






**Dy.Engg.(Mech) Maha.Ground Water Services,Gr-A [Advt.No.3052012][Question Paper of Online Examination]**

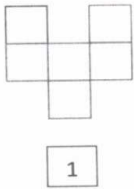
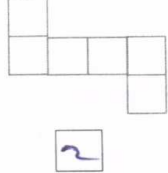
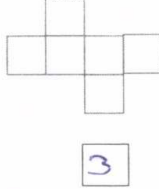
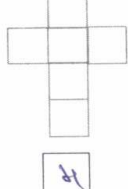
**Date of Examination : 19 th May, 2013**

उपअभियंता (यांत्रिकी), महाराष्ट्र भूजल सेवा, भूजल सर्वेक्षण व विकास यंत्रणा, गट - अ परीक्षा, 2012 या परीक्षेच्या वस्तुनिष्ठ स्वरूपाच्या प्रश्नपत्रिकेची उत्तरतालिका उमेदवारांच्या माहितीसाठी संकेतस्थळावर प्रसिध्द करण्यात आली होती. त्यासंदर्भात उमेदवारांनी अधिप्रमाणित (Authentic) स्पष्टीकरण/संदर्भ देऊन पाठविलेली लेखी निवेदने, तसेच तज्ज्ञांचे अभिप्राय विचारात घेऊन आयोगाने उत्तरतालिका अंतिम केली आहे. या उत्तरतालिकेतील उत्तरे अंतिम समजण्यात येतील. यापुढे यासंदर्भात आलेली निवेदने विचारात घेतली जाणार नाहीत तसेच त्याबाबत कोणताही पत्रव्यवहार केला जाणार नाही याची कृपया नोंद घ्यावी.

Q. no	Question Text	Option 1	Option 2	Option 3	Option 4	Right Option no.
1	In how many ways can 7 alphabets S, T, U, V, W, X, Y be arranged linearly so that U and V occupy continuous positions?	1440	720	380	360	1
2	Which of the given options is a plane mirror reflection of the image when its plane is parallel to the mirror surface ? 					4
3	Examine the following statements i)All desert plants are succulent. ii)No desert plant is succulent. iii)Some desert plants are succulent. iv)Some desert plants are not succulent. Given that the statement iv is true what can be definitely concluded?	i and iii are true.	i is false	iii is false	ii is true	2

Q. no	Question Text	Option 1	Option 2	Option 3	Option 4	Right Option no.
4	A person who has deposited Rs.500 in each of the two banks collected simple interest after two years. If the difference between interest collected is Rs.2 what must be difference between the rates of interest ?	0.4%	0.04%	0.2%	0.02%	1
5	In a meeting, a map is placed at the centre & the people are sitting around it. Ani is sitting at the corner of the map that indicates north east of the map and it is the south side of the room. What must be the direction of the corner of the map, if a person is sitting at the west side of the room?	North	East	South east	South west.	3
6	There are four rods of lengths 52cm's, 91 cm's, 65 cm's, and 117 cm's. They are to be cut exactly into pieces of equal lengths. Each piece must be as long as possible. How many maximum number of pieces can be cut?	17	34	23	25	4
7	All members of the club are not interested in all sports but all the members watch either Table Tennis or Kabbadi with 440 members watching table tennis and 390 members watching Kabbadi. Where as 265 members watched both the sports. How many members does the club have ?	565	605	655	830	1

Q. no	Question Text	Option 1	Option 2	Option 3	Option 4	Right Option no.
8	<p>There is a main statement followed by four statements labelled I,II,III,and IV. Choose the pair of statements wherein first statement implies the second and the two are logically consistent with the main statement.&lt;br&gt;Eash customer is greeted with a fragrant rose as he or she enters the restaurant.&lt;br&gt;I) I didn't get a rose.&lt;br&gt;II) I did get a rose.&lt;br&gt;III) I visited the restaurant.&lt;br&gt;IV) I didn't visit the restaurant.</p>	II,III	I,IV	III, II	III,I	3
9	<p>A statement is given followed by two courses of actions numbered I) and II) You have to assume everything in the statement to be true. Then decide which of the two suggested courses of action logically follows.&lt;br&gt;A TV network 'HameshaVahi', shows a video recording of water scarcity parts of different states.&lt;br&gt;Course of action:&lt;br&gt;I) A movement of harvesting rain water, using water carefully, and recycling of water should be organized by network fans using communication facilities.&lt;br&gt;II) People should be made aware of what many villagers are doing to solve water scarcity problems.</p>	Only I)	Only II)	Nither I) nor II)	Both I) and II)	4

