DO NOT OPEN THIS TEST BOOKLET UNTIL YOU ARE ASKED TO DO SO

Test Booklet Series

Serial No.

327

C



SCREENING TEST - 2006

SUBJECT: MECHANICAL ENGINEERING

Time Allowed: Two Hours

Maximum Marks : **120**

INSTRUCTIONS

- 1. IMMEDIATELY AFTER THE COMMENCEMENT OF THE EXAMINATION, YOU SHOULD CHECK THAT THIS TEST BOOKLET **DOES NOT** HAVE ANY UNPRINTED OR TORN OR MISSING PAGES OR ITEMS, ETC. IF SO, GET IT REPLACED BY A COMPLETE TEST BOOKLET.
- 2. ENCODE CLEARLY THE TEST BOOKLET SERIES **A**, **B**, **C** OR **D** AS THE CASE MAY BE IN THE APPROPRIATE PLACE IN THE RESPONSE SHEET.
- **3.** You have to enter your Roll Number on this Test Booklet in the Box provided alongside. *DO NOT* write *anything* else on the Test Booklet.

Your Roll No.		

- 4. This Booklet contains 120 items (questions). Each item comprises four response (answers). You will select one response which you want to mark on the Respons Sheet. In case you feel that there is more than one correct response, mark the response which you consider the best. In any case, choose *ONLY ONE* response for each item.
- **5.** You have to mark all your responses *ONLY* on the separate Response Sheet provided. See directions in the Response Sheet.
- **6.** All items carry equal marks. Attempt *ALL* items. Your total marks will depend only on the number of correct responses marked by you in the Response Sheet.
- **7.** Before you proceed to mark in the Response Sheet the response to various items in the Test Booklet, you have to fill in some particulars in the Response Sheet as per instructions sent to you with your Admit Card and Instructions.
- **8.** While writing Centre, Subject, and Roll No. on the top of the Response Sheet in appropriate boxes use "ONLY BALL POINT PEN".
- **9.** After you have completed filling in all your response on the Response Sheet and the examination has concluded, you should hand over to the Invigilator only the Response Sheet. You are permitted to take away with you the Test Booklet.

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Time Allowed: Two Hours	the state of the s	fee same to	 a marite	Max., Marks
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те Аі	lowed: Two Hours	11/1/1 1/2000431905100 / 220
1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	A system of three forces acts on a body and keeps it in equilibrium the forces need to be (a) coplanar only (1957) (b) concurrent only (c) coplanar as well as concurrent (d) coplanar but may or not be concurrent The maximum velocity and maximum acceleration of a particle executing simple. Harmonic motion are 2 m/sec and 20 m/sec ² . The time period of	 4. Centrifugal governors are preferred to inertia type governors because an inertia governors (a) has less controlling force (b) is highly sensitive and more prone to hunting (c) poses problems in the balancing of inertia forces (d) has high initial and maintenance cost (d) has high initial and maintenance cost (d) has high initial and maintenance cost (e) Which of the following drives is best of the suited for large velocity ratios (2) (a) chain drive (b) spur gear drive became (5)
	motion equals: to the transfer of the	(c) helical gear drive $\{\chi_{t_0}, \dots, \chi_{t_0}\}$
	(a) π	(d) worm and worm wheel6. For a shaft rotating inside a bearing of
	(b) $\frac{\pi}{5}$	radius r, the radius of friction circle is equal to the radius of friction circle is
	(c) $\frac{\pi}{10}$	(a) r (b) r sin φ (c) r cos φ
	$\frac{36.1}{(d)} \frac{n_{\pi} n \cos 2 \cos n}{r \cdot 32i} = \frac{1}{12} 1$	(d) $r \tan \phi$ (b) where ϕ - friction angle.
3.	The number of links in a pantograph is (a) 3	7. The area under the stress-strain curve represents
	(b) .4 · · · · · · · · · · · · · · · · · ·	(a) breaking strength of material
٠, .	(c) 5	(b) toughness of material
	7 - 2	(c) · hardness of material
	(d) 6	(d) energy required to cause failure

8. For a beam of length <i>l</i> simply, supported at its ends and carrying	exchanger as compared to parallel
uniformly distributed load w per unit	
length, maximum bending moment	(a) higher to the instantion of
occurs at the centre of beam and is	in a (b) lower to an interplace of
The second of the second of the second	(c) same
given by (a) $\frac{wl^2}{d^2}$ regressions as $\frac{1}{2}$	(d) depends on the area of the heat
(b) $\frac{ivl^2}{4}$	exchanger _(included)
(b) 4 നെമുന്നും പ്രദ്യേഷ് നിലു വരിയുന്നും പ്ര	to a two stroke petrol engine
(c) $\frac{wl^{-}}{}$	ு(a) oflywheel ் பராங்கு மு
8	
(d) $\frac{wl^3}{8}$	(b) fuel injector (c) carburettor (c) carburettor
9. Stiffness of a material is expressed in	tan sie de beregeo e numerant de s
terms of the material is expressed,	.14. In a boiler superheating of steam is
(a) mass density to the	done at the second of the second
(b) hardness number in the contract of the con	(a) constant voluments are an
(c) modulus of elasticity	(b) constant temperature
(d) impact strength	(c) constant pressure
10. Suggest the welding process often	(d) constant entropy
used in joining rails	15. An economiser in a boiler
(a) thermal welding	(a) increases steam pressure;
(b) submerged arc welding	(b) increases steam flow
(c) thermit welding	(c) decreases fuel consumption
(d) percussion welding	(d) decreases boiler efficiency
11. Which of the following has maximum	16: "Th' and air compressor, intercooling is
thermal conductivity	done for the following effect
,	(a) to reduce the work input
(a) aluminium	(b) to reduce coolant temperature
(b) steel	(c) to increase cooling tower
(c) brass	efficiency
(d) glass (1 () () () () ()	(d) to increase the work input
ST-06/(MECH. ENGG.) - C	ु(३) ೨-(७३/००/३ ५) । । । । । । । । । । । । । । । । । । ।

