

Third Semester
Civil / CTM
Fourth Semester
PTDC Civil

MATERIAL TECHNOLOGY

Time : Three Hours

Maximum Marks : 100

Note : i) Attempt total five questions out of eight.

ÀÚÚ AnR>' | gonnM àíZn H\$nohb H\$(OE&

ii) In case of any doubt or dispute, the English version question should be treated as final.

{H\$gr ^r àH\$na H\$ g\$bn AWdm {ddnK H\$ pñW{V ' | A\$Or ^mf m H\$ àíZ H\$noA\$V' ' mZm Onf|dn&

1. a) Differentiate between dressing of stones and quarrying of stones. 3

nEWanp H\$s JT nB©VWm nEWanp H\$s I nB©' | A\$ a ñni>H\$(OE&

b) Why line of thrust is kept normal to natural bed of stone? 3
àUnK ad m (line of thrust) H\$noEWa H\$ ànH\$VH\$ Vb H\$ b\$ dV ³¶n| aI Zm Mnf|hE?

c) Explain in detail Geological classification of Rocks. 6
MAnZn H\$ ^y^u¶| dJuH\$au H\$no {dnVna gog' PnB¶|&

d) State the characteristics of good building stones. 8
{Z' nE H\$nf|H\$ {bE AAN nEWa H\$s {deFVnE±{b{I E&

2. a) Differentiate between conventional bricks and standard bricks. 3

nna¶|aH\$ BEn VVm ' mZH\$ BEn ' | A\$ a ñni>H\$(OE&

b) Why size of mould is kept slightly larger than the required size of brick? 3
BEn H\$s T nB©H\$ {bE à¶¶V hnzodnbo gnmloH\$m AnH\$na BEn H\$ dn¶j V AnH\$na goWn& n ~S n ³¶n| aI m OnVm h|?

- c) Write a short note on Hollow blocks and fly ash bricks. 6
 I ni boābnH\$ VWmCSZ aml (fly ash) B0. na gšj á {0šnUr {b{I E&
- d) Briefly describe method of preparation of bricks. 8
 B0. Hš {Z' nŃ H\$ {d{Y H\$m gšj m ' | dUŹ H\$ {OE&
3. a) Differentiate between Emulsion and Tar. 3
 B' ěgZ VWm O. na ' | Aŷ/a ņni>H\$ {OE&
- b) Why study of material technology is important for a civil engineer? 3
 {H\$gr {g{db BŃr{ZŲa Hš {bE nXnW@VH\$ZrH\$ H\$m AUŲŲZ H\$aZm ³ŲŲ
 ' hĭdnŲ©hĭ?
- c) Write a short note on tests for mortar. 6
 ' nŃ na {H\$Ųo OmZodnbo narj Unĭ na gšj á {0šnUr {b{I E&
- d) Write the names and prepare sketches of different steel sections. 8
 Also give their uses in engineering works.
 {d{^P àH\$na Hš BņnmV ' mZH\$ I ěS. Hš Zm {bI H\$a {Mĭ ~ZnBŲ&
 BŃr{ZŲ[aJ H\$mŲŲ ' ŲBZH\$m CnŲŲ H\$hmehnm hĭ, Ųh ^r ~VnBŲ&
4. a) Differentiate between fat lime and hydraulic lime. 3
 eŃ MZo VWm ObrŲ MZo ' | Aŷ/a ņni>H\$ {OE&
- b) Why gypsum is added during manufacture of cement? 3
 gr' Ų>H\$m CěnmKZ H\$aVo g' Ųĭ Cg' | {Obg' ³ŲŲ { ' bnŲŲm Onm hĭ?
- c) What is murum? Explain properties of murum for road work. 6
 ' Ń\$ ³ŲŲ hĭ? gS.H\$ H\$mŲŲ | CnŲŲ hmZodnbo ' Ń\$ Hš Ju ~VnBŲ&
- d) Describe various field tests of cement. 8
 H\$mŲŲWb na {H\$Ųo OmZodnbo gr' Ń>Hš {d{^P narj Unĭ H\$m dUŹ H\$ {OE&
5. a) Differentiate between crushing value and abrasion value of coarse aggregates. 3
 ' nŃ { ' bnŲŲ go g\$ŲYV g&bZ ' mZ VWm {ZKfŲ ' mZ ' | Aŷ/a ņni>
 H\$ {OE&

- b) What is reason behind bulking of sand? 3
 aW H\$ ' \$bZoH\$ nrN\$ 3qjm H\$naU hC?
- c) Write a short note on Grading of aggregates. 6
 {' bndm H\$ I UrH\$aU na g\$ j á {O\$ nUr {b{I E&
- d) What are the different tests applied on aggregates? Explain how fineness modulus of sand is determined by the sieve analysis? 8
 {' bndm na {H\$E OmZo drbo {d{^P narj U H\$nz -H\$nz go hC? MbZr {díbfU Únam aW H\$m gyú' Vm Jwrf\$ {H\$g àH\$na knV {H\$jm Om gH\$Vm h? dU? H\$(OE&
6. a) Differentiate between bleeding of concrete and creeping of concrete. 3
 H\$m\$H\$O>H\$ {Z:ÓdU VWm H\$m\$H\$O>H\$ ' \$d{d\$nu (creeping) H\$ -rM A\$ya ñni>H\$(OE&
- b) Why water-cement ratio of concrete is so important? 3
 H\$m\$H\$O>H\$m Ob-gr' O>AZmV AEq\$y ' hÍdny³qjm hnm/m h?
- c) Define cement concrete. State its principal ingredients with their functions. 6
 gr' O> H\$m\$H\$O>H\$s n[a^mfm Xr(OE& BgH\$ ' \$q Adqd VWm àÉq\$H\$ Adqd H\$m H\$m\$H\$O>VnBq&
- d) What is curing? Why it is necessary? Explain different methods of curing. 8
 VanB³qjm h? qh 3qjm Andíq\$H\$ hC? VanB³H\$ {d{^P {d{Yqjm H\$m dU? H\$(OE&
7. a) Differentiate between plywood and veneer. 3
 Bbm\$H\$O> VWm dr{Zq\$ ' | A\$ya ñni>H\$(OE&
- b) Why seasoning of timber is done? 3
 àH\$H\$O>H\$m g\$mfU 3qjm {H\$jm Om/m hC?

[4]

- c) Draw neat and explanatory sketches of the following defects of timber. 6
- i) Knot
 - ii) Rind gall
 - iii) Star shake
- d) Write characteristics of good timber. 8
8. a) Differentiate between paint and distemper. 3
- b) Why primer is applied before painting a surface? 3
 - c) Write a short note on varnish. 6
 - d) Name the different ingredients of paint and explain function of each ingredient. 8



F/2019/6172