Q. no	Question Text	Option 1	Option 2	Option 3	Option 4	Right Option no.
10	Shown below are paper cut outs. Which one of these cannot be folded to get a three dimensional, regular and closed object?					1
11	Fill in the blank with the appropriate alternative :- The Films Division Ministry of Information and Broadcasting, Government of India on 16th October 2012 announced its plan of establishing a .....	National Museum of Indian Cinema (NMIC)	National Museum of cinematography	National Museum of Arts.	None of these.	1
12	Abu Jundal, key handler of .....terror attack has made a confessional statement before a Magistrate	Hyderabad blast.	Pune blast.	26/11 Mumbai.	Jama Masjid blast.	3
13	Which two new models have been launched by Mahindra (Two Wheelers) into the market?	Marvelous & Meghdoot.	Centuro and Pantero.	Vague and Dev.	None of these.	2
14	Fill in the blank with the appropriate option :- India and the U.S. have agreed to cooperate in future missions to ..... after successful collaboration in Chandrayan -1 lunar mission	Moon and Mars.	Neptune	Saturn.	Venus.	1
15	Give the full form of NATGRID	National Intelligence Grid.	National Geographic Industries Department.	Natural and Geographic Resources in Delhi.	National Technology Grid.	1

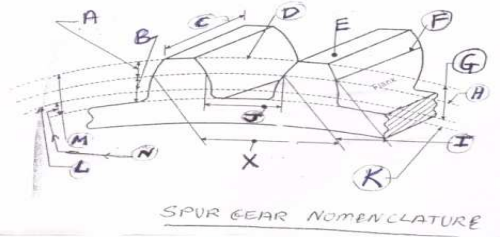
Q. no	Question Text	Option 1	Option 2	Option 3	Option 4	Right Option no.
16	Harassment of women at workplace Bill, 2012 deals with.....	Protection only.	Mere Rehabilitation.	Prevention, Prohibition and Redressal.	Restoration only.	3
17	The Economic Survey 2012-13 has forecasted India's economic growth at -----in the coming financial year i.e. 2014.	5.1-5.8%	6.1-6.7%	8.2-8.9%	7-7.6%	2
18	Union Government of India on 5th December 2012 cleared the decks for transferring the prime 12.5 acre United Mill land in Mumbai to the Maharashtra Government for building a state-of-the-art memorsial for an Indian revolutionary and political leader. Name the political leader.	Sardar Vallabh Bhai Patel.	Dr. B. R. Ambedkar.	Ramabai Ambedkar.	Balasaheb Thackrey.	2
19	Educational Consultants of India limited (EdCIL) a Public Sector Enterprise under the Ministry of HRD has been appointed as a consultant for prepration of a detailed project, layout plan and draft Act and statutes for setting up the first of its kind University in Binola, Gurgaon, District. Name the University :	Indian National Agriculture University.	Indian National Defence University.	Indian National Health University.	Indian National Politics University.	2
20	Who is the author of the book 'Bring up the Bodies'	Kiran Desai.	Hilary Mantel.	Howard Jacobson.	JK Rowlins.	2