	of air in 'a compressor, a drum is added to the system. The objective is	na i	not require quick return mechanism
	induction the system. The objective is		(a) slotter
÷	(a) to increase pressure		(b) planer
	(b) to increase mass flow	,	(c) shaper
	(c) to increase swept volume		(d) broaching (1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.
	(d) to reduce fluctuations	22.	Routing prescribes the
	•		(a) flow of materials in the plant
18. ·	The' suction ""pipe" diameter of refrigerating unit compressor in		(b) proper utilization of man power
	comparison to delivery pipe diameter is	i Palage	(c): proper utilization of machines
	(a) larger (40) = 3		(d) both (b) and (c)
	(b) smaller	23.	In which of the following layouts, the
•-	(b) Shaher	201	lines need to be balanced (2)
	(c) equal		(a) process layout:
Ante	(d) dependant on capacity	,	(b) product layout,
19.	Lithium bromide) in vapour	· August	(c) fixed position layout
	absorption refrigeration system is used	ام التعلق والوالد	(d) plant layout _ (r, , , , ,)
	as (4)	24.	Process layout is employed for
	(a) refrigerant		(a) batch production
	(b) cooling substance	,	(b) continuous production
•	(c) auxiliary refrigerant		(c) effective utilization of machines
. ,	(d) absorbent		(d) All of the above
20.	Air in Domestic Window Air	1	1 m ³ of air at a pressure of 100N/cm ²
 	Conditioner is dehumidified by	• •	is allowed "to expand freely to a
	(a) heating		volume of 10 m ³ . The work done will be
	1 30 1 30 2 (n v		(a) zero
	(b) cooling		(b) $10^6 \text{ N} - \text{m}$
	(c) injecting water		(c) $9 \times 10^5 \text{ N} - \text{m}$
•	(d) injecting steam 4 50		(d) none of these to in (
ST-06/(M	ECH. ENGG.) - C	(3)	→ 1,32% 5 P. T. O.
,	•	,	F, 1. U.

26. Which of the following parameters remains constant during ideal throttling process	30. Venturimeter is used to measure flow of fluids in pipes when the pipe is (a): horizontal
(a) pressure (b) temperature	(b) vertical (c) inclined (d) in any position
(c) volumed and the second of the substance is also known as (a) internal energy (b) entropy (c) thermal capacity of the second of the seco	 31. An elevator weighing 1 KN attains an upward velocity of 4 m/sec in 2 sec with uniform acceleration. The tension in the supporting cable will be (a) 1000 N (b) 800 N (c) 1200 N (d) 2000 N 32. If a body is having motion of translation as well as motion of rotation, then the total kinetic energy is given by (a) 1/2 (m+1)v²
displaced slightly, it oscillates about	(b) $\frac{1}{2}(m+I)w^2$
(b) centre of pressure (c) centre of buoyancy (d) metacentre (100)	(c) $\frac{1}{2}mv^2 + \frac{1}{2}Iw^2$ (d) $\frac{1}{12}m(v^2 + w^2)$
(a) orifice plate (b) venturimeter (b) (c) rotameter (c) rotameter (d) pitot tube (c) (c)	33. Two pieces of steel and brass of mass 2. kg and 1 kg respectively fall freely under the action of gravity from a tower. After a distance, the following will be identical (a) acceleration (b) momentum (c) kinetic energy (b)
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34. Two simply supported beams are of
equal length, one carries a central load
w and other carries a uniformly
distributed load such that the total
load is w. The ratio of maximum
deflection in the two cases is
(a) 8/5
(b) 8/6 Kroup (5)
11.00 (c) (8/7/0) trust to other cutt
nice section on a city of soil of soil of the control of the contr
the state of the s
35. Hoop stress in a thin cylinder of
diameter d and thickness t subjected to
internal pressure p will be
(a) $pd/4t$ $\frac{3}{2}$ $\frac{1}{4}$
(b) pd/t (c)
(c) $pd/2t$ ± 2.0 (b)
(d) 2 <i>pd/t</i>
151 1 1 1161 as it is sold as
or manuful support is one in
or has atwhich
(a) bending moment is same throughout the beam
(b) deflection is same throughout the
length
(c) the bending stress is same at every
section (i)
the beam 22 throughout
and the second of the
37. For 20° pressure angle involute profile,
minimum number of teeth on pinion will be
(a) 6. (d) 2 (2.11)
(b) 12 (c) 17 (c) 12 (c)
•
(d) 20

