spatter
2. Size of weld
3. Weld crack
4. Weld tab

Question id : 5671 Question Type : MCQ

Resistance offered by the surface of a green sand mould to penetration by a loaded plunger is?

Options :

1. Compactibility
2. Mouldability Index
3. Mould Hardness
4. Permeability

Question id : 5672 Question Type : MCQ

It is the best for shallow flasks and suited for relatively small work.

Options :

1. Hand Ramming

4. Sand slinger

Question id : 5673 Question Type : MCQ

Casting defect refers to rough lumps of metal at some point of the casting and a corresponding area of rough holes or depression at other points.

Options :

1. Swelling of the casting on the top side
2. Variations in wall thickness
3. Core blow
4. Sand wash

Question id : 5674 Question Type : MCQ

Operation of making ridge of uniform cross-section in the form of a helix formed on the inside or outside of a cylinder is known as :

Options :

1. Spinning
2. Knurling
3. Threading
4. Trepanning

Question id : 5675 Question Type : MCQ

A Ring gauge is used to measure:

Options :

1. Only internal threads
2. Outside Diameter
3. Outside diameter and roundness
4. Only external threads

Question id : 5676 Question Type : MCQ

Heating to beyond critical temperature and maintaining this temperature for a definite period to allow complete transformation into austenite thereafter cooling slowly in the furnace is known as:

Options :

1. Normalising
2. Stress relieving
3. Spheroidising
4. Full Annealing

Question id : 5677 Question Type : MCQ

Combustion in compression ignition engine is :

Options :

1. Homogeneous

3. Laminar
4. Turbulent

Question id : 5678 Question Type : MCQ

For a product layout the material handling equipment must

Options :

1. have full flexibility
2. employ conveyor belts, trucks, tractors etc.
3. be a general purpose type
4. be designed as special purpose for a particular application

Question id : 5679 Question Type : MCQ

CPM is the

Options :

1. Time oriented technique
2. Event oriented technique
3. Activity oriented technique
4. Target oriented technique

Question id : 5680 Question Type : MCQ

Sections 21, 22 and 26 of the factories act and the allied provisions in the factories rules deal with the

Options :

1. Chemical safety
2. Precaution against fire
3. Guarding of machines
4. Safety in materials handling and storage

Question id : 5681 Question Type : MCQ

Locked-in stresses of welded joints are negligible in

Options :

1. Fusion welding method
2. Torque welding method
3. Low temperature joining method
4. Induction brazing method

Question id : 5682 Question Type : MCQ

How does a Crawler Tractor generally classified by

Options :

1. speed of the tractor

4. number of cylinders

Question id : 5683 Question Type : MCQ

For side casting using a Crawler Tractor, what type of Blade attachment should be preferred

Options :

1. Straight "S" Blade
2. Universal "U" Blade
3. Angling "A" Blade
4. Landfill Blade

Question id : 5684 Question Type : MCQ

Rubber Tired Tractors are preferred over the Crawler Tractors due to its

Options :

1. Traction Capacity
2. Speed of the Tractor
3. Life of the Tire in uneven surface
4. Load carrying performance -Push/Pull

Question id : 5685 Question Type : MCQ

In soil compaction, material grading is done to determine the

Options :

1. Quantity of large size of particles
2. Fixed or Average size of the particles
3. Quantity of small size of particles
4. Percentage of large and small size particles

Question id : 5686 Question Type : MCQ

Proctor Curve is used to determine

Options :

1. Strength of compaction done on a surface
2. Size mixed of the Particles
3. Suitability of the Material for compaction
4. Optimum moisture content

Question id : 5687 Question Type : MCQ

In the lift irrigation system the type of pipe used is mainly made of

Options :

1. PVC and RCC
2. Cast-iron
3. Mild Steel

Question id : 5688 Question Type : MCQ

Crushers are type of

Options :

1. Concrete equipment
2. Quarry equipment
3. Road making equipment
4. Marine equipment

Question id : 5689 Question Type : MCQ

Scrapers are not utilized for the purpose of :

Options :

1. Earthmoving to self load
2. Haulage
3. Land filling
4. Dumping

Question id : 5690 Question Type : MCQ

For small lift irrigation schemes type of pump used is

Options :

1. Centrifugal pump
2. Rotary pump
3. Dynamic pump
4. Reciprocating pump

Question id : 5691 Question Type : MCQ

Motor Graders family machines are not used for the purpose of

Options :

1. Ditching and bank sloping
2. Leveling and crowning roads or parking lots.
3. Compacting the loose soil
4. Snow Removal

Question id : 5692 Question Type : MCQ

Among the multi-axle compactors, three axel is used for :

Options :

1. Non- cohesive soils
2. General purpose wet soil / clay
3. Large highway or runway project
4. For exerting high pressure and rocky surface

Options :

1. Not so deep trenches but wide trenches
2. Trenches only in soft soils
3. trenches in rocky and not so deep
4. Deep and any kind of soils

Question id : 5694 Question Type : MCQ

A bituminous road surface has advantage over the concrete surface is :

Options :

1. It is skid resistance
2. It is more smooth
3. It is less expansive
4. Does not change with the weather

Question id : 5695 Question Type : MCQ

Rubber -tired mountings are not useful where :

Options :

1. Onsite and job-to-job mobility is important
2. Rocky and hard surface
3. Speed of movement is important
4. High moisture / wet surface

Question id : 5696 Question Type : MCQ

Load Factor of a material is the measure of:

Options :

1. Volume of loose yard to the bank yard
2. Strength of material
3. Load carrying capacity of the scraper
4. Moisture content of the material

Question id : 5697 Question Type : MCQ

Swell of a material that is to be transported in bank condition is the measure of:

Options :

1. Volume due to large sized particles of material
2. Percentage increase in volume
3. Weight of the material
4. Moisture content of the material

Question id : 5698 Question Type : MCQ

Asphalt concrete plant is used for the construction of

2. Roads
3. High rise buildings
4. Bridges

Question id : 5699 Question Type : MCQ

Which of the following is not an earth moving equipment

Options :

1. Dozer
2. Wheel loader
3. Vibratory Compactor
4. Tipper

Question id : 5700 Question Type : MCQ

Vibratory roller is used for the construction of

Options :

1. Railway Tracks
2. Residential buildings
3. Industrial buildings
4. Pavements

Question id : 5701 Question Type : MCQ

Batching plant is used to produce

Options :

1. Aggregates
2. Sand
3. Bricks
4. Concrete

Question id : 5702 Question Type : MCQ

Jack up platform is a type of

Options :

1. Marine equipment
2. Pneumatic equipment
3. Hauling equipment
4. Piling equipment

Question id : 5703 Question Type : MCQ

Minimum Capacity of road roller used for road construction work is

Options :

1. 4 T
2. 6 T

4. 10 T

Question id : 5704 Question Type : MCQ

Mixing temperature of bituminous concrete in the hot mix plant is between

Options :

1. 110 °C - 130 °C
 2. 140 °C - 155 °C
 3. 155 °C - 175 °C
 4. 175 °C - 200 °C
-