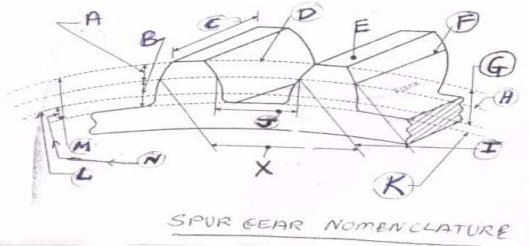
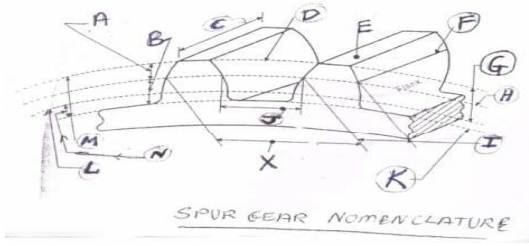
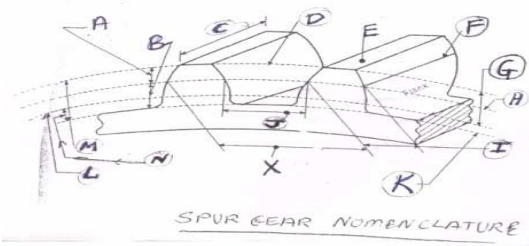
Q. no	Question Text	Option 1	Option 2	Option 3	Option 4	Right Option no.
21	The 45th Anniversary celebration of Independence of which country was attended by the President of India Mr. Pranab Mukharjee on the 12th March 2013 ?	Maldive.	Sri Lanka.	Vietnaam.	Mauritius.	4
22	Which is the first indigenously developed weaponised helicopter handed over to Indian Army on 8th February, 2013?	Rudra.	Varun.	Chetak.	Indra.	1
23	Microsoft is to retire windows Live Messenger in favour of Skype worldwide except in which country?	Canada.	Bhutan.	India.	China.	4
24	Fill in the blank with the appropriate option :-   A grand and glittering opening ceremony heralded the start of the Pepsi IPL 2013 in style at Kolkata's.....	Mohan Bagan Stadium.	Salt Lake Stadium.	Satyajeet Ray Stadium.	Eden Graden Stadium.	2
25	President Pranab Mukherjee gives his assent to the Criminal Law (amendment) Bill 2013. The new law states : (a) Capital punishment for rapist if the act causes death. b) Both men and women can be booked for committing such offence. c) Repeat offenders may also get capital punishment.  Which of the statements given above is / are incorrect :	A only	B only.	C only.	All are incorrect.	2

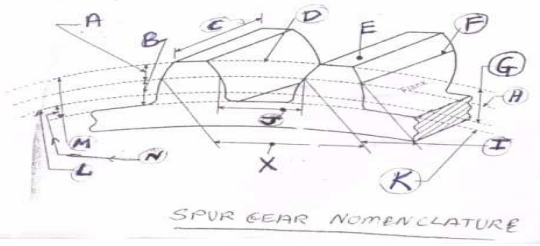
Q. no	Question Text	Option 1	Option 2	Option 3	Option 4	Right Option no.
26	Microvave oven is a device used for cooking the food, in which heat is .....I) Supplied from outside to the food materials. II) generated within the food materials. III) supplied to the pot then transferred to food materials.	I and II are correct.	Only II is correct.	Only III is correct.	I and III are correct.	2
27	Which of the following materials is / are thermally insulating a) Asbestos b) Glass wool c) Ceramics d) Cellulose	Only a	a and b	All	Only d	3
28	Which of the following statements is/are correct : a) Science is nothing but trained and organised common sense b) Science is systematic application of knowledge c) Science is studying and copying nature d) Science is the systematic and arganized inquiry into the natural world and it's phenomenon.	Only a	Only b	Only a & c	All	4
29	Which of the following are celestial objects ? A) Galaxy. B) Commet. C) Pulsars. D) Lichen	None	Only C & B	Only A, B & C.	Only D.	3
30	..... rocket acts as a decoy against incoming guided threats to naval ships.	Agni -5.	Kavach.	Bramhos.	Prithvi.	2
31	Genetics is a branch of science which deals with.....	Study of plants.	Study of behaviour.	Study of heredity and variation.	Study of marine animals.	3
32	The term FM in radio communication means.....	Frequent Madulation.	Fast Madulation.	Frequency Mediator.	Frequency Modulation.	4

Q. no	Question Text	Option 1	Option 2	Option 3	Option 4	Right Option no.
33	Who is known as the Father of Vaccination ?	Louis Pasteur.	Fdward Jenner.	Rosalind Franklin.	Ignez Semmelweiss.	2
34	From the animals given below whose bite causes Hydrophobia ?	Hydra.	Rat.	Donkey.	Dog.	4
35	What is the nickname of the atom bomb dropped on Nagasaki ?	Little Soldier.	Little Man.	Fat Man.	Fat Soldier.	3
36	Match the following : A) Alber Einstein. I) Theory of Evoluation. B) Charles Darwin II) Theory of Relativity.  C) Edwin Hubble III) Theory of singularity. D) Stefan Howking IV) Theory of expanding universe.	A-II,B-I,C-IV,D-III	A-II,B-IV,C-I,D-III	A-II,B-IV,C-III,D-I	None of the above.	1
37	In a solar cell which of the following effects is used ?	Peltier effect	Photo voltaic effect.	Photo catalytic effect.	Seeback effect.	2
38	Who amongst the following developed the first successful oral vaccination for polio ?	Jonas Salk.	Albert Sabin.	Prof. Barton Haynes.	Dr. Hilary Koprowski.	4
39	A device that integrates one or several laboratory functions on a single chip is called as.....	Integrated circuit.	Lab on a chip.	Microprocessor.	Semiconductor chip.	2
40	Long form of LASER is .....	Light Amplification by Stimulated Emission of Radiation.	Light Amplification and Sensing by Radar.	Light Analysis by Stimulated Emission of Radiation.	Light Analysis by Simultaneous Emission of Radiation.	1
41	Which kind of electromagnetic waves does RFID technology use ?	Microwaves.	Radiowaves.	X-rays.	Intra-Red waves.	2