	•	•
38.	The minimum nuncan be cut for stand pressure angle φ is	lard tooth for given
	(a) $2\sin^2\varphi$	- द्वार ्
	(b) $\frac{\sin^2 \varphi}{2}$	Diwoo
endones t in the .et It the .et endls will re same	(c) $\frac{2}{\sin^2 \varphi}$ (d) $\sin^2 \varphi$ (d) $\sin^2 \varphi$ (d) $\sin^2 \varphi$ (e) $\sin^2 \varphi$ (f) $\sin^2 \varphi$ (g) $\sin^2 \varphi$ (h) $\sin^2 \varphi$	note of the second of the seco
n ड 40. एड	(d) combination die Füngsten content in cutting/tool-materiak	Thigh (speed steel
opposite A rith to See The positive arty	(a)) 16 % in olev land b) 4 % n in c) 0.1 % n in olev d) 1 % n in olev land d) 1 % n in olev land	(d) original
41. E	external screw threa croduced fastest by (ds can be mass (82 (4)
· (a	n) Milling	.ડેલ (ત <u>ે</u> ,
		at (c)
•	Casting '(;;) Rolling	ST (R)
(0	,	

ST-06/(M	ECH. ENGG.) - C	(0(6)	O - NORWELL MORESHED-FO
	अंग्राप्त (१)		05. (b)
	(d) 124 m (e) Crissian (a)		(d) none of the above (7) (7) (2)
	(c) 96 m Smssd 3 (d)		(c) both (a) & (b) d :;
	(b) 62.5 m gailfie (1)	.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	(b) density
e-1, a 9d	M. Catemat Rend Paragla and (a) 38 m d. mate. haste haste (b) m 88 (a)	ياللك المالي	y depends on <u>mino emil</u> आप प्रां(a)
	constant acceleration of 5m/s ² . distance covered is 5 s is most not to	ine	48. Thermal conductivity of glass woo
44.	A body moves from rest will constant acceleration of $5m/s^2$.	th 'a Vio)	(c) (d) T (d)
	(d) original velocity in the opp	osite 2.it	$\operatorname{hoot}_{\mathbf{c}}(\mathbf{b})$ if T^2 mass is reducible (d) \mathbf{c}
Hosti. Oc.	(c) half of the original velocity is copposite direction (n) (1)	•	(a) absolute temperature $(T)'$
	(b) half of the original velocity is same direction from (i.)	ni o	47. According to Stefan's law, the tota "" Fradiation "from" a ^{to} black! body a pe second per unit area is proportional to
	(a) original ^b velocity ⁿ in (the direction and behomens (a)	same	(c) 2 (d) (d) (d) (d) (e) (e) (e)
	velocities of separation of the ball be equal to \tag{vib alqmi} (b)	s will	internal pressure profit in (b) 0.5
(1) (4) 1	opposite direction before impact. it coefficient of; restitution, is $\frac{1}{2}$		$E = \frac{1}{2} \frac{1}{K_1} = \frac{2}{2} \frac{1}{K_2} \frac{1}{K_1} \frac{1}{K_1} \frac{1}{K_2} \frac{1}{K_1} \frac{1}{K_1} \frac{1}{K_2} \frac{1}{K_1} \frac{1}{K_1} \frac{1}{K_1} \frac{1}{K_2} \frac{1}{K_1} \frac{1}{K_1} \frac{1}{K_1} \frac{1}{K_2} \frac{1}{K_1} $
43.	The masses of two balls are in the of 2:1 and their respective yeld are in the ratio of 11:2 but in opposite direction before impact.	cities n the	46. The ratio of heat flow Q_1/Q_2 from two walls of same thickness having their thermal conductivities as
	(d) Oxy-acetylene = -		(d) moment $\frac{\partial^2 (a + b)}{\partial \lambda^2 + \partial \lambda}$
	(c) MIG $\frac{(i)^{2} \operatorname{Liz}_{2}}{2} (i)$		(c) couple
	(a) $_{ij}T$		(a) coplanar force
	of the maintain in the state of the maintain in the state of the state		45. When trying to turn a key into a lock following is applied

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49! The rélation between Young's modulus (E) and bulk modulus (K) is given by

(a) $E = K \left(1 - \frac{2}{m}\right)^{-n} e^{-r} I - r$ (b)

(c) $E = 3 K \left(\frac{2\pi}{m} \right) \text{dist}$ (d)

(c) Viscority

(d) Compressionth (d) E = 3 K | 2 - 4St. Tarbilen (M. 16/2 migrics)

the March 1997 and the where m is inverse of Poisson's ratio.