Q. no	Question Text	Option 1	Option 2	Option 3	Option 4	Right Option no.
42	The 'Big Bang Theory' is associated with.	Origin of Life.	Origin of Languages.	Origin of Universe.	Origin of God.	3
43	Satya Narayan Gangaram Pitroda is the name associated with which revolution in India ?	Telecommunication Revolution.	Green Revolution.	Computer Revolution.	White Revolution.	1
44	H <sub>1</sub> N <sub>1</sub> is the name of virus which causes .....	AIDS	Leprosy	Influenza	Swine Flu.	4
45	Bone Marrows in our body are.....	Types of nerves.	Types of Tissues.	Types of bones.	Types of Muscles.	2
46	In animation technique which of the following principles is used ?	Persistence of vision.	Ultrasonics.	Interference of light.	Diffraction of waves.	1
47	What are the optical fiber cables made up of ?	Synthetic fiber.	Glass and plastics.	Insulators.	Silica.	2
48	Who was the first to make synthetic fibre ?	Terylene.	Rayon.	Polycrylon.	Nylon.	4
49	Which of the following gases is not responsible for air pollution ?	Nitrogen.	Carbon Monoxide.	Hydrogen Sulphide.	Carbon dioxide.	1
50	Which vitamin is necessary to absorb iron in the body ?	Vitamin C	Vitamin B	Vitamin D	Vitamin K	1
51	<p>What does Top Land refer to in the figure given below ?</p>  <p>SPUR GEAR NOMENCLATURE</p>	E	Both E and F	C and E	Only C.	1

Q. no	Question Text	Option 1	Option 2	Option 3	Option 4	Right Option no.
52	<p>What does X refer to in the figure given below ?</p>  <p>SPUR GEAR NOMENCLATURE</p>	Circular Pitch.	Tooth Space.	Clearance.	Face width.	1
53	<p>What does J refer to in the figure given below ?</p>  <p>SPUR GEAR NOMENCLATURE</p>	Circular Pitch.	Tooth Space.	Clearance.	Face width.	2
54	<p>Refer to the figure given below and pick out the correct option</p>  <p>SPUR GEAR NOMENCLATURE</p>	$M=A+B-G$	$M=G+N$	$N=G-A-B$	$G=A+B+M$	2

Q. no	Question Text	Option 1	Option 2	Option 3	Option 4	Right Option no.
55	<p>What represents the Tooth thickness in the figure given below ?</p> 	I	X	M	N	1
56	The volumetric efficiency of an air cooled engine is lower due to....	Simple engine design.	Use of fins on cylinder.	Higher cylinder head temperatures.	Higher specific output from engine.	3
57	..... turbo charging is based upon the idea of increasing the expansion ratio relative to compression ratio by means of early closure of inlet valve as the boost pressure is increased.	Pulse turbocharger.	Hyper bar turbocharger.	two-stage turbocharger.	Miller turbocharger.	4
58	For compression Ignition Engines minimum compression ratio is	7	9	12	10	3
59	In case of hydrocarbon fuel the stoichiometric fuel air ratio is about	1:15	1.12	12:1	1:18	1
60	The specific heats of gases increase with the rise in	volume	temperature	volume and pressure	None of the above.	2
61	The air standard otto cycle comprises	two constant pressure processes and two constant volume processes.	two constant pressure processes and two constant entropy processes.	two constant volume processes and two constant entropy processes.	None of the above.	3

Q. no	Question Text	Option 1	Option 2	Option 3	Option 4	Right Option no.
62	For the same maximum pressure and temperature of a cycle, which one is more efficient ?	Otto cycle.	Diesel cycle.	Dual combustion cycle.	None of the above.	2
63	The degree of supercharging in SI engine is chiefly limited by which one of the following ?	Knock	Detonation	Speed of the engine	Air-fuel ratio.	#
64	Which one of the following methods of determining the engine friction is applicable for diesel engines only ?	Morse test.	Motoring test.	Deceleration Method.	Willan's line method.	4
65	The injection of fuel directly into the combustion chamber without primary atomisation is known as....	Liquid injection	Solid injection	Air injection	Common rail injection.	2
66	The gear pump is of which type ?	Rotodynamic	Positive displacement	Negative displacement.	Hydrodynamic.	2
67	Which one of the following is true for the positive displacement pumps.	They can generate high pressure.	They have low power to weight ratio.	They have low volumetric efficiency.	None of the above.	1
68	In vane type pumps, vane throw is adjusted by adjusting the eccentricity between the rotor and the stator. More the eccentricity.....	Maximum is the discharge.	Minimum is the discharge.	Same is the discharge.	None of the above.	1
69	In case of gear pumps.....	Only spur gears are used.	Only helical gears are used.	Both spur and helical gears are used.	Spiral gears are used.	3
70	Axial pumps are bidirectional and are best suited for ...	High -pressure-high-volume	High -pressure-low-volume	Low -pressure-high-volume	Low -pressure-low-volume	2
71	For only hydraulic pump, delivery of a pump reduces with.....	Increase in pressure at constant speed.	Increase in speed at constant pressure.	Reduction in pressure.	None of the above.	1

Q. no	Question Text	Option 1	Option 2	Option 3	Option 4	Right Option no.
72	Which type of pump stops pumping of liquid further into the system when the predetermined pressure is reached ?	Balanced vane pump	Axial flow pump	Unbalanced vane pump	Pressure compensated vane pump.	4
73	How is the pump quality not rated in efficiency ?	Mechanical efficiency.	Overall efficiency.	Volumetric efficiency.	Pressure efficiency.	4
74	Evaluate the statement given below and choose the correct option : The flow rate capacity of any pump is dependent mainly on ...A) The geometric size of the pumping chamber. B) Rotational speed of the pump.	Both A & B.	Only A.	Only B.	None of the above.	1
75	Following is not the characteristic feature of a gear pump-	Self priming.	Bidirectional	No pulsation in the flow	Long-time dry run will not harm the pump.	4
76	Which of the following is not a type of casing or chamber of a centrifugal pump ?	Volute or spiral casing.	Vortex casing.	Volute casing with guide blades.	CUBIC casing.	4
77	In a centrifugal pump, the water..	enters the impeller axially and leaves the vanes axially.	enters the impeller radially and leaves the vanes axially	enters the impeller radially and leaves the vanes radially	enters the impeller axially and leaves the vanes radially	2
78	In a centrifugal pump, the liquid enters the impeller.....	at the top	at the bottom	from sides	at its center.	4
79	What is the slip responsible for in a centrifugal pump ?	Increases Cavitation.	Reduces the speed.	Reduces the flow rate.	Reduces the energy transfer.	4

Q. no	Question Text	Option 1	Option 2	Option 3	Option 4	Right Option no.
80	A four stage centrifugal pump with identical impellers develops a total head of 80m when running at 500 rpm. The outer diameter of impeller is 65 cm. What will be the head per stage ?	320 M	20 CM	60.5M	20M	4
81	In the casing of a centrifugal pump, the kinetic energy of water is converted into .....before the water leaves the casing.	Heat energy	Potential energy	Pressure energy	All of the above.	3
82	When the centrifugal pumps are placed in parallel then there will be.....	Increased total discharge.	High head.	decreased discharge	None of the above.	1
83	Which of the following centrifugal pumps will be utilised for high head and low discharge ?	Axial flow pump.	Mixed flow pump.	Radial flow pump.	None of the above.	3
84	If a centrifugal pump works at high suction head or high vapor pressure then.	cavitation will be formed.	Efficiency will be high.	No flow will take place.	None of the above.	1
85	The forward curved blading in case of centrifugal pump leads to...A) Increase of power input with increase of discharge.B) Increase of power input with decrease of discharge. C) The power curve is not self limiting and damage to motor is possible. D) Decrease of power input with increase of discharge.  Which of the statements given above is / are correct. :	A only	B & C only.	A & C only.	A, C & D.	3
86	Screw compressors are used for ..	air compression	refrigerant compression.	slurry motion	all of the above.	2