50. The shafts are designed for

copile to freedomp in mechast (b) w.(a) strength, some

Inc. net Home windburg the election (d) control (d) ragins to is desired to be written in with and (c) whoth (a) and (b) min- with through a pile of the for in it is it

Micromotion study is

- (a) enlarged view of motion study
- (b) analysis of only one stage of motion study
- (c) time study of small components up to microseconds
- (d) subdivision of an operation into therbligs and their analysis

21. 52: Which one is not a therblig! A or Estpa

(a) 25 KN/m

(b) $245 \text{ KN} / \text{m}^2 \cdot \text{bloH}'(\text{d})$

(c) Dispatch 11 NO 1000 (5)

(d) $2.5 \,\mathrm{KN}/\,\mathrm{M}^2$

(d) Inspection

When a gas is to be stored, the type of lag53. gaValueJwfornyalueJiengineering and analysis purposes is defined as

ែ (a) purchase valueរបស់ព្រ (ន)

(b) saleable value on viol (d) ...

(c) depreciated value (c)

· Ismarilo 4 (b) (d) function/cost

មិន. Caraot cycle has maximum d'iciency rol aldazilqqa si maroant s'illuonrad - :**47**

(a) Streamline flow (b)

(b) irreversible engine

(b) Steady flow

(c) - diesel engine

(c) Turbulent flow loated (b)

officere (d) Perfect incompressible official "flowing in continuous streams

In the case of steady flow of a fluid, the acceleration of any fluid particle is

> For 1 on a till (a) Constant

> (a) Erro (b) Variable

onthat (d)

(c) Zero

(c) infinite

(d) Zero under limiting conditions (d) ivegative

OTTENCO.

(8(7)

		, wys /	ST-00/(M FOH, ENCO.) - C
ST-06/(MECH	f. ENGG.) - C	. ((()8)	O COMM NO.
endillon (d)	vo .droin IIbrui oraz' (5) Negative		The moid (a) $q_0 = \frac{6A_2a^{\frac{1}{2}}A_{12}}{2\log_e \left(\frac{4A_{22}}{A_1}\right)}$ in the a
	Positive OTEN (2) Infinite	•	
(a)	Zero dels astrotto		$\frac{(c)}{\lim_{n \to \infty} \operatorname{qrt}(x)} = \frac{A_2 - A_1}{\lim_{n \to \infty} \left(\frac{A_2}{A_1^{-1}}\right)} \text{ order such that}$
	r $1 < n < K$, C_n will be $C_n = C_n$		$\frac{2\log_2\left(\frac{\pi^2}{A_1^n}\right)}{2}$ decises (c)
्रक्षिण हन्द्रिः संभित्तीमन्द्र	$\frac{n\pi}{n\pi}C_{v}\frac{n-k}{(n-1)}\cos(n\pi y)\omega_{v}$	ėş	$\frac{A_{1c}+A_{2}}{2\log_{c}\left(\frac{A_{2}}{A_{1}^{c}}\right)} = \frac{2\log_{c}\left(\frac{A_{2}}{A_{1}^{c}}\right)}{2\log_{c}\left(\frac{A_{2}}{A_{1}^{c}}\right)} = \frac{1}{2\log_{c}\left(\frac{A_{2}}{A_{1}^{c}}\right)}$
+na.ne	or polytropic process, the eat is given by the relation		(a) $\frac{A_1 + A_2}{2}$
) petrol engine in fur (a.		through a plane wall. For wall thickness, $(x_2, -x_1)$, the equivalent area Am would be
	ਅਰਮਿੰਟ੍ਰੀਸ਼ਗੋਰ ਦਾ) diesel engine ਦਾ ਮ	. •	radius r_2 is desired to be written in the same formulas that for heat flow
	p) irreversible engine		63. The heat flow equation through a cylinder of inner radius r_1 and outer
	a) reversible engine		(d) random component of velocity superimposed on mean flow
58. C	Carnot cycle has maximum e or contractions	efficiency	(c) transition from laminar and turbulent flow
. (0	d) isothermal)	(b) unsteadiness of flow
	c) constant volume		(a) non-uniformity of flam
	b) polytropic researches a		(d) Compressibility 62. Turbulence in flow implies
	a) adiabaticay கொலாம் (ந		(c) Viscosity
1.117 CHE	compression that i would maximum efficiency) is visu	he dideal	(a) Buoyancy. (b) Turbulence' (b) (c)
	When a gas is to be stored, the) ho trus = 6	with with associated
	(c) 2500 KN/ m ² doisus (d) 2.5 KN/ m ²	o)	(d) 15 - 20° 61. Navier Stokes equations and dimensions
	(b) 245 KN/m^2 bloH (c) 2500 KN/m^2		(b) 7-10° (-1) = 1 (n) (c) 10-15° (-1) = 1 (n)
	(a) 25 KN/m^2		(a) $2 - 6^{\circ}$
	equal to		79 Positive radial rake angle is
56.	F, costile on 25 in or nead	of water is	1160. In most high speed milling cutters,