Q. no	Question Text	Option 1	Option 2	Option 3	Option 4	Right Option no.
87	Which of the following is a non-positive (Dynamic) type compressor ?	Axial flow.	Vane type.	Lobe type.	Screw type.	1
88	If P1, T1 are pressure and temperature at inlet and P3, T3 are pressure and temperature at discharge of two stage perfectly intercooled compressor system. Intermediate pressure will be .... (for minimum work)	$(P1+P3)/2$	$P1 \cdot P3$	$(3) \sqrt{P1 \cdot P3}$	$(4) T1 \cdot \sqrt{P1 \cdot P3}$	3
89	The ratio of work done per cycle to the stroke volume of a compressor is known as.....	Compressor capacity.	Compression ratio.	Compressor efficiency.	Mean effective pressure.	4
90	The rotary compressors are used for delivering.....	Small quantities of air at high pressure.	Large quantities of air to high pressure.	Small quantities of air at low pressure.	Large quantities of air at low pressure.	4
91	In a fire hazard area, prime mover used is	Petrol engine	Diesel Engine	Air motor.	All of the above.	3
92	In a four stage Reciprocating air compressor, if the delivery pressure at the first and the third stage is 1 bar and 16 bar respectively, then the delivery pressure at the fourth stage will be....	1 bar	16 bar	64 bar	256 bar	3
93	Method adopted for increasing isothermal efficiency of compressor...	Water Jacketing.	Inter-cooling.	External fins.	All of the above.	4
94	A $3 \text{ m}^3 / \text{min}$ compressor means that it ....	Compresses $3 \text{ m}^3 / \text{min}$ of standard air.	Compresses $3 \text{ m}^3 / \text{min}$ of free air.	delivers $3 \text{ m}^3 / \text{min}$ of compressed air.	delivers $3 \text{ m}^3 / \text{min}$ of compressed air at delivery pressure.	2
95	Centrifugal compressor does not have advantage over reciprocating compressor for / in	Considerably high efficiency.	Large size compressor needs less floor area.	Higher pressure increase per stage.	quiet in operation.	3

Q. no	Question Text	Option 1	Option 2	Option 3	Option 4	Right Option no.
96	As per the technical specifications of automotive vehicles, what is the Engine type used in TATA INDICA V2'02?	4 cylinder in -line.	5 cylinder, 4 stroke, in-line.	6 cylinder in-line.	None of the above.	1
97	In the present day racing cars ..... arrangement is preferred.	Central engine.	Rear engine rear wheel / drive.	Front engine front wheel drive.	Articulated vehicle's.	1
98	What is the function of a shackle with a leaf spring ?	control sideways.	allow spring to expand in length.	allow pivoting of spring end.	None of the above.	2
99	The correct flow of power through the driven train in automobile is .....	Engine-Driveshaft-Clutch-Mainshaft-Countershaft-Final driven gear-Wheels.	Engine-Clutch-Main shaft-Countershaft-Final driven gear-Driveshaft-Wheels.	Engine-Clutch-Countershaft-Main shaft- Final driven gear-Driveshaft-Wheels.	Engine-Main shaft-Countershaft-Clutch-Final driven gear-Driveshaft-Wheels.	2
100	Which of the following is not a defect of a chassis frame ?	broken weld.	dislocated parts.	cracks	knock	4
101	Due to driving or braking efforts, a load is acting at the centre of the wheel called as.....	Fore and aft load.	Vertical load.	Side thrust	Shock load.	1
102	Incorrect caster angle causes  a) Hard steering and develop a tendency to wander  b) Vehicle would pull to one side when the brakes are applied  c) Clutch fails to disengage  d) Excessive tension loss at engine operating temperature. Which of the above statements is / are correct -	a only	a & b only.	a, b and c	All of the above.	2