over a fin	28. The efficiency of Ranking cycle
(a) increases effectiveness xim huborg (5)	ে a) increases with increase in exhaust
(b) decréases effectiveness व नाम् श्रामीख्य (व)	pressure to mile sub (6)
(c) does not influence effectiveness	(b) increases with decrease in
(d) influence only the fin efficiency	temperature of heat-rejection
noit in Lord to simple (b) 65. When a petrol engine is supplied with a	(c) decreases with more (a) in
76. Football and schefulling the control of the con	rection tended to a restanting rection 72.
(a) the engine will not run (b) the engine will consume more fuel	(d) is independent of temperature of heat rejection; rejection (i.) exhaust
(c) the engine will operative with reduced output	pressure grimal (if)
खित्रकात्रत्व (d) the exhaust will have dense black smoke induction மாட்டி (நி	69. A Bell Coleman cycle is a reversed
	(a) Brayton cycle house slope (b)
possibility of knocking can be reduced by runk and trov to crussem	es distributed of islanding paragraph of the unique by Atkinson cycles of the paragraph of
(a) increasing compression ratio	(c) Ericsson cycle
(b) decreasing compression ratio	முன்கள் மர்க்கை (ந) (d) Carnot cycle
(c) increasing the coolant temperature (c)	the state of the s
. (d) advancing the spark timing	70. Which of the efollowing type of compresser is generally used in domestic refrigerator (b)
means expectation heating surface in a boiler	ei tuoroi inere tarritari tarritari (a) ariali ariali (a) ariali (a) ariali (a) कर्णा करा कर्णा करा कर्णा कर करा
(a) area of grate (gorther (g)	(b) centrifugal (d. 1907)
(b) volume of furnace in (c)	•
(c) outer surface area of boiler shell	(c) mixed flowed famous (d)
(d) surface carea which is (in contact with flue gases	(d) piston type reciprocating thoyel not reop book (b)
ST-06/(MECH. ENGG.) - C	-9.T. Sumeon. ence.) - c

71. In orthogonal cutting, the cutting edge	75. The break-even-point is least aftected by
is perpendicular to (a) direction of tool travel, (b)	(a) increases effectiveness xim found (a)
(b) 'shear plane	esting price (d) (b) selling price
(b) in रहाज्य जाती संस्कृतिक in	(c) does not infivence effectivence
(c) direction of depth of cut	(c) fixed cost (d) (d) (e) (e) (e) (e) (e) (e) (e) (e) (e) (e
(d) mone of the above	ast. Wren a petrot enging is a special with the
72. The metal removal during machining	76. Routing and scheduling lare Lintegral
is by.	part of the engine will instruction the
to outsing of the second of th	(a) product planning odt (b)
(b) tearing	The proof of the study of the s
(c) shearing the should that the	(c) job analysis
(d) plastic distortion	(d) quality control
73. The process of making hollow castings from permanent mould by a close fitting core is known as	77. The expression $\int_{-\infty}^{2} p dv$ gives the measure of work done during
(a) centrifugal casting	(a) steady flow reversible process
(b) pressed casting	(b) non-flow reversible process
(c) slush casting	(c) open system and any process
(d) lost wax casting	(d) rany system and any process
74. Greater flexibility in plant, layout is achieved in case of	defines thermodynamics
(a) process layout in Transition	(a) entropy . Let
(b) product layout	(b) enthalpy (former (d)
(c) group layout	(a) refficiency has some (a)
(d) fixed position layout	്രാർത്താ (d) iinternal energy തിന്ന (b)
ST-06/(MECH. ENGG.) - C	V(io) o-(constraints)

79. Which of the following is can convolutely control (a) Carnot	Thorito, to the first many to the state of t
toirmitte, smill and some some some some some some some some	(a) increase tool life the control of
(c) All of the above transport	of idea (b) iprovide smooth pathorfor long
(d) None of the above (د)	on our emily of the one with
80. Streamlines, streak lines, and path lines are all identical in case of	(c) break the chips into short segments non (a)
(a) uniform flow (n \ e./. 1 (2)	(d) All of the above mon 3 (d)
(b) non-uniform flow (d)	20 mm 9 (2)
(c) steady flow (V. 10,0 (b)	84. Broaching is used for machining
Lie minuscial flow	(a) a elements (a) (a) (a) (a) (a) (a) (a) (b) (a) (b) (b) (b) (b) (c) (c) (c) (d) (d) (d) (d) (d) (d) (d) (d) (d) (d
81. In orthogonal cutting of metals the cutting edge is	(b) rounding Houriffegularl) shaped holes
(a) perpendicular to the shear plane	(c) teeth of a gear
(b) perpendicular/to the work piece	Ed. Wille and of the following syntax of the following syods and following sydds are followed by the following sydds and following sydds are followed by the following sydds and following sydds are followed by the following sydds and following sydds are followed by the following sydds and following sydds are followed by the followed
(c) perpendicular to the direction of	
tool travel (5) (d) none of the above	tup to ill gob because I () 85. Taylor's philosophy of scientific management pays attention to
82. Process layout $\frac{cN-iN}{(N-iN)}$ (b)	(a) Conversion inputs to desired
n (a), allows variety of products to be made on the same equipment	agba-cutputs a moramac! (ii)
demand white the property of	Breck-tvertpgggggggggg, (d)th
demand of 0001	(c) Planning of the appropriate
(c) less equipment offor, general purpose and less expensive	given value of the a
(d) All of the above 22.5° (b)	(d) Motion economy principles (c) decrease in unit contribution
(d) 15°	(d) All of the singve.
ST-06/(MECH. ENGG.) - C. (31.1)	O.T.9. ST-06/(MECH, ENGG.)-C

86. A soldering operation was work sampled over two days (16 hours) during which an employee soldered 108 joints Actual working time was 90% of the total time and the performance rating estimated to be 120%. If the contract (provides allowance of 20% of the total time available the standard time for the operation would be

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Blockery to D. Co.