Q. no	Question Text	Option 1	Option 2	Option 3	Option 4	Right Option no.
103	..... are used to connect leaf springs with the chassis frame.	Spring shackles.	Torsion bars.	Helper springs.	Rubber torsion units.	1
104	As per Indian Automobiles engine specifications, small cars are considered .....	Up to 1000 cc	1000-2000 cc	More than 2000 cc	None of the above.	1
105	The steering and braking systems of automobile are parts of .....	Power plant of engine	Basic structure of vehicle.	Control system of vehicle.	Accessories of vehicle.	3
106	The commonly used material for frame construction is .....	cold rolled open hearth steel.	Brass	Copper	hot rolled steel.	1
107	Modern cars, using petrol as a fuel, has compression ratio of about.	6-7:1.0	9-10:1.0	18.0:1.0	12.0:1.0	2
108	The function of the propeller shaft is .....	to connect the engine to the drive wheels	to permit variation in speed	to permit sharp turns smoothly	a driving shaft for connecting the transmission of the main shaft to the differential at the rear axles.	4
109	In cars, generally..... chassis is used.	Full forward.	Semi forward.	Central.	Overhang.	1
110	Two meshed gears, where the small gear has twenty teeth and big gear has sixty teeth; for every three rotations of small gear, the big gear rotates.....	only once	three times	nine times	none of the above.	1
111	Pressure Relief Valve is used in case of .....	Gear Pump.	Vane Pump.	Piston Pump.	All of the above.	4

Q. no	Question Text	Option 1	Option 2	Option 3	Option 4	Right Option no.
112	Capacity of accumulator indicates amount of .....	Work done in lifting the ram	Lift of ram	Work done by accumulator per second.	Power supplied by accumulator.	1
113	Efficiency of which pump is the maximum ?	Gear Pump.	Lobe Pump.	Vane Pump	Piston Pump.	4
114	What is the slip of a pump ?	The difference between the actual discharge and theoretical discharge of the pump.	The difference between theoretical discharge and actual discharge of the pump.	The difference between Net positive head and Negative Net head.	The ratio of Ideal head to the actual head.	2
115	Noise level of which pump is the maximum ?	Gear Pump.	Vane Pump.	Piston Pump.	Screw Pump.	1
116	What type of motion must be produced in servo mechanism actuator ?	Angular or Reciprocating.	Linear or rotary.	Translatory and Angular.	Linear and Angular.	2
117	If $A_p$ is the area of piston & $A_r$ is the area of piston rod, then for extension stroke effective area 'A' is .....	$A = A_p$	$A = A_p - A_r$	$A = A_r$	$A = A_p + A_r$	1
118	What type of valve is a foot valve ?	Gate valve.	Ball Valve.	Non return or one - way type of valve.	Butterfly valve.	3
119	Which valve has variable positioning capability ?	Solenoid valve.	Pressure reducing valve.	Needle valve.	Servo valve.	4
120	The minimum speed required for starting a centrifugal pump is given by...	$① N = \frac{60 \times \eta_{man} \times V_{w2} \times D_2}{\pi [D_2^2 - D_1^2]}$	$② N = \frac{120 \times \eta_{man} \times V_{w2} \times D_2}{\pi [D_2^2 - D_1^2]}$	$③ N = \frac{300 \times \eta_{man} \times V_{w2} \times D_2}{\pi [D_2^2 - D_1^2]}$	$④ N = \frac{150 \times \eta_{man} \times V_{w2} \times D_2}{\pi [D_2^2 - D_1^2]}$	2
121	Following is the most widely used actuator of hydraulic system :	Vane	Gear	Pump	Hydraulic cylinder.	4
122	Rotary actuator is a device that converts hydraulic energy into :	Pressure	Velocity	Discharge	Rotational motion.	4