- (a) 12 min
- (b) 8 min
- (c) 9 min
- (d): 10, min) Lyan a galabase
- 87. A tool signature comprises of
 - (a) 5 elements
- hard. (b),16 elements Albanic
 - (c) 7 elements
 - (d) 8 elements
 - **88.** While machining which of the following improves surface finish
- (a) Increased depth of cut
 - (b) Increased cutting speed (
 - (c) Increased feed rate
 - (d) Formation of built-up-edge
 - 89. Break-even point increases with
- increase in fixed cost
 - (b) increase in variable cost for a given value of price
 - eagrand / some a role (1) (b) (c) decrease in unit contribution
 - (d) All of the above
- ♥ .Y = ST-06/(MECH. ENGG.) C

- 90. Thermit welding differs from other methods of welding in the following way
 - (a) It does not use heating
 - (b) It employs exothermic chemical reaction, for developing high temperature
 - (c) It takes less time 2007.
- nic; (d) It does not require electrodes
 - 91. One poise is equal to 195 and
 - (a) $1 Ns/m_{H/P}^2$ maximum (5)
 - (b) $0.5 Ns/m^2$
 - (c) $0.1 \, \text{Ns/m}^2$
 - (d) $0.01 Ns / \vec{m}^{2/2}$
 - 92. If N_1 and N_2 are maximum and minimum equilibrium speeds, then sensitiveness of governor will be
- (a) $\frac{N_1 + N_2}{12 \cdot 2N_1}$ (b) $\frac{N_1 + N_2}{12 \cdot 2N_1}$
- (b) $\frac{N_1+N_2}{2N_2}$ ununuar $\frac{1}{2}$
- to realize ab sufficiency of the
 - (c) $\frac{N_1 N_2}{N_1 + N_2}$, we then
 - (d) $\frac{N_1 N_2}{2(N_1 + N_2)}$
- 93. A projectile is fired at an angle α, such that its horizontal range is 500 m.

 What is the angle α if the maximum horizontal range of the projectile is 1000 m.
 - 17 ... (a) 60° 11 hing 2 ... of (a)
 - (b) 45° west b.... sompting
 - (c) 22.5°9 remember 111 (F)

in the first of the Property of

(d) 15°

94. When the governor is over sensitive the sleeve will oscillate between the extreme positions on slight change speed. The governor is said to be	two rotating midway of his fall. The
(a) isochronous	(b) less than $\sqrt{2gh}$
(b) stable	(c) greater than $\sqrt{2 gh} (a)$ (d) less or more but never equal
(c) unstable	to $\sqrt{2 gh}$
(d) hunting	98. Which of the following metals has the lowest melting point
95. A bullet leaves the muzzle of a with a velocity of 400 m/Assuming constant acceleration for starting point to muzzle, what is time taken by the bullet to trave distance of 1 m through the gun bar	sec. (b) Silver the (c) Zinc el a (d) Tin
(a) 0.2 second	(a) Zinc base alloys
(b) 0.5 second (c) 0.005 second	(b) Aluminium base alloys (c) Non-ferrous metals (d) Cast Iron (d) Let (e)
(d) None of these	100. Lathe bed is made up of
96. For two springs having same stiffing (k) are in parallel, the equivant stiffness would be	
(a) $\frac{1}{4}$	101. S. I. unit of viscosity is
(b) $\frac{k}{2}$	(a) 10 times poise (b) 9.81 times poise
(c) k (d) $2k$	(d) None of the above
ST-06/(MECH. ÉNGG.) - C	(13) P.T. C

- 102. A mercury-water manometer indicates a gauge difference of 400 mm. The difference in pressure, measured in meters of water is
 - (a) 0.4
 - (b) 0.8
 - (c) 10.80
 - (d) 5.04
- 103. A most economical channel section is one which for a given cross-sectional area
 - (a) has maximum velocity of fluid
 - (b) has maximum discharge
 - (c) has maximum depth of fluid
 - (d) has maximum wetted perimeter
 - 104. The centre of gravity of the volume of liquid displaced by an immersed body is called
 - (a) Metacentre-
 - (b) Centre of buoyancy
 - (c) Centre of pressure
 - (d) Wet centre,
 - **105.** Multistage centrifugal pumps are used
 - (a). To produce high heads
 - (b) To give high discharge
 - (c) Both (a) & (b) together
 - (d) To pump highly viscous fluids

ST-06/(MECH. ENGG.) - C

- 106. The purpose of surge tank in a pipeline is to
 - ''(a) 'Smoothen the flow of water
 - (b) Minimise friction losses, in pipe
 - (c) Prevent occurrence of hydraulic jump
 - (d) To relieve the pressure due to water hammer
- **107.** The speed of a submarine can be measured by
- (a) Pitot tube
 - (b) Hotwire anemometer
 - (c) Pirani gauge
 - (d) Any of the above
 - 108. A disc of moment of inertia I_1 is mounted on a shaft of moment of inertia I_2 . What is the natural frequency of torsional vibrations, if torsional rigidity of shaft is q

$$\frac{\text{eff to now (b)}}{2\pi} \sqrt{\frac{q}{I_1^2}} = \frac{1}{2\pi} \sqrt{\frac{q}{I_1^2}}$$

(b)
$$\frac{1}{2\pi} \sqrt{\frac{q}{I_2}}$$

(c)
$$\frac{1}{2\pi} \sqrt{\frac{3q}{3I_1 + I_2}}$$

(d)
$$\frac{1}{2\pi} \sqrt{\frac{q}{I_1 + I_2}}$$

to a state of the transfer of the

110. The moments of inertia of a solid circular section of radius r and of a hollow circular section of radius r and R, each about their diametral axes are equal, then r (a) (b) R = 1.414 r (c) (c) R = 1.489 r (c) (d) Risinearly equal to r (d) (e) (f) (f) (f) (f) (f) (f) (f) (f) (f) (f
nollow circular section of radii r and R, each about their diametral axes are equal/then 1 in the (a) (b) 125° (c) R = 1.414 r (d) R is nearly equal to rife (b) (d) R is nearly equal to rife (b) (d) R is nearly equal to rife (c) (e) R = 1.489 r (f) The speed variations of the engine during a cycle for constant output load is reduced by a reduced b
each about their diametral axes are equal/then $x_1(x) = (x)$ (b) 125° (c) 235° (d) 200° (e) $R = 1.489 \mathrm{r}$ (f) $(x) = (x)$ (d) $(x) = (x) = (x)$ (e) $(x) = (x) = (x)$ (f) $(x) = (x) = (x) = (x)$ (g) $(x) = (x) = (x) = (x)$ (h) $(x) = (x) = (x) = (x) = (x)$ (f) $(x) = (x) = $
(b) 125° (c) R = 1.414 r (d) Ris nearly equal to rife (a) (d) Ris nearly equal to rife (b) (e) R = 1.489 r (f) (f) (g) (h) (h) (h) (h) (h) (h) (h
(b) R = 2 r (c) R = 1.414 r (d) Reis nearly equal to rife (a) (d) Reis nearly equal to rife (b) 110. The speed variations of the engine during a cycle for constant output load is reduced by a reference of noise of the engine (a). D-slide value (b) Governor (c) Elywheel (d) Mayer's expansion value (b) 111. The design of this cylindrical shells is based on (c) Late of the capacity is of a compresson of maintenance of the engine (d) Compressed air (e) (d) Compressed air (e) (d) Compressed air (e) (d) Compressed air (e) (e) Elywheel (f) Mayer's expansion value (f) (f) The design of this cylindrical shells is based on (a) high sensible heat
(c) R = 1.414 r (d) R is nearly equal to rife (a) (d) R is nearly equal to rife (b) 110. The speed variations of the engine during a cycle for constant outly load is reduced by a rife (b) and (c) (a) D-slide value (b) Governor (c) Elywheel (d) Mayer's expansion value (b) 111. The design of this cylindrical shells is based on (c) 235° (d) 200° (d) 200° 114. The capacity of a compresso 5 m ³ / min'refers to rife (c) (a) Standard air (b) Free air (b) Free air (c) Compressed air find (a) (d) Compressed air find (delimination) (e) Elywheel (f) Mayer's expansion value (f) 115. The refrigerant for for a prefriger should have
(b) R = 1.414 r (c) R = 1.489 r (d) R is nearly equal to pill r (e) R = 1.489 r (f) (f) (g) (h) (h) (h) (h) (h) (h) (h) (h) (h) (h
(d) Resinearly equal to rite (a) (d) Risinearly equal to rite (b) 110. The speed variations of the engine during a cycle for constant output load is reduced by a strong and seed are
(d) Reisinearly equal to rive (a) 110. The speed variations of the lengine during a cycle for constant output load is reduced by a received and received (a). Deslide value (a) Deslide value (b) Governor (c) Elywheel (d) Mayer's expansion value (b) 111. The design of this cylindrical shells is based on (d) Reisinearly equal to rive (a) 112. The capacity of a compresso 5 m³ / min'refers to 170 (a). Standard air (b) (d) Standard air (c) (e) Compressed air (delimination) (f) Compressed air (delimination) (h) Compressed air (delimination) (h) The refrigerant for (a) refrigerant should have (a) high sensible heat
110. The speed variations of the engine during a cycle for constant output load is reduced by a first of and (a). D-slide value (b) Governor (c) Elywheel (d) Mayer's expansion value (2) 111. The design of this cylindrical shells is based on (d) Reis nearly equal to $r^{(i)}$ (b) $r^{(i)}$ (c) $r^{(i)}$ (d) Compressed air $r^{(i)}$ (delignment) for table frights should have
110. The speed variations of the engine during a cycle for constant output load is reduced by a first of the engine (a). D-slide value (b) Governor (c) Elywheel (d) Mayer's expansion value (1) 111. The design of this cylindrical shells is based on (5 m³/min'refers to 100 (a). Standard air (a) (b) Free air (b) Free air (c) Compressed air (a) (d) Compressed air (a) (delimination of this cylindrical shells is should have (a) high sensible heat
110. The speed variations of the engine during a cycle for constant output load is reduced by a first of the engine (a). D-slide value (b) Governor (c) Elywheel (d) Mayer's expansion value (1) 111. The design of this cylindrical shells is based on (5 m³/min'refers to 100 (a). Standard air (a) (b) Free air (b) Free air (c) Compressed air (a) (d) Compressed air (a) (delimination of this cylindrical shells is should have (a) high sensible heat
the speed variations of the engine during a cycle for constant output load is reduced by a translation of the engine (a). D-slide value (b) Governor (c) Elywheel (d) Mayer's expansion value (b) (d) Compressed air fair (delignment) (e) Elywheel (f) The design of this cylindrical shells is based on (a) high sensible heat
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(a) D-slide value (b) Governor (c) Elywheel (d) Compressed air at delipressure (d) Mayer's expansion value (1) 115. The design of this cylindrical shells is based on (a) Compressed air at delipressure pressure pressure should have (a) high sensible heat
(c) Elywheel (d) Compressed air i at (deli (d) Mayer's expansion value (1) pressure (d) Mayer's expansion value (1) 115. The refrigerant for a prefriger should have (a) high sensible heat
(c) Elywheel (d) Compressed air i at (deli (d) Mayer's expansion value (1) pressure (d) Mayer's expansion value (1) 115. The refrigerant for a prefriger should have (a) high sensible heat
(d) Mayer's expansion value (1) 115. The refrigerant of for the prefriger should have based on (a) Mayer's expansion value (1) 116. The refrigerant of for the prefriger should have (a) high sensible heat
(d) Mayer's expansion value (1) 115. The refrigerant of for the prefriger should have based on (a) Mayer's expansion value (1) 116. The refrigerant of for the prefriger should have (a) high sensible heat
(d) Mayer's expansion value (1) 115. The refrigerant of for the prefriger should have based on (a) Mayer's expansion value (1) 116. The refrigerant of for the prefriger should have (a) high sensible heat
111. The design of this cylindrical shells is should have based on (a) high sensible heat
based on (a) high sensible heat
based on (a) high sensible heat
(a) hoop stress (a) high sensible heat
(a) noop stress
•
(b) longitudinal stress (b) high total heat
(a) vyolymotyi estyyyy
(c) volumetric stress (c) high latent heat
(d) average of hoop and longitudinal
stress (d) low latent heat
112. Deflection in a beam is maximum 116. Super heating in a refrigeration cyc
where the slope is
(a) increases Cop.
(w) hiereuses cop;
(a) Minimum
(a) Minimum (b) decreases Cop
(a) Minimum (b) decreases Cop (b) Maximum
(a) Minimum (b) decreases Cop (b) Maximum (c) Cop remains unaltered
(a) Minimum (b) decreases Cop (b) Maximum (c) Cop remains unaltered
(a) Minimum (b) decreases Cop (b) Maximum (c) Cop remains unaltered
(a) Minimum (b) decreases Cop (b) Maximum (c) Cop remains unaltered (c) Zero (d) other factors decide Cop
(a) Minimum (b) decreases Cop (c) Maximum (c) Cop remains unaltered (d) other factors decide Cop (d) Changes sign ST-06/(MECH. ENGG.) - C (15)
(a) Minimum (b) decreases Cop (c) Cop remains unaltered (d) other factors decide Cop (d) Changes sign