Q. no	Question Text	Option 1	Option 2	Option 3	Option 4	Right Option no.
123	The torque developed by hydraulic motor is a function of :	Displacement of hydraulic fluid.	Velocity of hydraulic fluid.	Acceleration of hydraulic fluid.	Pressure of hydraulic fluid.	4
124	In case of dual piston type limited rotary actuator, the linear motion of piston is converted into rotary motion by the..	Use of single cylinder mechanism.	Use of rack and pinion mechanism.	Use of vanes mechanism	None of the above.	2
125	In case of vane type limited rotary actuator, what creates a differential force on vane causing the vane to turn and thus rotate the shafts ?	Velocity difference in two chambers.	Volume difference in two chambers.	Pressure difference in two chambers.	None of the above.	3
126	Gear motors are used where the following conditions exist :	High speed and low torque	Medium speed and low torque	Medium speed and high torque	High speed and high torque.	2
127	The piston type motor is used to convert :	Mechanical energy into hydraulic energy.	Hydraulic energy into mechanical energy.	Mechanical energy into work energy.	Work energy into hydraulic energy.	2
128	The radial piston motor operates :	Same as the radial piston pump.	in reverse of the radial piston pump.	Both the above 1 & 2	None of the above 1 & 2.	2
129	The advantage of tandeming the cylinder is that :	Forces are added.	Forces are subtracted.	Forces are nullified.	None of the above.	1
130	The telescopic cylinder has a series of ...	Gears	Pistons.	Rams.	Vanes.	3
131	The distributor is a stationary assembly that supplies fluid to both the parts of ...	Tandem cylinder.	Telescopic cylinder.	Rotating cylinder.	Stationary cylinder.	3
132	In dynamic mounting cylinder has ...	Rotary freedom.	Linear freedom.	Angular freedom.	All freedom.	3
133	What are the advantages of hydraulic motors ?	Compactness.	Wide range of speed.	Explosion proof in nature.	All of the above.	4

Q. no	Question Text	Option 1	Option 2	Option 3	Option 4	Right Option no.
134	Hydraulic Motors are rated according to their ..	Displacement.	Torque capacity.	Maximum pressure limitation.	All of the above.	4
135	An actuator that gives linear motion as the output, is called as -	Stripper.	Cylinder or Ram.	Regenerative motor.	None of the above..	2
136	For hydrodynamic lubrication :	there should be external source like pump to supply lubricant under pressure.	there should be relative motion between the surfaces of the journal and the bearing and wedge shaped clearnce space.	there should be elastic deformation of the parts in contact.	there should be metal to metal contact.	2
137	S.I. Unit of absolute (dynamic) viscosity is...	N/mm <sup>2</sup>	N.mm/s	N.s/m <sup>2</sup>	N.mm	3
138	The most common extreme pressure additives are compounds of	Sulphur	Phosphorous.	Chlorine	All of the above.	4
139	Complete the following with the correct alternative : Rolling contact bearing as compared to sliding contact bearing ....	has lower starting torque.	requires considerable axial space.	generate less noise.	are costly.	1
140	A bearing is designated by the number X410. It means that it is a bearing of ...	light series with bore diameter of 10 mm.	heavy series with bore diameter of 50mm.	medium series with bore diameter of 50mm.	light series with bore diameter of 50 mm.	2
141	Frictional force is independent of ...	Sliding speed.	area of contacting surfaces.	normal load.	both 1 & 2	4
142	Brake shoe applied on rotating train wheel is an example of	dry friction	boundary friction	fluid friction	mixed friction	1

Q. no	Question Text	Option 1	Option 2	Option 3	Option 4	Right Option no.
143	If the friction force or sliding velocity varies as a function of distance or time and produces oscillations, it is called a .....	Cold weld.	Adhesion.	Stick-slip phenomenon.	Ploughing of hard asperity.	3
144	What is the process of removal of material by the impingement of particles at high velocity on component surfaces called ?	Corrosive wear.	Erosive wear.	Fretting wear.	Adhesive wear.	2
145	As per laws of adhesive wear the volume of the wear material is proportional to .....	the yield stress	the distance of travel	the load	the distance of travel and load.	4
146	The most common material used in making solar cells is ....	Silver	Silicon	Aluminium.	Iron.	2
147	Hydro electric power plants classified on the basis of head of operation, are...	ultra low, low, medium and light only.	low, medium and light only.	ultra low, low and medium only.	ultra low and medium.	1
148	Energy available when temperature of water at the surface of ocean is different from that at deeper levels is called....	Ocean thermal energy	Tidal energy	Sea water energy	None of the above.	1
149	Which instrument is used to measure solar radiation ?	Pyrometer only.	Thermocouple only.	Thermometer only.	Pyranometer only.	4
150	Maximum power that can be developed by a windmill is given by... where A-Area swept by wind mill rotor blades in $m^2$ , $\rho$ -Density of air in $kg/m^3$ , $m$ - mass flow rate of air in $kg/s$ , $V$ -Velocity of wind in $m/s$ .	1) $\frac{1}{2} \rho m V^2$ only	2) $\rho A V^3/2$ only	3) $\rho m V$ only	none of the above.	4

# ने दर्शविलेला प्रश्न रद्द करण्यात आला आहे.