117. The Cop of a vapour compression plant in comparison to vapour absorption plant is	119. Heating and dehumidification can achieved simultaneously if air passed through
(a) more (b) less	(a) sprays of water maintained at temperature higher then the de point temperature of the enterin
(c) same	air (b) a solid absorbent surface
plant description on size of	(c) a liquid absorbent spray (b) (d) any one of the (b) and (c)
118. On psychrometric chart, wet bulb temperature lines are	
(a) horizontal	(a) dryness of air
(b) verticle (control of the control	(b) latent heat
(c) straight inclined sloping downward to the right	
(d) curved	(d) coolness of air
of the second se	
Boot in Material Co	Service for the transfer to
	the second of the second of the second
$\mathcal{D}_{\mathcal{A}}(\mathcal{A},\mathcal{A},\mathcal{A},\mathcal{A},\mathcal{A},\mathcal{A},\mathcal{A},\mathcal{A},$	fail betignes was mort de symbols (b) onte
- Alberta Carlo Banke (Alberta Alberta) (書)	i i tre di ciù i con escuele de la conse
$\mathbf{q}_{i}=\mathbf{g}_{i}$, \mathbf{g}_{i} , \mathbf{g}_{i} , \mathbf{g}_{i}	ru (le l
e e e e e e e e e e e e e e e e e e e	en e
·	